

# 2019

RHODES UNIVERSITY

## RESEARCH REPORT



RHODES UNIVERSITY  
*Where leaders learn*



**NRF SARAO**  
National Research Foundation  
South African Radio  
Astronomy Observatory

# 2019

RHODES UNIVERSITY

## RESEARCH REPORT



A publication of the Rhodes University  
Research Office, compiled and edited by  
Jaïne Roberts, Jill Macgregor and  
Thumeka Mantolo.

### Research Office

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**RHODES UNIVERSITY**  
*Where leaders learn*

*Front Cover: Professor Justin Jonas on the MeerKAT site.  
Back Cover: North of the MeerKAT site, near Vanwyksvlei.  
Photos: Chris Marais*

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144	Department of Environment Science
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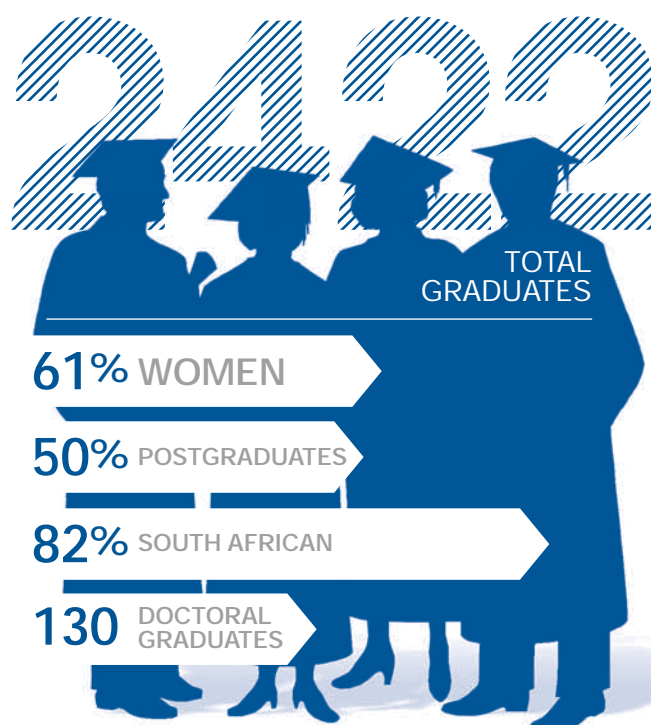
# FOREWORD

## The Vice-Chancellorate

Rhodes University is the only South African research-intensive university located outside a major urban area. Moreover, Rhodes is located in an impoverished region bedevilled with high levels of poverty and unemployment. This unique characteristic has significant implications for the way our mandate as a research-intensive institution is being fulfilled, and will continue to be fulfilled in the future. This unique context of Rhodes University is played out in the nexus between research, teaching and learning, and community engagement. Engaged research is a significant feature of our knowledge production, and we strive to make ourselves simultaneously locally responsive and globally connected.



**Dr Sizwe Mabizela,**  
Vice-Chancellor



The pages of this report outline the strong research trajectory of our institution, and the many facets of our work that give effect to our context, our local and national partnerships, and our collaborations on the African continent and beyond. Rhodes University is very fortunate to have outstanding, dedicated and committed academic and support staff who take a deep and keen interest in the growth, development and academic success of each and every one of our students, as well as in the social and natural environment that surrounds us.

A new category of Vice-Chancellor's Award was established to recognise a staff member who has made an extraordinary and distinguished contribution that builds and supports the intellectual work of the university, the sector, and the national

and international community of scholars, thereby significantly advancing the reputation of the institution, and which is not adequately recognised by the existing set of VC's awards. This is intended to be a prestigious award of the highest status in the university, awarded sparingly. The inaugural Vice-Chancellor's Distinguished Achievement Award was made to **Professor Justin Jonas** of the Department of Physics and Electronics, whose accomplishments are featured prominently in this report.

The Vice-Chancellor's Distinguished Research Award (in the age group 40 and below) for 2019 was awarded to **Dr Gladman Thondhlana** of the Department of Environmental Science, while the Vice-Chancellor's Distinguished Senior Research Award for 2019 went to **Professor Makaiko Chithambo** of



**Dr Peter Clayton,**  
Deputy Vice-Chancellor:  
Research and Innovation

the Department of Physics and Electronics. The Vice-Chancellor's Book Award was made to **Professor Sam Naidu** of the Department of Literary Studies in English.

The results of the 2019 academic year were celebrated during a virtual graduation ceremony in 2020 due to the global COVID-19 pandemic, in which a total of 2422 students graduated, 50% of whom were postgraduates, 61% were women, and 18% were international students. The virtual ceremony included a record number of 130 doctoral graduates.

Many of our outstanding scholars attracted external acclaim.

- **Distinguished Professor Tebello Nyokong**, our most famous scientist, continued to bring great intellectual profile and reputation to the university. Distinguished Professor Nyokong was recognised with the Lifetime Achievement Award of the International Society of Porphyrins and Phthalocyanines, at their annual meeting in New York, and was awarded her fourth Honorary Doctorate by Western University, Ontario, Canada.
- **Professor Janice Limson**, South African Research Chair in Biotechnology Innovation and Engagement, underwent a successful 5-year cycle review, and this SARChI chair was renewed for a further cycle of funding.

- **Rhodes University** was chosen to host one of four African Studies Centres as part of the African Cluster Centres Network supported by the German Federal Government in collaboration with Bayreuth University. The other Centres are at the University of Lagos, the Université Ouaga I Joseph Ki-Zerbo in Burkina Faso, and Moi University in Kenya. A multi-disciplinary team of researchers across a range of fields engaged in African studies developed our institution's proposal, led by **Professor Enocent Msindo**.
- **Distinguished Professor Catriona Macleod**, was included in the team from the International Women's Health Coalition who were invited to Washington to report to Congressional representatives on their work on the impact of the Trump Global Gag Rule.
- **Professor Jen Snowball** was an invited speaker on the Creative Economy at the United Nations Conference on Trade and Development (UNCTAD) expert meeting held at the Palais des Nations in Geneva, Switzerland.
- **Dr Marcelline Atemkeng** received the Kambule Doctoral Award at the Deep Learning Indaba 2019 held in Kenya. The adjudication committee cited his PhD thesis and subsequent Postdoctoral work as embodying the legacy of Thamsanqa Kambule for its strong technical contributions to the field of radio astronomy, and strengthening African machine learning.

Many other individual academics received widespread national and international acknowledgement of their work. Their fine accomplishments are contained within the pages of this report.

We extend our congratulations and thanks to all of our researchers, supervisors, collaborators, funders, donors, and partners who contributed to making 2019 a year in which research at Rhodes University flourished. Your expertise, integrity, dedication, rigour and generosity make Rhodes University the rich and distinctive intellectual space that it is.



## INTRODUCTION

### Jaine Roberts, Director: Research Office

In 2019 an inaugural award was made: the Vice-Chancellor's Distinguished Achievement Award was awarded to Professor Justin Jonas of our Department of Physics & Electronics. In 2000, Justin Jonas was one of only five (5) radio astronomers in South Africa and his department was almost closed down. Fortunately it was not and Professor Jonas went on to become a pivotal part of the SKA and MeerKAT. Our cover feature documents just a little of the long road from the seemingly impossible to the astonishing achievements of today.

Professor Sam Naidu's book *A Survey of South African Crime Fiction: Critical Analysis and Publishing History*, UKZN Press 2017, was awarded the Vice-Chancellor's Book Award for 2019. Professor Makaiko Chithambo of the Department of Physics & Electronics was the recipient of the Vice-Chancellor's Distinguished Senior Research Award, and Dr Gladman Thondhlana of the Department of Environmental Science was the recipient of the Vice-Chancellor's Distinguished Research Award.

Notably in 2019, seventy-seven (77) Postgraduate students, more than double the thirty (30) in 2018, were honoured at an event hosted by the Vice-Chancellor in November 2019, for publishing in accredited journals and for other achievements in research.

This Research Report shifts the focus to highlight a few of our many Postdoctoral Research Fellows. Rhodes University hosted ninety-eight (98) Postdoctoral Research Fellows in 2019 (in 2009 we had 43) funded through a wide range of resources: Rhodes University internal funding in the form of the core Research Office Postdoctoral Research Fellowships and through SANDISA IMBEWU; National Research Foundation (NRF) Free-standing, Grant Holder-linked and SARCHI funding; the Square Kilometre Array (SKA); Andrew W. Mellon Foundation; National Institute for the Humanities & Social Sciences (NIHSS); African Academy of Sciences; Grand Challenges Africa Drug Discovery; National Human Genome Research Institute; UNICEF Global Innovation Centre; the Department of Environment, Forestry & Fisheries; Global Challenges Research Fund (GCRF) Inequalities

*Left to right: Thumeka Mantolo, Manager: Research Administration, Jaine Roberts: Director and Jill Macgregor: Senior Administrator  
Credit: Simon Pamphilon*

and Skills Acquisition in Young People; and Abulon Holdings Limited (Abalone industry), amongst others.

Dr Ulandi du Plessis, a 2019 Postdoctoral Research Fellow at the Critical Studies in Sexualities and Reproduction centre, was awarded Best Submission by the British Psychological Society's Psychology of Women & Equalities Section (POWES) and the journal *Feminism and Psychology* for her submission on the governing of pregnancy in South Africa. Her submission, titled *Governing Pregnancy in South Africa: Political and Health Debate, Policy and Procedures* was awarded the highest possible score of 72/72.

While ninety-five (95) researchers held an NRF rating in 2019 and we maintained and grew our annual number of NRF grants to one hundred and thirty (130), further success was achieved by Dr Philani Mashazi, Department of Chemistry, in being awarded a R3.5 million NRF National Equipment Programme Grant.

An Argon Gas Cluster, allowing for analysis of soft material, biological molecules and chemical compounds, was purchased. Dr Mashazi was also selected to participate in the Department of Higher Education & Training's (DHET) *Future Professor's Programme*.

Rhodes University staff and students from the Geography Department contributed to a *Nature Communication* journal synopsis on global permafrost temperatures. The team, led since 2010 by Professor Ian Meiklejohn, worked in Antarctica (Western Droning Maud Land) as part of the South African National Antarctica Programme and included the first woman team leader of a South African field team in Antarctica, Dr Christel Hansen, a graduate of the RU Geography Department and Ms Tebogo Masebe, an MSc graduate of RU, who was the first black South African woman to be part of a field-based team working in Antarctica.

Our NRF SARChI Chair of Molecular and Cellular Biology of the Eukaryotic Stress Response, Associate Professor Adrienne Edkins, was awarded a Newton Advanced Fellowship from the United Kingdom Academy of Medical Sciences. These Advanced Fellowships support collaborative exchanges between South African researchers and researchers in the United Kingdom. Associate Professor Edkins is working with Professor Adrian Whitehouse of Leeds University, an expert in the molecular biology of a virus that causes Kaposi Sarcoma.

A consortium grant from the UK National Academies and the Global Challenges Research Fund (GCRF) saw eight (8) scientists announced as recipients of the GC Drug Discovery Initiative at the African Academy of Science in Nairobi in September 2019. These inaugural awardees of the GC Africa Drug Discovery initiative were selected from eighty (80) applicants across Africa and all three (3) of the South African scientists in the final eight (8) are from Rhodes University: Associate Professor Adrienne Edkins, Professor Ozlem Tastan-Bishop, and Associate Professor Heinrich Hoppe.

Distinguished Professor Tebello Nyokong was awarded a fourth Honorary Doctorate in 2019. Distinguished Professor Nyokong's Alma Mater, awarded an Honorary Doctor of Science, Honoris

Causa (D.Sc.) to her at the 313th Convocation of Western University, Ontario on 13th June 2019. Distinguished Professor Nyokong was also re-confirmed as an A2 Rated Scientist during the 2019 cycle of NRF Rating Evaluations.

An important conference, last hosted by RU 1995, was the 27th Biennial Conference of the Southern African Historical Society (SAHS) titled *Trails, Traditions, Trajectories: Rethinking Perspectives on Southern African Histories* was held in June 2019. Professor Enocent Msindo, Deputy Dean of the Humanities Faculty, is the SAHS President. All the countries in the Southern African Development Community (SADC) were part of the conference, along with delegates from Brazil, Canada, Holland, United Kingdom and the United States. A significant seminar on social and epistemic justice, part of the Andrew W. Mellon Foundation *Southern Epistemologies Seminar Series*, was hosted by the School of Journalism and Media Studies. Professor Boaventura de Sousa Santos of the University of Coimbra, Portugal, was the keynote speaker.

For the first time in the history of the South African Pharmacy Council (SAPC) and the Pioneer Pharmacy Awards, the 2019 Pioneer Pharmacy Award was awarded to an academic: Professor Rod Walker. These awards are held every three (3) years to recognize Pharmacy professionals and facilities from both public and private facilities, industry, and universities as leaders in the provision of pharmaceutical services.

A multi-disciplinary project, the *One Ocean Hub*, an international consortium of research and policy partners, was brought to Rhodes University by Dr Dylan McGarry. Dr McGarry is a co-Director on two (2) of the programme components. The twenty (20) million pounds sterling *One Ocean Hub* has fifty (50) partners, including internationally renowned research centres, development organisations and multiple United Nations (UN) agencies, and is funded through UK Research Innovation's (UKRI) Global Challenges Research Fund (GCRF).

The 2019 Research Report feature articles are but a very small part of all researchers and research currently undertaken at Rhodes, and the long publications listings under all individual departments confirm our wide-ranging span of research. We salute all the researchers maintaining and growing our reputation as a research-intensive university. I also pay tribute to the dedicated Research Office staff who work unceasingly to support our academics and Postgraduate students. Do look for the canines that have moved in as supporters of our research endeavours – two Service Dogs, Pearl with Dr Dylan McGarry and Guide Dog, Margot with Professor Lorenzo Dalvit, as well as a few companions. Missing photographically is Max, a German Shepherd dog, who worked with Citrus Research International (CRI) and our Centre for Biological Control (CBC) in being first finder of those worms in export destined fruit that can condemn a whole consignment.



Rhodes University acknowledges and congratulates the following for their accredited research outputs (Journal Publications, Books & Chapters, and Masters/Doctoral students graduated) in 2019:

1. **Distinguished Professor Tebello Nyokong**  
Department of Chemistry, Rhodes/DST  
Institute for Nanotechnology Innovation
2. **Professor Russell Kaschula**  
School of Languages and Literatures:  
African Language Studies
3. **Professor Charlie Shackleton**  
Department of Environmental Science
4. **Associate Professor Kirk Helliker**  
Department of Sociology and Industrial  
Sociology
5. **Professor Özlem Tastan Bishop**  
Department of Biochemistry and  
Microbiology
6. **Distinguished Professor Heila Lotz-Sisitka**  
Faculty of Education, Environmental  
Research Learning Centre (ELRC)
7. **Associate Professor Adrienne Edkins**  
Department of Biochemistry and  
Microbiology
8. **Professor Lorenzo Dalvit**  
School of Journalism and Media Studies
9. **Professor Rod Walker**  
Faculty of Pharmacy
10. **Professor Rui Krause**  
Department of Chemistry
11. **Professor Sam Naidu**  
Department of Literary Studies in English
12. **Professor Makaiko Chithambo**  
Department of Physics and Electronics
13. **Distinguished Professor Catriona Macleod**  
Department of Psychology, Critical Studies  
in Sexualities and Reproduction Research  
Unit (CSSR)
14. **Professor Gary Baines**  
Department of History
15. **Dr Oghenekaro Nelson Odume**  
Institute for Water Research (IWR), Unilever  
Centre for Environmental Water Quality
16. **Dr Philani Mashazi**  
Department of Chemistry
17. **Professor Steven Flowerday**  
Department of Information Systems
18. **Associate Professor Kenneth Ngcoza**  
Department of Education
18. **Professor Helena van Coller**  
Faculty of Law
19. **Distinguished Professor Martin Hill**  
Department of Zoology and Entomology,  
Centre for Biological Control
20. **Professor Lynette Louw**  
Department of Management
21. **Professor James Gambiza**  
Department of Environmental Science
22. **Associate Professor Sandile Khamanga**  
Faculty of Pharmacy
23. **Professor Oleg Smirnov**  
Department of Physics and Electronics,  
Rhodes Centre for Radio Astronomy  
Techniques & Technologies (RATT)
24. **Professor William Froneman**  
Department of Zoology and Entomology
25. **Professor Marc Schäfer**  
Department of Education, Mathematics  
Education
26. **Professor Warren Potts**  
Department of Ichthyology and Fisheries  
Science
27. **Mr Paul Wessels**  
School of Languages and Literatures:  
Creative Writing
28. **Associate Professor Michael Drewett**  
Department of Sociology and Industrial  
Sociology
29. **Associate Professor Julie Coetzee**  
Department of Botany
30. **Professor Noel Pearce**  
Rhodes Business School

## Faculty of Commerce (5 PhDs)

### DEGREE OF DOCTOR OF PHILOSOPHY

**BHANA, Bhavveer**, MCom (Fort Hare), in Information Systems, in the Department of Information Systems. Degree by thesis. Thesis: *Passphrase and Keystroke Dynamics Authentication: Security and Usability*.

Supervisor: Professor S Flowerday.

**CARY, Cynthia Bolen**, MBA (Midwestern State University), in Accounting, in the Department of Accounting. Degree by thesis. Thesis: *An investigation into the nature and adequacy of tax compliance tools available to assist small businesses in the State of Oklahoma in the United States of America*.

Supervisor: Professor E Stack.

Co-supervisor: Professor J Arendse.

**LEWIS, Olanrewaju Olurotimi**, MSc (Newcastle), in Information Systems, in the Department of Information Systems. Degree by thesis. Thesis: *The Integration of Personally-owned Information and Communication Technologies (PICTs) for Teaching and Learning in Resource-Constrained Higher Education Environments - The Case of a Nigerian University*.

Supervisor: Professor CJ Khene.

**SIMUJA, Clement**, PGDHE (Rhodes), MSc (Malawi) in Information Systems, in the Department of Information Systems. Degree by thesis. Thesis: *Transformative ICT education practices in rural secondary schools for developmental needs and realities: the Eastern Cape Province, South Africa*.

Supervisor: Professor K Krauss.

Co-supervisor: Professor CJ Khene.

**VAN DER SCHYFF, Karl Izak**, MSc (Rhodes), in Information Systems, in the Department of Information Systems. Degree by thesis. Thesis: *A Personality-based Surveillance Model for Facebook Apps*.

Supervisor: Professor S Flowerday.

## Faculty of Education (9 PhDs)

### DEGREE OF DOCTOR OF PHILOSOPHY

**CHIMPOLOLO, Andrew**, MA (Otago), in Education, in the Department of Education. Degree by thesis. Thesis: *Exploring learner attitudes and Mediation of heutagogical practices through the use of mobile technologies as learning tools: An intervention for a teacher-training programme in Malawi*.

Supervisor: Professor L Dalvit.

**DENUGA, Desalu Dedayo**, MSc (Lagos), in Education, in the Department of Education. Degree by thesis. Thesis: *An intervention on supporting teachers' understanding of and mediation of learning of stoichiometry in selected schools in the Zambezi Region*.

Supervisor: Professor KM Ngcoza.

Co-supervisor: Ms JD Sewry.

**GUNZO, Fortunate Takawira**, MEd (Rhodes), in Education, in the Department of Education. Degree by thesis. Thesis: *Teachers' perceptions, experiences and challenges related to using ICTs in teaching Social Sciences in marginalised classrooms in the Eastern Cape Province, South Africa*.

Supervisor: Professor L Dalvit.

**MADONDO, Nkosinathi Emmanuel**, MEd (UKZN), in Education, in the Department of Education. Degree by thesis. Thesis: *On locating the experiences of students from rural areas in higher education in the field of science*.

Supervisor: Professor EM Mgqwashu.

**MPHAHLELE, Matee Martha**, MBA (NWU), in Education, in the Centre for Higher Education Research, Teaching and Learning. Degree by thesis. Thesis: *Conceptualisations of and Responses to Plagiarism in the South African Higher Education System*.

Supervisor: Professor SM McKenna.

Co-supervisor: Dr D Layton.

**MUSARA, Ellison**, MEd (Nipissing University), in Education, in the Centre for Higher Education Research, Teaching and Learning. Degree by thesis. Thesis: *A comparative study of conceptualizations and practices of inclusion as an aspect of social justice in three teacher education institutions in Canada, South Africa and Zimbabwe.*

Supervisor: Professor JE Vorster.

Co-supervisor: Professor C Grant.

**NHASE, Zukiswa**, MEd (Rhodes), in Education, in the Department of Education. Degree by thesis. Thesis: *An exploration of how grade 3 foundation phase teachers develop basic scientific process skills using an inquiry-based approach in their classrooms.*

Supervisor: Professor KM Ngcoza.

Co-supervisors: Ms S Murray and Distinguished Professor H Lotz-Sisitka.

**PRAVIN MAVANI, Deepak**, MSc (Kerala), in Education, in the Department of Education. Degree by thesis. Thesis: *An analysis of how visualisation capabilities in dynamic geometric software develop meaning making of mathematical concepts in selected Grade 11 learners.*

Supervisor: Professor M Schäfer.

**SONGQWARU, Nonyameko Zintle**, MEd (Rhodes), in Education, in the Department of Education. Degree by thesis. Thesis: *A theory-based approach to evaluating a continuing professional development programme aimed at strengthening environment and sustainability education.*

Supervisor: Distinguished Professor H Lotz-Sisitka.

Co-supervisor: Professor I Schudel.

## Faculty of Humanities (25 PhDs)

**ARMSTRONG, Imomotimi**, MA (Ibadan), in African Languages, in the School of Languages and Literatures. Degree by thesis. Thesis: *Performance, functionalism and form in Izon Oral Poetry.*

Supervisor: Professor RH Kaschula.

Co-supervisor: Dr H Kunju.

**BASNET, Jagat Bahadur**, MPhil (Tribhuvum University), in Sociology, in the Department of Sociology. Degree by thesis. Thesis: *A critical analysis of the de-peasantisation process in Nepal with specific reference to the role of state land policies since the 1950's.*

Supervisor: Professor KD Helliker.

Co-supervisor: Professor P Jha.

**BELLO, Umar**, MA (Birmingham City), in English Language & Linguistics, in the Department of English Language and Linguistics. Degree by thesis. Thesis: *How to do things with speeches: a critical discourse analysis of military coup texts in Nigeria.*

Supervisor: Professor SA Hunt.

**BEZUIDENHOUT, Guillaume Jakobus Wolfaardt**, MA (Rhodes), in History, in the Department of History. Degree by thesis. Thesis: *History on trial: a study of the Salem commonage land claim.*

Supervisor: Professor GF Baines.

**BLAINE, Judith Anne**, MSc (Liverpool), in Psychology, in the Department of Psychology. Degree by thesis. Thesis: *Exploring the psychosocial outcomes of outdoor adventure education for adolescents in a South African setting, using mixed methods.*

Supervisor: Professor JE Akhurst.

**BOSMAN, Sean James**, MA (Rhodes), in English, in the Department of Literary Studies in English. Degree by thesis. Thesis: *Between nationalism and transnationalism: ostracism of transnationals from their diaspora spaces in selected South Asian, Latin American, and African transnational fiction.*

Supervisor: Professor S Naidu.

**COTTLE, Edward**, MCom (UNICAMP), in Social Policy and Labour Studies, in the Institute of Social and Economic Research. Degree by thesis. Thesis: *Long waves of strikes in South Africa: 1886-2019.*

Supervisor: Professor FT Hendricks.

Co-supervisor: Professor E Webster.

**DOCRAT, Zakeera**, MA (Rhodes), in African Languages, in the School of Languages and Literatures. Degree by thesis. Thesis: *A critique of the language of record in South African courts in relation to selected university language policies.*

Supervisor: Professor RH Kaschula.

**MADOLO, Yolisa**, MA (NMMU), in African Languages, in the School of Languages and Literatures. Degree by thesis. Thesis: *Uphicotho lweencwadi zabantwana ezikhethiweyo eziguqulelelwe esiXhoseni (Critical Analysis of Selected Translated isiXhosa Children's Books).*

Supervisor: Professor R Kaschula.

Co-supervisor: Dr MW Jadezwani.

**MADZIVIRE, Shamiso Christine**, MA (Wits), in Sociology, in the Department of Sociology. Degree by thesis. Thesis: *A sociological understanding of contemporary child marriage in Mabvuku, Harare, Zimbabwe.*

Supervisor: Professor KD Helliker.

**MATARUSE, Prolific Simbarashe**, MSc (Zimbabwe), in Political & International Studies, in the Department of Political and International Studies. Degree by thesis. Thesis: *Democracy assistance and its recipients: the complex case of Zimbabwean activists (1995-2016)*.

Supervisor: Professor S Matthews.

**MBUDE, Beryl Ntombizanele**, MA (Rhodes), in African Languages, in the School of Languages and Literatures. Degree by thesis. Thesis: *IsiXhosa as the language of teaching and learning mathematics in grade six: Investigating the mother tongue based bilingual education mathematics pilot in Eastern Cape Province, South Africa*.

Supervisor: Professor RH Kaschula.

**MTOLO, Siyathokoza**, MA (Rhodes), in Political & International Studies, in the Department of Political and International Studies. Degree by thesis. Thesis: *Walking at the intersection of Seamon's place ballet and Relph's insideness: Understanding how students experience the university as a place through their everyday habitual walking*.

Supervisor: Professor LD Vincent.

**MUSHONGA, Allan**, MA (Rhodes), in Sociology, in the Department of Sociology. Degree by thesis. Thesis: *'Being Regional': An analysis of the conceptualisation, operations and embeddedness of regional non-governmental organisations responding to HIV and AIDS in Southern Africa*.

Supervisor: Professor KD Helliker.

**NCIIZAH, Elinah**, MA (Midlands State), in Sociology, in the Department of Sociology. Degree by thesis. Thesis: *Climate change and rural livelihoods in Zimbabwe: adaptation by communal farmers in the Chivi district*.

Supervisor: Professor KD Helliker.

**NDLOVU, Nonhlanhla**, MA (Rhodes), in Journalism & Media Studies, in the School of Journalism and Media Studies. Degree by thesis. Thesis: *Zimbabwean women online - an investigation of how gendered identities are negotiated in Zimbabwean women's online spaces*.

Supervisor: Professor J Prinsloo.

**NIZEIMANA, John Bosco**, MSc (Zimbabwe), in Political & International Studies, in the Department of Political and International Studies. Degree by thesis. Thesis: *A comparative study of International Community (IC)'s implementation of the Responsibility to Protect (R2P) norm in Sudan and Libya: an examination of the contributory role of local actors that led to the IC's failure to holistically implement the R2P principle*.

Supervisor: Professor PH Bischoff.

**NKHALAMBA, Mathero Michelle**, MSc (Bangor), in Psychology, in the Department of Psychology. Degree by thesis. Thesis: *The lived experiences of women with human immunodeficiency virus (HIV) in Malawi: an Interpretative Phenomenological Analysis (IPA)*.

Supervisor: Professor CS Young.

**NOSILELA, Bulelwa Balise**, MA (Stell), in African Languages, in the School of Languages and Literatures. Degree by thesis. Thesis: *Making South African Tertiary Education Multilingual: The implementation, monitoring and evaluation of SANTED multilingualism projects 2007-2010*.

Supervisor: Professor RH Kaschula.

Co-supervisor: Professor P Maseko.

**PRAEG, Juanita**, MA (Rhodes), in Drama, in the Department of Drama. Degree by thesis. Thesis: *The political promise of choreography in performance and/as research: First Physical Theatre Company's manifesto and repertory, 1993 - 2015*.

Supervisor: Professor GE Gordon.

Co-supervisor: Professor K Katrak.

**QANGULE, Lumka Sybil**, MA (NMMU), in Psychology, in the Department of Psychology. Degree by thesis. Thesis: *An investigation of the experiences of psychotherapists regarding Ubuntu in their psychotherapy practice: an interpretative phenomenological analysis approach*.

Supervisor: Professor JE Akhurst.

**SWEENEY, Siobhan Sarah-Ann Kinahan**, MA (Rhodes), in Psychology, in the Department of Psychology. Degree by thesis. Thesis: *The precarious position of the 'good mother': A psychosocial study of maternal subjectivity of 'working mothers' in South Africa*.

Supervisor: Professor L Saville Young.

**VAN DER NEST, Megan**, MA (Philosophy), MA (Creative Writing) (Rhodes), in English, in the Department of Literary Studies in English. Degree by thesis. Thesis: *Sherlock Holmes fanfiction and freedom of the imaginary domain*.

Supervisor: Professor S Naidu.

**VAN ZYL, Kylie**, MA (Rhodes), in History, in the Department of History. Degree by thesis. Thesis: *"A position of great trust and responsibility": A social history of the Grahamstown asylum, 1875 - 1905*.

Supervisor: Professor GF Baines.

Co-supervisor: Dr CZ Tsampiras.



**WYRILL, Beth Alexandra**, MA (Rhodes), in English, in the Department of Literary Studies in English. Degree by thesis. Thesis: *The archival turn: rereading the Guy Butler collection in the National English Literary Museum*.

Supervisor: Professor DC Kloppe.

## Faculty of Law (1 PhD)

### DEGREE OF DOCTOR OF PHILOSOPHY

**CHIGOWE, Lloyd Tonderai**, LL.M (Rhodes), in Law, in the Faculty of Law. Degree by thesis. Thesis: *The Malabo Protocol and the principle of complementarity: towards establishing a complementarity regime governing the relationship between regional and international criminal courts*.

Supervisor: Professor L Juma.

## Faculty of Pharmacy (1 PharmD and 3 PhDs)

### DEGREE OF DOCTOR OF PHARMACY

**WANG, Ya-Ying**

### DEGREE OF DOCTOR OF PHILOSOPHY

**CHIKUKWA, Mellisa Tafadzwa Ruramai**, MSP (Rhodes), in Pharmacy, in the Faculty of Pharmacy. Degree by thesis. Thesis: *Formulation and characterization of a combined captopril and hydrochlorothiazide microparticulate dosage form*.

Supervisor: Professor SM Khamanga.

Co-supervisor: Professor RB Walker.

**RATH, Seeprarani**, BPharm, MPharm (India), in Pharmacy, in the Faculty of Pharmacy. Degree by thesis. Thesis: *Application of In Vitro Release Testing (IVRT) and dermatopharmacokinetic methods to assess the bioequivalence of topical drug products*.

Supervisor: Professor I Kanfer.

**WITIKA, Bwalya Angel**, MSP (Rhodes), in Pharmacy, in the Faculty of Pharmacy. Degree by thesis. Thesis: *Formulation development, manufacture and evaluation of a lamivudine-zidovudine nano co-crystal thermo-responsive suspension*.

Supervisor: Professor RB Walker.

Co-supervisor: Dr V Smith.

## Faculty of Science (42 PhDs)

### DEGREE OF DOCTOR OF PHILOSOPHY

**ACHEAMPONG, Mavis Agyeiwaa**, MPhil (Ghana), in Entomology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *Suitability of entomopathogenic fungal isolates for microbial control of citrus pests: biological traits*.

Supervisor: Distinguished Professor MP Hill.

Co-supervisors: Dr S Moore (CRI) and Dr C Combes.

**ADENIYI, Omotayo Kayode**, MSc (Nigeria), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Design of immunobiosensors for detection of tumour-associated anti-p53 autoantibodies: the method development*.

Supervisor: Dr PN Mashazi.

**ADESINA, Abiola Olanike**, MSc (Nigeria), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Design of immunosensors for the detection of C-reactive protein using oriented antibody immobilization*.

Supervisor: Dr PN Mashazi.

**ANGWENYI, Daniel**, MSc (Wits), in Environmental Science, in the Department of Environmental Science. Degree by thesis. Thesis: *Biodiversity conservation and rural livelihoods across four nature reserves in the Eastern Cape Province, South Africa: striving towards a balance between livelihoods and conservation*.

Supervisor: Professor J Gambiza.

Co-supervisor: Professor MJ Potgieter (University of Limpopo).

**BONNASSIEUX, Etienne Henri Joseph**, MSc (France), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Statistical analysis of the Radio-Interferometric Measurement Equation, a derived adaptive weighting scheme and applications to LOFAR-VLBI observation of the Extended Groth Strip*.

Supervisor: Professor OM Smirnov.

Co-supervisor: Professor P Zarka (Lesia/CNAP).

**BRYAN, Kate Louise Halse**, MSc (Rhodes), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Analysing emergent time within an isolated Universe through the application of interactions in the conditional probability approach*.

Supervisor: Professor AJM Medved.

**BUTLER, Edward Claude**, BScHons (Rhodes), in Fisheries Science, in the Department of Ichthyology and Fisheries Science. Degree by thesis. Thesis: *Understanding a West African recreational fishery as a complex social-ecological system: A case study of the fishery for giant African threadfin Polydactylus quadrifilis (Cuvier, 1829) in the Kwanza Estuary, Angola.*

Supervisor: Professor WM Potts.

Co-supervisor: Dr AR Childs.

**CHORUMA, Dennis Junior**, MSc (Zimbabwe), in Water Resource Science, in the Institute for Water Research. Degree by thesis. Thesis: *Exploring and modelling agricultural land management practices and climate change on agroecosystem services in the Eastern Cape, South Africa.*

Supervisor: Dr ON Odume.

Co-supervisors: Dr S Pietsch (IIASA) and Dr J Balkovic (IIASA).

**COMLEY, Jessica**, MSc (Rhodes), in Zoology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *Carnivore intra-guild competition in Selati Game Reserve, Limpopo Province, South Africa.*

Supervisor: Professor DM Parker (UMP).

Co-supervisor: Dr N Mgqatsa.

**DALU, Mwazvita Tapiwa Beatrice**, MSc (Rhodes), in Environmental Science, in the Department of Environmental Science. Degree by thesis. Thesis: *Unpacking the link between adaptive capacity, assets and responses of rural livelihoods facing multiple stressors in the Eastern Cape.*

Supervisor: Professor J Gambiza.

**DAWAM, Robert Rangmou**, MSc (Jos), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Thermoluminescence and photo-transferred thermoluminescence of synthetic quartz.*

Supervisor: Professor ML Chithambo.

**EDEGBENE, Ovie Augustine**, MSc (Delta State), in Water Resource Science, in the Institute for Water Research. Degree by thesis. Thesis: *Developing macroinvertebrate trait- and taxonomically-based approaches for biomonitoring wadeable riverine systems in the Niger Delta, Nigeria.*

Supervisor: Dr ON Odume.

Co-supervisor: Professor FO Arimoro.

**EGWUONWU, Afamefunu Victor**, MSc (Lagos) in Human Kinetics & Ergonomics, in the Department of Human Kinetics and Ergonomics. Degree by thesis. Thesis: *Musculoskeletal disorder incidence and the*

*influence of stakeholder interactions on the persistence of symptoms and disability perception in the Nigerian context.*

Supervisor: Dr JP Davy.

Co-supervisors: Professor M Göbel and Mr AI Todd.

**FOLLEY, Damilola Esther Olatunji**, MSc (Ibadan), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Dynamics of stimulated luminescence in natural quartz: Thermoluminescence and phototransferred thermoluminescence.*

Supervisor: Professor ML Chithambo.

**FRITH, Kelly-Anne**, MSc (Rhodes), in Biotechnology, in the Biotechnology Innovation Centre. Degree by thesis. Thesis: *Towards development of a malaria diagnostic: generation, screening and validation of novel aptamers recognising Plasmodium falciparum lactate dehydrogenase.*

Supervisor: Professor JL Limson.

Co-supervisor: Dr R Fogel.

**HAUPT, Philip Wouter**, MSc (NMMU), in Ichthyology, in the Department of Ichthyology and Fisheries Science. Degree by thesis. Thesis: *Reef fish association with benthic habitats at a remote protected coral reef ecosystem in the Western Indian Ocean - Aldabra Atoll, Seychelles.*

Supervisor: Dr A Bernard.

Co-supervisor: Dr J Turner.

**IHEANETU, Kelachukwu Joseph**, BSc (Nigeria), MSc (Fort Hare), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Modelling and investigating the primary beam effects of reflector antenna arrays.*

Supervisor: Professor OM Smirnov.

Co-supervisors: Dr JN Girard and Dr K Thorat.

**KAYEMBE, Jean-Pierre**, BScHons (DRC), MSc (Pret), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Synthesis of peptidomimetic compounds as HIV-1 protease inhibitors.*

Supervisor: Professor R Klein.

Co-supervisor: Professor PT Kaye.

**KIMUDA, Magambo Phillip**, MSc (Rhodes), in Bioinformatics, in the Department of Biochemistry and Microbiology. Degree by thesis. Thesis: *Computer aided approaches against Human African Trypanosomiasis.*

Supervisor: Professor AO Tastan Bishop.

**LAMING, Dustin**, MSc (Rhodes), in Biochemistry, in the Department of Biochemistry and Microbiology. Degree by thesis. Thesis: *Improved-throughput bioassays determining the efficacy rate of novel antimalarial and cytotoxic compounds using fluorescent vitality probes.*

Supervisor: Professor H Hoppe.

Co-supervisor: Professor AL Edkins.

**LIDZHEGU, Zwidofhelangani**, BScHons (Venda), MSc (NWU), in Water Resource Science, in the Institute for Water Research. Degree by thesis. Thesis: *A classification of large wetlands in Africa's elevated drylands based on their formation, structure, and hydrological functioning using Earth Observation (EO) data and a Geographic Information System (GIS).*

Supervisor: Professor WN Ellery.

Co-supervisor: Dr SK Mantel.

**MAKUNGU, Eunice Jesto**, MSc (Dar es Salaam), in Hydrology, in the Institute for Water Research. Degree by thesis. Thesis: *A combined modelling approach for simulating channel-wetland exchanges in large African river basins.*

Supervisor: Professor DA Hughes.

Co-supervisor: Dr SK Mantel.

**MALEMA, Mokaba Shirley**, BSc (Limpopo), BScHons (Wits), MSc (Limpopo), in Biotechnology, in the Biotechnology Innovation Centre. Degree by thesis. Thesis: *Assessment of the microbial quality of various domestic rainwater harvesting systems and the suitability of a nano-based treatment method.*

Supervisor: Professor R Tandlich.

Co-supervisors: Dr E Momba-Jaswa, Dr B Zuma and Dr J Mwenge Kahinda.

**MANGADZE, Tinotenda**, BScHons, MSc (Zimbabwe), in Zoology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *Ecological assessment of a temperate river system using complementary biomonitoring techniques: a case study of the Bloukrans river system, South Africa.*

Supervisor: Professor PW Froneman.

Co-supervisor: Dr T Dalu.

**MANYERUKE, Meloddy Hlatini**, MSc (Rhodes), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *The synthesis and evaluation of the medicinal potential of novel 4 - hydroxycoumarin derivatives.*

Supervisor: Professor RWM Krause.

Co-supervisor: Professor PT Kaye.

**MARTINS, Angelina Rosa Deo**, MSc (Oklahoma), in Environmental Science, in the Department of Environmental Science. Degree by thesis. Thesis: *The current role of palm species Hyphaene coriacea and Phoenix reclinata in local livelihoods in the Zitundo area, southern Mozambique.*

Supervisor: Professor CM Shackleton.

**MASEKO, Zolile**, BScHons (Zimbabwe), MSc (Rhodes), in Entomology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *The distribution and impacts of Eccritotarsus catarinensis and Eccritotarsus eichhorniae on water hyacinth in South Africa.*

Supervisor: Distinguished Professor MP Hill.

Co-supervisor: Professor JA Coetzee.

**MBABA, Mziyanda**, MSc (Rhodes), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Repurposing a polymer precursor scaffold for medicinal application: synthesis, characterization and biological evaluation of ferrocenyl 1,3-benzoxazine derivatives as potential antiprotozoal and anticancer agents.*

Supervisor: Professor SD Khanye.

Co-supervisor: Professor AL Edkins.

**MBOU SOB, Ulrich Armel**, BSc (Cameroon), MSc (Rhodes), in Physics, in the Department of Physics and Electronics. Degree by thesis. Thesis: *Addressing flux suppression, radio frequency interference, and selection of optimal solution intervals during radio interferometric calibration.*

Supervisor: Professor OM Smirnov.

Co-supervisor: Dr L Bester.

**MCEVOY, Orla**, MSc (Dublin), in Zoology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *The management of lions (Panthera leo) in small fenced wildlife reserves.*

Supervisor: Professor DM Parker (UMP).

Co-supervisor: Dr S Ferreira.

**MHLANGA, Xolane Reginald**, BScHons (Rhodes), in Geology, in the Department of Geology. Degree by thesis. Thesis: *A reappraisal of the origin of the Hotazel Fe-Mn Formation in an evolving early Earth system through the application of mineral-specific geochemistry, speciation techniques and stable isotope systematics.*

Supervisor: Professor H Tsikos.

Co-supervisor: Professor TW Lyons.

**NDHLOVU, Aldwin**, MSc (Rhodes), in Marine Biology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *Interactions of endolithic cyanobacteria and mussels*.

Supervisor: Distinguished Professor CD McQuaid.

Co-supervisor: Dr GI Zardi.

**OGUNTADE, Bukunola Kehinde**, MSc (Nigeria), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: Synthesis, characterization and adsorption properties of new Cu/Zn bimetallic organic frameworks using pyrometallic acid.

Supervisor: Professor GM Watkins.

**OSWALD, Krista Natasha**, MSc (NMMU), in Zoology, in the Department of Zoology and Entomology. Degree by thesis. Thesis: *An integrative approach to understanding vulnerability of an alpine range-restricted bird to climate warming*.

Supervisor: Dr B Smit.

Co-supervisors: Dr S Cunningham, Dr SE Edwards and Dr A Lee.

**PENNEFATHER, Sean Neil**, MSc (Rhodes), in Computer Science, in the Department of Computer Science. Degree by thesis. Thesis: *NFComms: A synchronous communication framework for the CPU-NFP heterogeneous system*.

Supervisor: Professor KL Bradshaw.

Co-supervisor: Professor BVW Irwin.

**SARRON, Arthur**, MSc (France), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Activity of diverse chalcones against several targets: Statistical analysis of a high-throughput virtual screen of a custom chalcone library*.

Supervisor: Professor KA Lobb.

Co-supervisor: Ms JD Sewry.

**SEKGOTA, Khethobole Cassius**, MSc (Rhodes), in Chemistry, in the Department of Chemistry. Degree by thesis. Thesis: *Synthesis of novel heterocyclic systems as potential inhibitors of HIV-1 enzymes*.

Supervisor: Professor SD Khanye.

Co-supervisor: Professor PT Kaye.

**SHEIK AMAMUDDY, Olivier Serge Andre**, MSc (Rhodes), in Bioinformatics, in the Department of Biochemistry and Microbiology. Degree by thesis. Thesis: *Application of machine learning, molecular modelling and structural data mining against antiretroviral drug resistance in HIV-1*.

Supervisor: Professor AO Tastan Bishop.

Co-supervisor: Professor NT Bishop.

**TAYLOR, Richard Peter**, MSc (Rhodes), in Fisheries Science, in the Department of Ichthyology and Fisheries Science. Degree by thesis. Thesis: *Resource recovery options in brewery effluent treatment using high rate algal ponds and activated sludge: assessing environmental impacts*.

Supervisor: Professor CLW Jones.

Co-supervisors: Mr RK Laubscher and Professor AK Cowan.

**UPFOLD, Nicole Sarah**, BScHons (Rhodes), in Microbiology, in the Department of Biochemistry and Microbiology. Degree by thesis. Thesis: *Exploring the structural integrity of the picornavirus capsid: prospects for vaccine and antiviral drug design*.

Supervisor: Professor C Knox.

**VAALTYN, Michaelone Chantelle**, MS, in Biochemistry, in the Department of Biochemistry and Microbiology. Degree by thesis. Thesis: *Hop/STIP1 as an anti-cancer drug target*.

Supervisor: Professor AL Edkins.

**VAN DER WALT, Kerry-Ann**, MSc (Rhodes), in Ichthyology, in the Department of Ichthyology and Fisheries Science. Degree by thesis. Thesis: *Thermal tolerance and the potential effects of climate change on coastal intertidal and estuarine organisms in the Kariaga Estuary and adjacent coastline, Eastern Cape, South Africa*.

Supervisor: Dr NC James.

Co-supervisors: Dr F Porri and Professor WM Potts.



RHODES UNIVERSITY

# VICE-CHANCELLOR' S DISTINGUISHED ACHIEVEMENT AWARD

Professor Justin Jonas







## Professor Justin Jonas: Star Man

Nelson Mandela once famously noted that things always seemed impossible until they were done. The story of Professor Justin Jonas and the Square Kilometre Array (SKA) is the perfect example of this.

In the year 2000, South Africa's prowess in the field of radio astronomy was on the verge of flickering out.

The country boasted a total of 5 radio astronomers and there was talk of closing down the only institution that offered courses in what was then a rather obscure field - Rhodes University's Department of Physics and Electronics.

There was one operational radio telescope: Hartebeesthoek Radio Observatory (HartRAO) near Johannesburg, that supported NASA's Apollo missions in the 1960s.

Fast-forward nearly 20 years, and everything has changed. Radio astronomy research is flourishing in South Africa with more than 100 PhD qualified researchers collaborating across all major universities.

Leading scientists from all over the world are conducting research using the data pouring from the 64 dishes of the South African MeerKAT radio telescope situated in the stillness of the Great Karoo. MeerKAT is the precursor of the international Square Kilometre Array (SKA) telescope, which will see another 133 dishes spread along curved spiral arms stretching across hundreds of kilometres.

The SKA and MeerKAT intercept radio waves generated by the birth and death of stars, detect the mysterious and powerful force known as dark energy, and record how the stars and galaxies formed just after the Big Bang.

And if any extra-terrestrial intelligence is sending signals to us through space, SKA will be the first instrument to hear it.

Here in the arid Northern Cape province, the person at the centre of this project, Professor Justin Jonas, walks among the giant cupped dishes as if they were old friends. He knows the story behind every aspect of their design, right down to individual nuts and bolts. Even so, he sometimes cannot quite believe that his wildest dreams have come true.

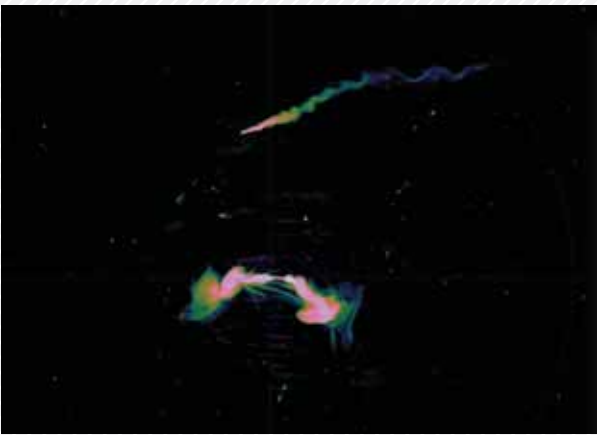
"I have to pinch myself. It happened, and it's working."

The story of how he came to be a central character in the building of one of the world's most sensitive scientific instruments involves a series of unlikely events, a startling amount of beer and popcorn, and a team fuelled by the stubborn belief that South Africa could pull it off.

*Introduction image: Professor Justin Jonas was directly involved in MeerKAT's unusual design of the reflector and sub-reflector. The asymmetric offset Gregorian optical design is key to the sensitivity and precision of the telescope*  
*Above: On the farm Groot Paardeberg, Professor Jonas found one of the quietest places in South Africa, protected by a ring of ironstone hills. But the valley was not quite big enough, so a neighbouring farm called Losberg was chosen instead*  
 Credit: Chris Marais



*The 7 Karoo Array Telescopes (KAT-7) have now been decommissioned, but as prototypes, they were remarkably effective*  
Credit: Chris Marais



*A cosmic mess: two very unusual-looking radio galaxies in the Norma cluster. Galaxy clusters can be interesting places, with unusual magnetic fields, and the combined mass of the cluster making for some interesting interactions. Here, one galaxy is clearly falling into the cluster, while the other shows some very unexpected filamentary features. Getting such a spectacular close-up view of these beasts is relatively rare, and finding two in the same image is a real treat.*  
Credit: Mpati Ramatsoku & RATT

## An Engineer Scientist

Professor Justin Jonas, recent recipient of the Rhodes University Vice-Chancellor's Distinguished Achievement Award, has variously been described as SKA-SA's spiritual guru, architect, politician, salesman and founder.

Justin deflects the glory to others, among them, his Rhodes University-educated school teachers. At Uitenhage's Muir College, he was taught mathematics by Mike King, and science by Allen Whitehead, who had been exposed to radio astronomy during his undergraduate years.

"Allen ran an extra-mural electronics club where members built radio antennas to attempt to pick up signals from the sun and Jupiter. We failed completely, but we did manage to build some pretty good amplifiers for rock music."

(Many years later, Justin would include the eerie keening whistle from Jupiter and David Bowie's hit song *Starman* in his inaugural lecture as Professor.)

The other enduring influence on Justin's life was his father. Len Jonas was a skilled carpenter and toolmaker with little formal education. He worked at Volkswagen, then at the CSIR's Wool Research Institute, designing, creating and testing machines to process fleece.

Justin's early interest in radio astronomy made Rhodes the logical choice for tertiary studies. His mentors there included Professor Eddie Baart (Physics) and Professor Pat Terry (Applied Mathematics) - both brilliant teachers, he notes. They also made a point of inviting students around for regular braais or suppers.

"Very early on, we realised that they were not gods. They were professors, but they were also approachable people, who partied and told jokes. There were no airs and graces. It made academia more accessible and fun."

During his Masters degree in which he mapped part of the southern sky using what was then South Africa's only major radio telescope at Hartebeesthoek, departmental research technician Peter Mountford resigned. Justin took over his mentor's job and later became a Senior Research Officer and Lecturer.

*"I steadily carried on mapping the sky for my PhD, recording the Milky Way's radio emissions. Although I could have submitted a PhD thesis within 3 years, I elected instead to do a complete survey of the southern sky, which took 15 years."*

The painstakingly gathered information in Justin's doctorate has been used extensively by radio astronomers around the world, attracting over 120 citations. The data featured in many studies, including one on cosmic microwave background radiation that was later awarded a Nobel Prize.



## SKA and Serendipity

Since 1990, radio astronomers from all over the globe had been gathering periodically to discuss a wild dream: the creation of an enormous and sensitive scientific instrument with a cumulative collecting area of one million square metres.

Simply called the Square Kilometre Array or SKA, it would be made up of thousands of receivers, all feeding back into major computing power and then sent around the world to be used for pure and applied science.

Like anyone in his field, Justin saw immense potential of the SKA, but had never had a chance to become involved. That changed in 2001, when President of the National Research Foundation, Dr Khotso Mokhele convened a meeting of scientists to brainstorm the next big project. Construction on the Southern African Large Telescope (SALT) in Sutherland had just begun - but projects of this magnitude typically require lead times of a decade or more.

Professor Patricia Whitelock of the SA Astronomical Observatory in Cape Town persuaded Justin to propose the SKA. He prepared 5 overhead projector slides outlining the case. By the end of that day, South Africa's participation in the SKA was identified as a priority, and Justin was chosen as point man.

So began a stage of Justin's life that would take him all over the world, meeting peers and heroes. The wide recognition of his PhD work provided ready access to senior researchers.

"I drank beer and pulled all-nighters with the good and great of the radio astronomy world."

## Hat in the Ring

Where would such a massive project be situated?

The list of requirements was long and exacting. Firstly, it had to be built in an extensive flat area, the land itself ideally ringed by sheltering mountains.

Radio telescopes need near-perfect silence in order to eavesdrop on the deepest secrets of the universe. Choosing a spot polluted by radio broadcasts, radar, cell phones and general activity would be like trying to tune into a whispered conversation across the room during a noisy cocktail party. So remoteness was key, yet the site would also need to be reasonably accessible to roads and powerlines.

**In addition, it would help if the host country had plenty of bright young minds who could provide the artisanal, engineering and scientific skills a mega-science project like this would need.**

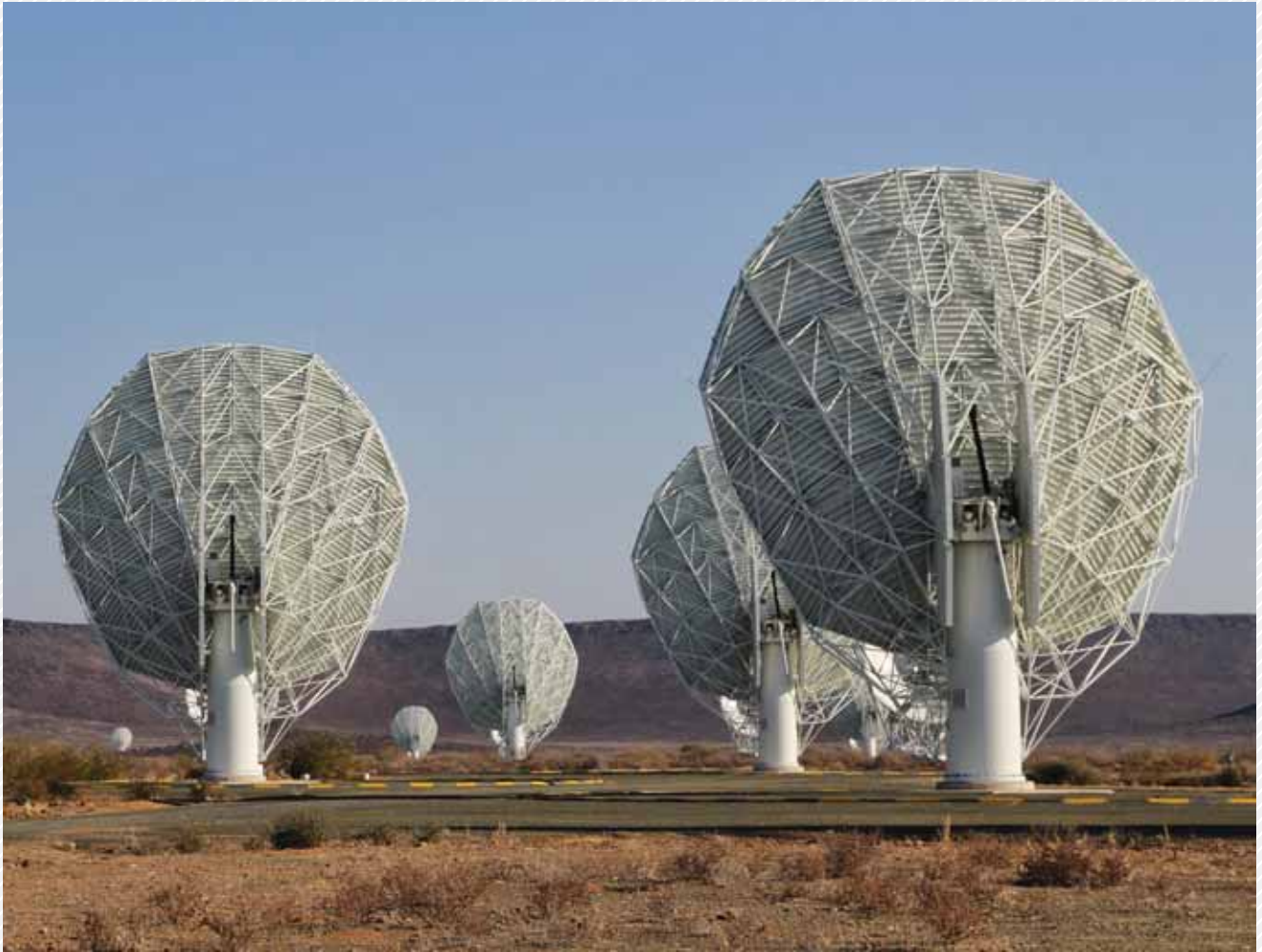
In late 2002, Justin, Dr Mokhele and HartRAO Director Dr George Nicolson went to meet Dr Rob Adam, Director-General of the national Department of Arts, Culture, Science and Technology (DACST).

Right from the beginning, Dr Adam was keen on South Africa competing to host the SKA. The scientists took along what they thought would be a reasonable project proposal and budget to find a suitable area.



*The quiet of the Karoo veld with only windpumps stirring*  
Credit: Chris Marais





*When aircrafts are taking off and landing at the nearby runway, all the dishes are swung away to protect their delicate instrumentation*  
Credit: Chris Marais

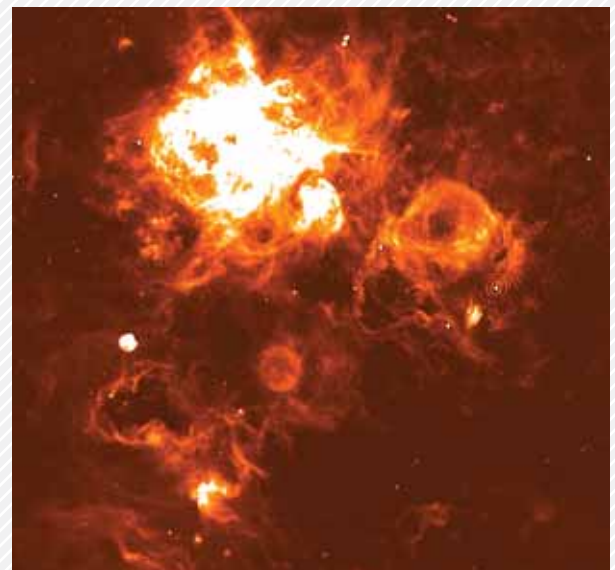
"Rob tore it up and told us to think big. We needed a substantial project with a professional manager, he said. And to be honest, that was the last proposal I ever submitted. I got to work on creating one of the biggest scientific infrastructures in the world, without actually asking for a cent. That alone is crazy. Now tell me I'm not a victim of circumstance! This is all pre-ordained somewhere."

By 2003, the South African government decided to compete to host the SKA. Rivals included Australia (widely tipped to win), Argentina with Brazil, and China.

South African radio astronomer and former trade unionist Dr Bernie Fanaroff was brought in as Project Manager. Justin and Bernie, with their complementary skillsets, would become a formidable team. They began attracting some of the best minds in the country to boost South Africa's participation in what would undoubtedly be one of the most ambitious science projects in the world.

## The Sweet Spot

Justin led a small team and started travelling around South Africa, looking for the most radio-silent sites, camping rough and setting up their sophisticated signal-detecting equipment at various locations. But this was, literally, child's play to Professor Jonas, who had first become fascinated by the empty spaces in his school atlas, including the very place where the 64 MeerKAT dishes now stand.

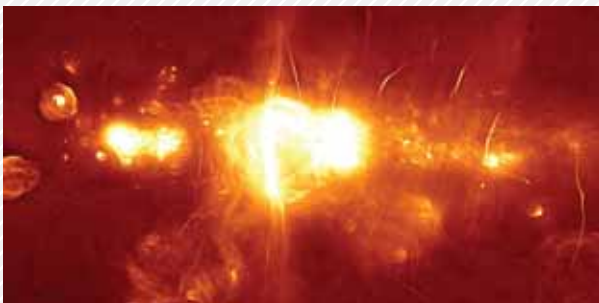


*The Tarantula nebula: first discovered by Nicolas de Lacaille on an expedition to the Cape of Good Hope in 1751-53, this is a massive starforming region in the Large Magellanic Cloud (a nearby satellite galaxy). If the Tarantula was as close to us as the Orion Nebula is, it would be bright enough to cast shadows at night. This spectacular MeerKAT image reveals the radio emission from hydrogen gas ionized by the ultraviolet radiation of the massive newborn stars.*

*Credit: Oleg Smirnov & South African Radio Astronomy Observatory*



*Professor Justin Jonas, walking among the MeerKAT radio telescopes with their 13.5m reflecting dishes. He knows every centimetre of their design and capabilities*  
 Credit: Chris Marais



*The inaugural MeerKAT image of the Galactic Centre. The bright complex at the centre surrounds Sgr A\*, the super-massive black hole at the centre of our Galaxy. We don't see the black hole itself of course, but the "fireworks" stirred up in the surrounding environment by its monstrous gravitational pull. The image also reveals a number of filamentary features, which are puzzling astrophysicists.*  
 Credit: Ian Heywood & South African Radio Astronomy Observatory

The site group eventually found their scientific sweet spot: the vast dry chunk of the Northern Cape that lies between Carnarvon, Williston, Vanwyksvlei and Brandvlei. Two farms in this area were purchased for detailed site analysis and the development of physical infrastructure.

This remote site is encircled by protective hills and mountains, but the scientists still have to deal with a blare of interference from a line-of-sight cell phone tower and the occasional blast of avionics from overhead flights.

When planes are taking off and landing at the nearby runway, all the dishes are swung away to protect their delicate instrumentation. Pilots have to land and take off by sight, the old fashioned way.

Anything that can generate an electromagnetic field is problematic. If a wire fence is not earthed or removed, and the wind howls through, "everything lights up like a Christmas tree," says Justin.

## Saved by Systems Engineers

In a report on the sequence of events and people leading up to the awarding of SKA, Justin recalls that once Government showed real commitment, the team kicked into high gear.

"For most of 2005 and 2006 we lived on popcorn, tuna salad and sweets, worked every night until at least 23h00, and then again on weekends." They got the results. South Africa was short-listed with Australia to host the SKA.

**In addition to competing for the site, South Africa committed to building the XDM and KAT-7 prototype radio telescopes - partly for science and partly to show that the country had the ability to build highly sophisticated instruments.**

XDM is a 15-metre dish built at Hartebeesthoek, and KAT-7 is an array of seven 12-metre dishes deployed on the Karoo site. A youthful, but highly skilled engineering team was established.

"We cut our engineering teeth on the prototypes, but at the same time, they delivered some amazing science. That wasn't expected."

The decision was made to get really serious and build a 64 dish array, wittily dubbed MeerKAT.

On his extensive travels, Justin Jonas kept abreast of the latest technology in his field. He would return from conferences, site visits and meetings completely over-stimulated, with new ideas for how these instruments could be built. Eventually, sense prevailed.





*The MeerKAT dishes, made up of discrete panels, are carefully engineered to offer a smooth surface*  
Credit: Chris Marais

"The engineering team said to me, Justin, whoa. We can't work like this. We've got to choose and take it from there."

A sensible systems engineering approach was taken, as had been followed for other large and complex projects such as the Apollo space programme.

"Basically, you don't start off asking 'what do I want to build?'. Instead you ask: what do I want to do with what I build? Those requirements become a technical specification, and you stick with them.

"It's like a V-shaped diagram," Justin explains. "You start up high with what you need it to do, then you break it down to lower and lower levels, sub-systems, individual nuts and bolts. You set markers to make sure the instrument performs the way it should at every stage of construction."

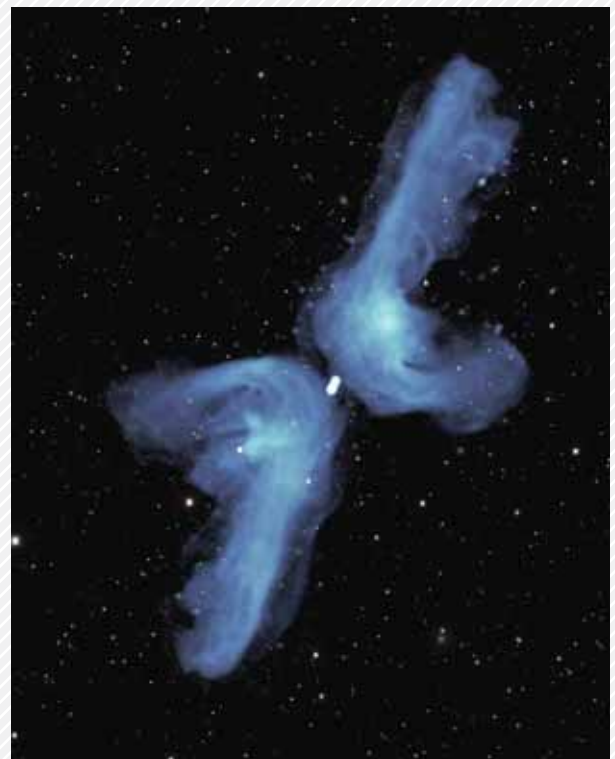
## Good News and Bad News

The project succeeded despite some serious Afro-pessimism. As passionately as Justin and the team believed South Africa could pull off a mega-science project like this, even they succumbed occasionally.

"There were people on the outside, but more importantly, people from inside who said this would never happen in South Africa. There was a widespread view that this was a step too far for South Africa, and it was a waste of money. If I hadn't been involved, I might have been saying similar things myself."

Yet every step of the way, Justin's luck held. So did the engineering.

"The biggest factor, I think, was that we stuck to our specifications, schedule and budget. Bernie pushed us. He'd



*An X-shaped giant radio galaxy, PKS 2014-55. Normal radio galaxies have a pair of jets shooting out into opposite directions, billowing out into lobes. The existence of X-shaped radio sources, with seemingly two sets of jets and lobes, has long puzzled astronomers. These MeerKAT observations reveal the mystery. There is only one set of jets, but due to some interaction with the surrounding environment, a backflow of particles flows back along the jet, and "bounces" off the gas contained in the galaxy, billowing off in a new direction.*  
Credit: Bill Cotton & South African Radio Astronomy Observatory

set us these goals and I'd think jeez we're never going to be able to do that. Bernie said yes you are. And we did. We're going to have this many dishes on the ground by this date, he said. And we did. We're going to be doing science by this stage, and we did."

It was Bernie Fanaroff who broke the news to Justin that South Africa had won the SKA site competition.

"I said rubbish, Bernie, there's no chance. He said no, really, we've won. Then I said, okay, what's the good news? This is far more than we can possibly deal with. And he said, well, now the work starts."

The planned MeerKAT radio telescope, consisting of 64 dishes equipped with highly sensitive receivers, has been built and is streaming out data.

A gigantic underground computer room, constructed like a Faraday cage to stop electromagnetic field interference, funnels the unimaginably massive torrents of data pouring out of the telescopes down the fibre optic cables to Cape Town and the world.

By the time of MeerKAT's inauguration in 2018, the telescope had already been delivering science.

"Few other telescopes in the world have even been turned on at their inauguration, let alone deliver a fantastic image of the galactic centre."

Now begins the construction of the internationally-funded SKA telescope. The first prototype dish has already gone up and the tests are being done.

Nearby is another collection of radio telescopes that look completely different. This is the Hydrogen Epoch of Reionisation Array (HERA), a project led by the University of California, Berkeley. Built using materials (wood, netting, and irrigation

pipings) from the local Carnarvon Swys en Bou hardware store, they stand a real chance of capturing ancient, stretched out 'fossil waves' from a few million years after the Big Bang, when the first stars ignited and their surrounding dust clouds became charged with radio waves.

These days, many of the scientists that Justin once flew all over the world to meet come here, to this singular place of radio silence in the Karoo. At the nearest town of Carnarvon, he takes them for drinks at the Blikkies Bar and lamb neck suppers at a local guesthouse.

## Big Data and Extra-Terrestrials

The other major benefit of SKA comes via the breakthroughs in handling the vast torrents of electronic data.

"What's coming out of there right now is nearly equal to the entire global internet traffic volume. It's happening 24/7. Of course, the sky never turns off, so the telescopes are streaming data all the time. The equivalent of 64 full-length movies is being generated every second of every day, and it's only going to grow."



*Around 30 farms were bought and incorporated into the radio reserve. One of the farmsteads at Klerefontein has been adapted as a headquarters for SKA technicians, staff and an artisan school. In the foreground are prickly pears, often used by livestock farmers as drought fodder*

*Credit: Chris Marais*



"You've got to process that information very quickly, because you can't hold onto it unless you compress it down. Nothing can store that kind of volume right now. But engineers are working on hyper-fast supercomputers, and un-throttling data flow rates."

Meanwhile, help is coming from an unexpected quarter - the Search for Extra-Terrestrial Intelligence (SETI). The Breakthrough Listen organisation has its own bank of extremely powerful computers in the underground bunker.

"We don't schedule observations for them. They just take whatever is coming out of the telescope all of the time, no matter where it's pointing, and use it for their purposes. It's all serendipitous. They are what we call secondary commensal observers."

"We have 2 levels of observation. A primary observer is one who says: I want to look at that part of the sky - that's my target. Then you get a secondary observer. Wherever the telescope is pointing, they observe and try to find transients, pulsars and other things that go ping or blip in the night."

"The SETI people are recording data non-stop, and looking for unusual signals. It would have to be something completely regular, but not like a pulsar which can also flash like clockwork. What would be a sure sign is a very narrow frequency signal, something like radar or a television transmission. The strongest signals we humans blast out are radar. It makes sense that another civilisation would have radar as well. You are looking for that signature."

"Some of the other scientists regard the SETI people as a little, um, eccentric. But they're not blocking off anyone else's time, so they're tolerated. Of course if something is detected, everyone and his dog will say they're a SETI supporter."

But SETI is really advanced in terms of signal detection - a skill that can have many different kinds of applications.

"For us it's a human capital development driver. Students who work on SETI learn fantastic skills."

## Back on the Ground

Watching a small herd of springbok amble through the 3-thorn shrubs on the edge of the dishes, Justin Jonas confesses he would love to be back at the SKA site more often. Most of his time these days is split between Rhodes University, Johannesburg and Cape Town.

On the road, he often has to pull over to hold a Zoom meeting under a thorn tree.

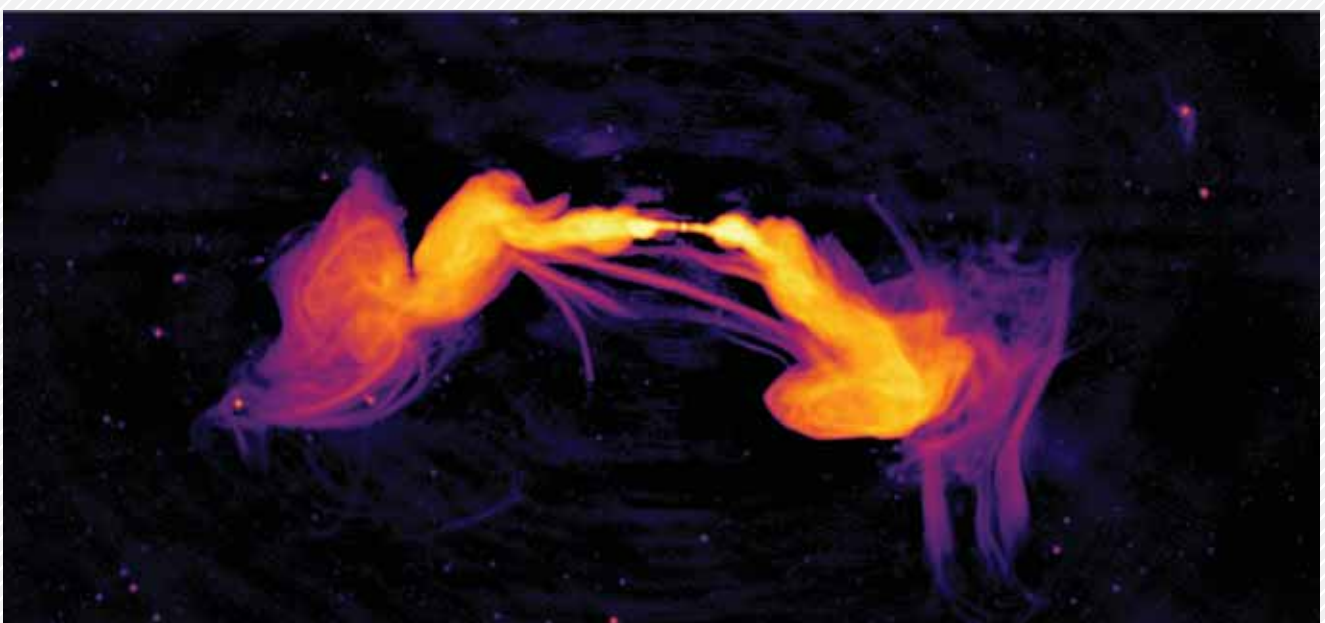
SKA has become the focus of all kinds of research. Most of it centres on data storage and flow, cosmology and astrophysics. But there are also students placing camera traps throughout the 120 000 hectares around the radio telescopes (recently promulgated as the MeerKAT National Park) to find out more about the wild animals returning to these former sheep farms.

A team from the Rhodes-based Centre for Biological Control is investigating how to deal with the invader mesquite tree (*Prosopis*).

"I helped start the thing and I've given it some direction. But it took on a life of its own after that. There are people who are driven to know how the universe works. Then there are people like me, who want to build things to discover more."

"I'm just a research enabler. I build the equipment that allows the science to be done."

By Julienne du Toit



A close-up of the "monster" from the first image. ESO137-006 is another very irregular looking radio galaxy. The "normal" jets and lobes are to be expected, but the bright-threads linking the lobes are completely unexpected, and so far unexplained. This is an example of the sort of serendipitous discoveries made possible by MeerKAT's incredible imaging capabilities.

Credit: Mpati Ramatsoku & RATT

## Space in the Radio

### How would the night sky look if we saw things the way radio telescopes do?

Translated into images on a computer screen, the signals reflect a view of space that looks vaguely similar to what we might see through an optical telescope. The Milky Way is much brighter but recognisable, along with the Large and Small Magellanic Clouds, Orion and closer up, Jupiter. But there are spectacular differences.

Right across the firmament are the outlines of supergiant spheres - the fading remnants of exploding stars that leave radio waves expanding across the skyscape.

"You get lots of loops and bubbles from supernovae, and black holes burping energy," says Justin Jonas, slipping easily into the magical-sounding language of astronomy:

"What you also see are galaxies squirting out radio jets, and here around Orion there are these fuzzy reddish nebulae which are star nurseries."

Once the star turns on, it heats up the gas around it, which then starts emitting radio waves.

"So we don't really see the star itself. Instead, we see it heating up or ionising the gas from which it was born. Those

are the nebulae. Then at the end of a large star's life, it will explode, and blow these enormous bubbles."

Within our solar system, radio telescopes show Jupiter with a pair of strange teacup handles where electrons scream around its polar magnetic fields.

Apart from being able to 'see' straight through interstellar dust, radio astronomy's other great superpower is the ability to look back through time.

Radio waves (and light) travel to us from a long way away.

"As we look back in time through the radio, we can see galaxies at an early stage of their evolution. And if you go back far enough, to about 200 million years after the Big Bang, there were no stars or galaxies in existence. There was just gas, a thick pea soup of darkness."

The evolution of galaxies started with little ripples or bumps of gas across the universe, explains Justin. The bumps collapsed under gravity, and heated up and ignited to become a star. Then stars got together to form galaxies.

"Radio astronomy is like an archaeological dig. What you are seeing are not your own bones, but those of your ancestors. The more distant the ancestor, the fainter the signal gets. So you have to build a bigger telescope, which is what this one is."



*The brand new MeerKAT National Park will protect the 120 000 hectares around SKA. It is a land of ironstone hills, quiver trees (Aloidendron dichotomum) and, of course, small creatures like meerkats (suricates)*  
Credit: Chris Marais





RHODES UNIVERSITY

## VICE-CHANCELLOR'S BOOK AWARD





## Catharsis and Confrontation in Crime Fiction

Professor Sam Naidu of the Department of Literary Studies in English is the recipient of the Vice-Chancellor's Book Award for 2019. The book, co-authored with Elizabeth le Roux of the University of Pretoria, is *A Survey of South African Crime Fiction: Critical Analysis and Publishing History* (2017), UKZN Press.

When asked why she chose to research and teach South African crime fiction, Sam explained: "We live in dark and bewildering times - our country is steeped in crime, corruption, incompetence, disillusionment, and a desperate need for justice, solutions, and hope. What is the point in writing about these topics or reading about them? How does it serve us as individuals and as a nation to have a body of literature which deals with crime? These questions formed the springboard for our book."

To answer these questions, Sam and Elizabeth (Beth) decided that a comprehensive approach was required. The book had to cover both literary criticism and publishing history. "Our main argument," Sam summarises, "is that *South African crime fiction is a complex, robust, contentious and provocative literary-cultural phenomenon, which calls into question established notions of artistic merit and extends genre fiction into the realm of social analysis.*" Sam authored the sections of literary criticism, and Beth, who teaches Publishing Studies in the Department

of Information Science, wrote the publishing history. In the "Introduction" to the book, the authors describe their general approach: "This survey takes the approach that this genre, with its protean subgenres, is collectively generated by authors, readers and publishers, and is an ideological product that robustly and cogently reflects its sociopolitical milieu."

Sam, who has been teaching and researching crime fiction for a decade, has identified two main sub-genres in the overarching genre of South African crime fiction: the crime thriller and the literary detective novel, but, as she elaborates, "There are many more sub-genres such as the ecocritical crime novel, or 'true' crime - what is also known as literary nonfiction." After confessing to having a dark, libidinal fascination with murder, Sam expands on the range and depth of value she recognizes in this genre of literature. "Crime fiction, importantly, performs a sharp forensic examination of our socio-political context, but it does more. It offers a space for imagined solutions. For the reader



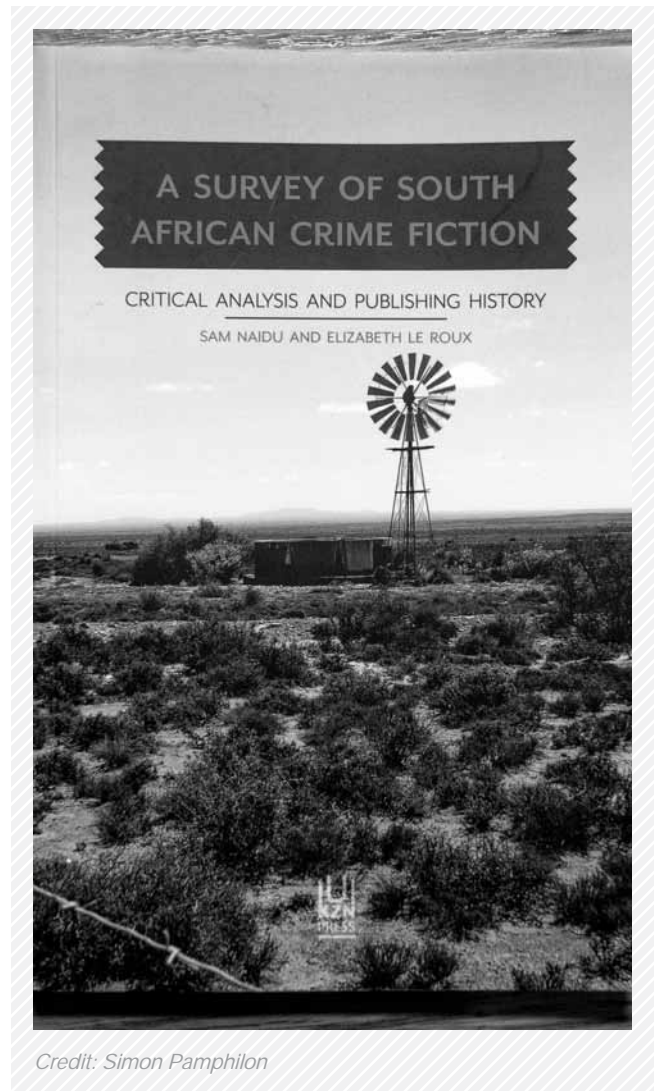
the affect is either catharsis (as the crime is solved and an imagined order is restored) or confrontation (the reader faces and grapples with the harsh reality of South Africa). The most accomplished author manages to achieve a bit of both affects. That's it in a nutshell - catharsis and confrontation."

Probed a bit further about her literary discovery - the two main sub-genres - Sam elucidates: "The crime thriller, by far the most popular sub-genre of South African crime fiction, has made authors such as Deon Meyer, Margie Orford, and Angela Makhohwa nationally and transnationally famous. They draw on an established tradition but mould it to the SA context. One of the most successful crime thrillers (in terms of sales, readership, and critical response) is Deon Meyer's *Devil's Peak* (2006), which has been translated into more than twenty languages and has won numerous national and international awards."

Sam, however, tends to prefer the second sub-genre, the literary detective novel, which has an even older (and in some ways, more illustrious) family tree. "Think of Sherlock Holmes, Hercule Poirot or Poe's Dupin as literary antecedents of these detective figures," she enthuses. She describes these antecedents as being focused on an extraordinarily clever detective whose powers of reason are always triumphant - ensuring consolation or reassurance for the reader. "What is significant, however, is that, in South Africa, a number of novelists such as Andrew Brown, Michiel Heyns, Diale Tlolwe, and Ingrid Winterbach have written literary detective novels which modify and subvert traditional crime fiction to best represent our context. Their novels contain anti-detectives (detective figures who fail dismally in their quest for the 'truth', crimes are only partially solved, and resolutions are provisional)."

According to Sam, the book also poses questions about the value of art and literature more generally. She points out that crime fiction is the second most widely read genre of literature in South Africa (second to romance literature), and wryly adds: "That's it - the human condition in a nutshell: love and death. A huge number of readers of literature in South Africa today chooses crime fiction, but an even bigger number chooses to read about love. That says a lot."

A critical review by German scholar, Claudia Draw, has praised the book for being "the first such scholarly work that offers both an excellent and thorough introduction to the history and development of crime fiction in South Africa and well grounded close readings of selected works" (2018: 140). But its main achievement, according to Draw, is "the successful use of an interdisciplinary approach that brings together a range of literary methods and concepts to include South African crime fiction in the global context of the genre" (2018: 143). American scholar, Marzia Milazzo, in her review, describes the book as "field-



Credit: Simon Pamphilon

shifting and wide-ranging, making it a must-read for scholars and students of South African literary and cultural studies at large" (2019: 261). Milazzo, however, points out that the book "displays a reluctance to also examine how the structural and ideological force of racism continues to centrally animate South African writing" (2019: 260). Sam's response is that the "Conclusion" of the book states that any critical study of crime fiction necessarily engages with issues of race and racism, either implicitly or explicitly. "We were careful to engage with race throughout the text, but not as a specific theme, precisely because of its ubiquity. The book does also contain ample explicit engagement with the structural, ideological or systemic dimensions of racism, for example, in the sections on apartheid era censorship laws or the sections on the farm crime novel, a genre which is largely predicated on the complex history of land appropriation in South Africa."

But, to be fair to Marzia Milazzo's review, Sam continues, "it inspired me to be more pointed and specific about race and racism in subsequent work."

One of Sam's most recent publications is a chapter in the prestigious *Routledge Companion to Crime Fiction* entitled "Race and Ethnicity in Crime Fiction" (2020). In this chapter, Sam argues that crime fiction reflects the racism of its specific milieu, as well as evolving, reformist views and debates about race and ethnicity. Sam explains that the chapter claims that crime fiction presents a morass of social relations with varying levels of resolution, and, depending on the author and reader, offer both confrontation and catharsis. She summarises the chapter: "Most saliently, in terms of engagement with race and ethnicity, contemporary crime fiction facilitates a view of intricate current relations between nations as being linked to a past, colonial era. This feature of contemporary crime fiction extends the interrogation of race and ethnicity beyond the confines of national settings, to explore how global networks of oppressive and exploitative systems and structures once thought of as discrete, now intersect in fascinating ways."

This brings us to Sam's current research project - the Mellon funded *Intersecting Diasporas Group*, which is focused specifically on those fascinating intersections which are the result of migration and diaspora. The project, launched in 2017, is a study of transnational subjectivities represented in literature of the African, Latin American, and South Asian diasporas. Utilising a comparative methodology which explores the respective literatures of these diasporas in relation to each other, the intention is to compare and contrast various transnational texts in order to describe the complex and paradoxical experiences of diasporas in a world of increasing mobility and de-territorialism.

This project also includes crime fiction. Sam's final comments explain what she is busy with right now: "Whether I am working on my first and abiding interest, the oral-written interface in colonial Eastern Cape and the impact of translation and transcription on Xhosa oral literature, or contemporary literature of migration and diaspora, I am always drawn to the element of crime and transgression. What epistemic crime was committed by the coloniser when he transcribed and translated the oral literature? How are migrants disenfranchised and exploited in their new homes? What does the literature, through the processes of confrontation and catharsis, teach us about these crimes, and about our ability to redress and recuperate?" She then laughs and adds "If the narrative includes dogs, even better! We learn so much from dogs." Sam has written about the figure of the dog in crime fiction, and plans to do more of what she calls "posthumanist" research. Hopefully, Sam's current and future research will continue to answer the questions she poses.

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2019

RHODES UNIVERSITY

VICE-CHANCELLOR'S DISTINGUISHED  
SENIOR RESEARCH AWARD







## Professor Makaiko Chithambo: Perfect Imperfection

Solid state physics reveals its secrets through light, mathematics and colour.

Gemstones bloom underground like bright flowers formed by heat, pressure, base elements, rare minerals and sheer chance. These extraordinary crystals are coloured blue, red, green, pure white and every other shade imaginable when brought into the light.

In polished forms, sapphires, diamonds, rubies, emeralds and aquamarines may look perfect. But as Professor Makaiko Chithambo of Rhodes University's Department of Physics and Electronics will tell you, it is their imperfections or defects that define them, that give them their colour, characteristics and ultimately, their value. There are metaphysical life lessons to be learnt here.

Another thing Makaiko could tell you is that the word 'gem' comes from *gemma*, which is Latin for 'bud'. Latin was his favourite subject at the Catholic Marist Brothers' Likuni Boys Secondary School in Lilongwe in Malawi. He loved the subject with such a passion he considered ways to make a career out of it. Or if not Latin, then English literature.

It was only near the end of his school years that physical science began to appeal more than Shakespeare. But first he had to get through his last year in secondary school with a Japanese mathematics teacher who spoke almost no English.

Makaiko was doing well with all his subjects, but his first exam mark with Mr Tekemitso Kitano was a shock.

"I think I got 27%. I realised that I needed to come to terms with the mathematics myself, and I borrowed the text book over the Easter holidays. When I went back to school, I could follow him because I had done most of the work."

"So my predicament with Mr Kitano helped me realise that I can overcome anything if I tackle it methodically. My next exam mark that year was 98%. I'm sure Mr Kitano was a little surprised," grins Makaiko, who then went on to study for a BSc at the University of Malawi.

After his undergraduate degree, the University offered him the position of Staff Associate - the equivalent of a Junior

Introduction image: Professor Makaiko Chithambo  
Above: Professor Makaiko Chithambo  
Credit: Chris Marais

Lectureship. Here Makaiko attracted the attention of the British Council, which awarded him a scholarship for Postgraduate studies in the UK.

It was during his Masters degree at the University of Sussex that Makaiko Chithambo became fascinated by solid state physics.

**"It is a specialised area where you look at the structure of solids, charge transfers in solids, defects in solids, how heat travels in solids, how sound travels in solids, and how electron charges affect solids."**

Of course, some of the most fascinating kinds of solids are crystals with their orderly latticework of atoms. Among them are precious stones, with their perfect imperfections.

## The Secrets of Solids

"Take sapphire as an example, which is from the mineral corundum, otherwise known as aluminium oxide. If it has few impurities, it's colourless, and commercially almost worthless. But if it has chromium inclusions, then it becomes a nice red colour and will sell as a ruby - even more valuable than a diamond. If there are traces of iron and titanium, it will be blue. Emeralds and aquamarines (beryllium aluminium silicate) are also defined by their defects or inclusions - chromium in the case of emeralds, and a little iron for aquamarines. The same applies to tanzanite. The imperfections give it a high value."

Makaiko Chithambo was fascinated by the widely varying properties of solids, how their point defects conferred their distinctive properties. He immersed himself in studying these characteristics - specifically those of insulating materials - at the University of Sussex, seeing very little of Brighton apart from the inside of the laboratory. Even so, he made some good friends.

After his Master's degree, Makaiko returned to a lectureship at the University of Malawi for two years, but dreamt of doing a PhD. His opportunity came when he was awarded a Commonwealth scholarship in 1996 to cover his studies at the University of Edinburgh.

"The Scots have a very special sense of humour. We enjoyed it, my wife Bertha, and my children Sungeni, Tamani, N'lamwai and I. Many of the Presbyterian churches in Malawi were established by Scottish missionaries. We often met someone who had links with Malawi, so it felt closer to home than England had been."

## Glow in the Dark

Under supervisor Professor Robert Galloway, Makaiko focused on the physics of quartz using time-resolved luminescence, a technique used to study the transfer of electrons between defects in solids in real time.

"Quartz is used in dosimetry. Quartz and other synthetic dosimeters like aluminium oxide doped with carbon can reveal how much radiation they have been exposed to, and are particularly useful for people who work with radiation, for example x-rays. The dosimeters they wear can alert us if they are exposed to excessive radiation."

Forms of radiation are everywhere in the environment, points out Makaiko. They all tend to have an effect on solids.

"The way one measures this effect is through luminescence. Solids have electrons in them, because they have atoms. When you expose a solid to radiation, whether in nature or whether in the lab, the radiation will ionise the material, creating excess energy in the form of free electrons that are knocked away from atoms. They lose that energy potential in the form of light, or what we refer to as luminescence. Some of it is emitted in the visible region - blue and green - but it could also be in infra-red or ultraviolet, which is outside the range of what we can see."

Measuring this process requires using specialist light detectors in laboratories.

## The Instrumentation Conundrum

After graduating in 2001, Makaiko headed to the University of Zululand for Postdoctoral studies before being offered the position of Lecturer at Rhodes University's Department of Physics and Electronics.

There was one problem, however. He was the only solid state physicist with an interest in point defects in the department, and there was little instrumentation suited to his research.

"But back in Scotland, my supervisor was about to retire from the University of Edinburgh. What they do then is they completely clear out a person's laboratory. Everything is thrown out. I contacted Professor Galloway and in the course of the conversation, I said surely they wouldn't throw away your equipment? He said of course. Why, do you want it?"

"Professor Justin Jonas was Head of Department then, and I went to discuss it with him. We had the equipment valued and realised there was no way we could purchase the equivalent. So we managed to get a grant to bring the equipment over. Getting the lab off the ground using Professor Galloway's instrumentation was really helpful for my research."

After establishing the laboratory, Makaiko began studying an array of different materials. They included gemstones, radiation-sterilised polymers used in prosthetic limbs, high-temperature treated quartz, and more sensitive dosimeters in substances like carbon doped aluminium oxide. He complements his experimental work with mathematical modelling of the processes.

Professor Chithambo was awarded the Vice-Chancellor's Research Award in 2006, and in 2010, became Head of Department. Most of his time is still devoted to research, with the rest evenly split between administration and teaching.

Luminescence remains an abiding fascination. In 2017, he organised an international conference in Cape Town on the subject (Luminescence and Electron Spin Resonance Dating) which attracted scientists from around the world.

In 2018, Makaiko wrote a book on the subject, *An Introduction to Time-Resolved Optically Stimulated Luminescence*, commissioned by the United Kingdom's Institute of Physics. In 2019, he was asked by World Scientific to write a chapter on the subject for another book, which has since been published.

## A Point Defect is Forever

Professor Chithambo was intrigued after being contacted by a diamond company in 2019.

"In the trade there is a problem with what they call blood diamonds, which are used to fund conflict. This company was interested in finding a tracing method from mining all the way to the jewellery store."

"It is possible to do. The defects and imperfections in the material are actually unique. That creates a distinctive signature. If you measure it soon after it has been mined, you can record the property of that diamond. It doesn't matter where it goes after that, or when you measure it again. Decades later, whether it's part of a necklace or an earring, it will still display its original signature."

"You can also tell the difference between natural diamonds and artificial ones. Some very clever people will market artificial as natural stuff. But you cannot reproduce the characteristic imperfections in a lab. That's something that only nature can do, over thousands of years. Lab ones might have defects, but they would mostly be unstable. Visually it's difficult to tell them apart.

"But when you read the luminescence, when you do the mathematics, you can find the truth."

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By Julianne du Toit





RHODES UNIVERSITY

## VICE-CHANCELLOR'S DISTINGUISHED RESEARCH AWARD





## Dr Gladman Thondhlana: Society & Conservation

Dr Gladman Thondhlana, Senior Lecturer in the Department of Environmental Sciences at Rhodes University, is dedicated to the practical well-being of people and the world they live in.

Gladman Thondhlana hails from a 'growth point' called Checheche in the south-eastern Lowveld of Zimbabwe.

"It's not a town, it's not a village, it's much smaller than that," he says. "And it's very hot, dry and dusty."

The Growth Point project, initiated by the new Mugabe government in the 1980s, aimed at decongesting the country's urban areas by decentralising development. It was not a great success, as subsequent research revealed, because of the weak link between the rural centres and the national economy of Zimbabwe. Allegations of private sector corruption in the project were also made.

"But Checheche now has basic services, like a small hospital, schools, a few shops and access to water and electricity," says Gladman. "Nevertheless, it's still mainly a subsistence-farming area."

Although he did not realise it at the time, the circumstances of his upbringing were to inform his career choices as an adult later on.

### Society Shapes You

"My parents are both pastors in the Forward in Faith Ministries International," he says. "As such, our family moved around Zimbabwe a lot - I went to five schools."

Gladman matriculated at Mount Selinda High School in Manicaland, a province close to the Mozambican border. A local primary school headmaster and church elder, Mr Sithole, was his role model in many respects.

"Society shapes you, whether you like it or not," he says. "At that time, schoolteachers were seen as very successful role models and they still are, in many respects - especially headmasters. Mr Sithole's lifestyle - a stable family, good car, nice home - was admired by many."

So when the headmaster advised young Gladman to go to university, get a general Bachelor of Arts degree and become a teacher, he was nearly sold on the idea.

*Introduction image: Dr Gladman Thondhlana  
Above: Dr Gladman Thondhlana  
Credit: Chris Marais*

"But not quite," he says. "Initially, I really wanted to be a psychologist."

Nevertheless, in 2000 he enrolled at the University of Zimbabwe for a BA degree, focussing on Archaeology, French and the subject that became his favourite, Human Geography.

## Finding a Field

As opposed to Physical Geography, Human Geography studies the relationships between people, place and environment. There is also a strong link to social sciences and humanities in this field.

"Environmental issues made sense to me," says Gladman Thondhlana. "I'm delighted not to have become a psychologist, though I think my research interest in environmental behaviour reveals the hidden psychologist in me."

His Master's degree at the University of Zimbabwe was in Environmental Policy and Planning.

"It was a taught Masters, covering a wide range of subjects like Environmental Policy Analysis, Environmental Planning, Common Property Resource Management, Environmental Management of Mining and Water Resource Management. Exposure to all these issues helped me to decide on what I really enjoyed."

For his mini-thesis, Gladman concentrated on Protected Area Management, working at the Mapembe Nature Reserve about 45km from Mutare city in Manicaland province.

"I looked at social issues and the participation of local communities in that reserve."

## A Stint in Mining

He also focussed on environmental management in industry and mining, and found himself wondering about a job in mining.

"I suppose the economic side attracted me," he says. "Back then, I thought everyone involved in mining did well financially."

So he successfully applied for a job as a graduate trainee in health, safety and the environment at the Zimbabwe Mining and Smelting Company (ZIMASCO) chrome mine near the town of Shurugwi in the Midlands province.

"I worked there for two years," he says. "I did not enjoy the work at all. Everything at the mine was run on Standard Operating Procedure (SOP) - not very stimulating. There was nothing for me to learn, there was no application of critical thinking."

"Also, I didn't like giving instructions to men who were my father's age and knew far more about the mine than I ever would. And I really didn't like the underground environment - the conditions down there are terrible."

Gladman also discovered that not everyone who works at a mine strikes it rich, so to speak.

"I would attend these executive meetings with people who arrived in 4X4s, where the best food was served," he says.

"Then I would look out of the window and see those miners coming off shift, all crammed into a bus. I had to leave."

## People and Places

Now wanting to do his PhD, Gladman came south to the University of Fort Hare, but did not stay there for long.

"I saw a SANParks advertisement calling for researchers to work on a programme in the Kalahari, studying natural resource use in and outside the Kgalakgadi Transfrontier National Park by the #Khomani San and the Mier communities."

He reached out to Professor Sheona Shackleton at the Department of Environmental Science at Rhodes University, one of the academics interested in the project.

"I met with Sheona and her husband, Charlie, and they agreed in principle to take me on," says Gladman. However, I had no funding at all, for fees, accommodation and living expenses. All I had was determination."

**Seeing the young man's commitment and passion, the Shackletons were equally determined to find a solution to his financial problem.**

"I came to Makhanda (Grahamstown) with a couple of bags, no money and no bed," he says. "I don't know where I got the audacity to simply arrive with nothing."

The Shackletons arranged accommodation for Gladman ("for a night or two") with their colleague, Mike Powell.

"I stayed in Mike's spare room for two years," he says. "In the meantime, Sheona had sourced some funding for me, which I supplemented with small jobs around the department."

## The Kalahari Studies

In August 2009, Gladman drove up to the Kalahari with some Cape Town-based researchers "in a little Kia Picanto", expecting vast deserts and San hunters clad in springbok-skin loincloths.

It was a time of great excitement in that part of the Kalahari. The local San communities had successfully lodged a land claim of a large section of the national park and a number of formerly white-owned farms around it. At first, there was little development, lack of follow-up support from government, tension within the clans and not much social welfare.

"But now all kinds of actors were getting into the Kalahari to try to support the San in terms of matters like livestock production and subsistence-issues. We were invited there as researchers to find out what the communities wanted and needed and what their new resources meant in a cultural sense. The aim was to collate all this research in order to inform interventions for use in the national park."

"The question was: if we put all these wild environmental resources into one pot, how much would it contribute to a family's annual income? What proportion of their livelihood can



come from natural resources in terms of subsistence use and what they can sell? What cultural and institutional arrangements shaped use and value of natural resources among different users?"

The researchers concluded that access to wild environmental resources has a positive effect on household welfare but heterogeneity in access matters such that pro-poor approaches are required in resource access designs to avoid further marginalisation of the poor. Further, a series of societal issues had to be addressed before resource use could significantly reduce poverty amongst the San groupings.

"You cannot expect communities that have been economically displaced for a long time to suddenly have the capacity to run an ecotourism business," says Gladman. "What is ecotourism to somebody not formally trained to understand its dynamics? Also, the social capital is not currently there. Children are not attending school, alcohol is being abused and there is violence towards women and the young."

## Behaviour Change

He had been granted a one-year fellowship to Norway to write up his PhD overseas and in 2011 he was capped as Dr Thondhlana.

"Living in a students' residence in Norway, there were parties every Wednesday," he says. "And although a lot of alcohol was consumed, the trash was all picked up early the next morning by the students. In Norway, you get paid for your collected trash - institutionally, they have thought through the process and built in incentives that work."

Going green in the home and the community at large is another one of Gladman's passions.

"In 2018 my student and I wrote a paper on plastic bag use: Perceptions, practices and potential intervention strategies in South Africa," he says.

"Behaviour change is critical if you want to tackle the problem of litter."

Gladman makes occasional forays into Higher Education research, particularly transformation issues. His current research has circled back to working with communities living adjacent to wildlife parks, examining the links between wild resource use and household welfare, relationships between conservation agencies and local communities, and conceptualising various conservation conflicts that arise in co-management arrangements.

However, his research interests still include pro-environmental behaviour (energy, water, recycling) within the context of sustainable natural resource management.

"The argument here is that prescriptive measures do not usually yield benefits," he says. "We all have to learn to think collectively and share our knowledge in addressing this."

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By Julienne du Toit



## The Elements of Life

Distinguished Professor Tebello Nyokong is a rock star among scientists. But the qualities that make her a sought-after mentor were forged far from the limelight.

At the level of atoms, molecules and chemistry, everything is strange and counter-intuitive.

This is a field in which breakthroughs are comprehensible to very few insiders. Those who research it grow accustomed to the blank faces and nods of incomprehension at dinner parties.

But it is an area of study that lies at the very foundation of life, a world that Distinguished Professor Tebello Nyokong has made her own. As an A-rated scientist, she is a celebrity in her field of Nanotechnology and Medicinal Chemistry. She is also a veteran of many interviews.

Dozens of articles have been written about her remarkable achievements, how she thrived at school despite sheep-herding duties, how she was honoured by President Thabo Mbeki who awarded her the Order of Mapungubwe in 2005, how she was chosen as the UNESCO L'Oreal Woman of the Year, 2009. She was on South Africa's 100 Most Influential People List for several years.

Awards, honorary doctorates, medals and keepsakes from overseas trips adorn her office. She calls it her art collection.

Scholars come from all over the world to study under her at Rhodes University's Chemistry Department and for access to the highly advanced instruments she has assembled.

"I daresay we have the best in the world."

As one of South Africa's most remarkable scientists, she would be in demand at any institution in the world. But she relishes being at Rhodes, the smallest research university in the country.

"They have been very supportive of me here. Also, it takes me two minutes to get from home to the office. Imagine if I had to spend hours in traffic?"

### Sharpeville, Sheep and Science

Young Tebello's father hailed from Sharpeville, south of Johannesburg. Her mother was from Lesotho, so her life was

spent in both places at different times. For cultural reasons, as the first child, she was born in her mother's birthplace of Lesotho and went back there to live with her grandparents when her sister was born.

After the political upheaval that followed the Sharpeville Massacre, the whole family moved to Lesotho in 1962 when Tebello was 11 years of age. Her maternal grandparents were missionaries.

"School and church were intermingled. There was no difference. It's church on Sunday, it's school the rest of the week, in the same building. Grade One here, Grade Two there, we don't complain, we just study. And while I was at my grandparents' place, I also had to be a shepherd. Jobs had to be done. So I'd be a shepherd one day, the next day I'd go to school, the day after that with the sheep again."

"The whole community was so involved in education that on Sunday, I'd stand in front of the church and they would make me read, to make sure I am still following. So school was not about individuals. School was about community - something I feel we are missing now."

With only two years to go before completing High School, she switched away from humanities subjects.

"No one encouraged me to get into science. I encouraged myself. I needed facts. The teachers saw I was frustrated. I am by nature a practical person and science is a practical subject."

Many years later, in 2014, Professor Nyokong was chosen to be part of South Africa's 21 Icons. Photographer Adrian Steirn captured her wearing a lab coat, wielding a shepherd's crook in amongst a flock of sheep as a nod to those formative days when she roamed the veld with her family's livestock. Prints were sold to raise money for charity.

"I've never seen sheep like that. I stood in the middle and they put macaroni all around so they would come closer. Apparently those sheep love Fattis and Monis," she laughs.

## Lesotho to Canada

Tebello's path to academia was by no means easy or inevitable.

"After high school I had to work to support my siblings, because I'm the oldest. The responsibility was on me to educate others, before I could go to university. My father was sick by then. I spent two years in a government job with the Department of Roads in Lesotho. You can imagine how difficult it is to build roads there because it is so mountainous. My first job was to stand in the street and count cars. I got paid for that. My second job was to get the drafts from engineers and trace over the drawings. I had no plans to go to university, to be honest. If those guys in government had not been so boring, I probably would have stayed."

A friend encouraged Tebello to go to university with her, and the initial plan was to become a teacher, studying at what was then called the University of Botswana, Lesotho and Swaziland (UBLS). Students would do their first and second years in the own universities, and then head to Lesotho for the rest.

"It was beautiful to have such diversity. It was fascinating. The first year we did everything. We had a variety of science and humanities subjects, and then we could choose to specialise later. My training as a teacher gave me very useful skills: how to project your voice, how to talk, how to deal with learners and so on."

It is here where she learnt the power of chemistry and started envisioning a career path.

"We didn't have role models. I only knew about doctors and engineers. But then I realised chemists actually develop the medicine that doctors administer. I wanted to be part of that development."

One of the lecturers at UBLS was a Canadian professor who saw young Tebello's potential to become an academic.

"I got a scholarship to go to Canada to study for my Master's degree in Chemistry, at McMaster University in Hamilton, about 30 minutes from Toronto. I could write a book about that flight, my first one. I had never seen so many white people in my life. Canada was so foreign, but they were very friendly."

## Overcoming Prejudice

It wasn't all easy, though.

"Sometimes there's an assumption that, because you are from Africa, you don't know x, y and z. So they wanted me to go back to first year and do courses I had already done again. I did those where I felt I had gaps, but I don't react well to being patronised. There were times when I had to fight."

For money and experience, she had to teach first year students.

"Those are big universities. You'd have 2 000 in a class, so it had to be split up."

After her Master's degree was completed, Tebello returned to the National University of Lesotho and applied to do her PhD while teaching, as part of her training and staff development.

"The head of department said, what's the point? Women will just have babies and stay at home. These days you can't say that, but back then he did, because it was thought that a woman 'cannot study too far'.

"But I prevailed. I did my doctorate at the University of Western Ontario. You've got to be a bit mad to do this."



Chemistry has long been seen as a male domain. In 2018, in an interview with the Nsesa Foundation of Ghana, which promotes STEM learning in Africa, she confessed:

"I can say that I have suffered academic loneliness in my career, and it is the most terrible thing where you have utterly no one to talk to. Since you don't belong in their club, you don't attend their golf club. You are on your own with no one to share your happiness with and no one to talk to when things are wrong because it's a man's world. I think it is only because I am slightly insane that I have the courage to go on!"

## Collaboration

Professor Tebello Nyokong and her departmental team collaborate with scientists all over the world, including those from Canada, Germany, China, Switzerland and Russia, on major projects that could one day revolutionise cancer treatment.

Rather than looking at antibiotics, she and her team are also focusing on antibacterial treatments, combining nano particles that are activated by laser light.

"We currently have a huge collaboration with Canada. I have lots of countries that work with us here. You cannot do this kind of thing on your own. You need to work with other scientists in different countries."

"I applied to the Medicines Control Council to register treatment that fights cancer. I have been working with the Russians and Chinese on that."

## Leaving a Legacy

Professor Nyokong has so far supervised 150 Postgraduates. Her students adore her, thriving in her highly disciplined, no-nonsense approach to teaching and mentorship, where punctuality and sheer hard work are prized.

**She, her Postgraduates and Postdoctoral Research Fellows publish around 50 papers in an average year.**

"I keep up that momentum by laughing a lot. You've got to be happy. You've got to do what you want to do and be happy doing it. I also create an atmosphere for people around me to be creative, who can be thinkers and leaders. I don't write alone, I write with them. So it's not just me. It's teamwork.

"Discipline is very important for me. If there are seminars or meetings, don't be late by one second. I'm very strict."

Being an acclaimed scientist has its downsides.

"You get to the point where you are so much in the media that people are afraid of you. You do not seem human any more, so people keep a distance. You've got to think of everyone, yet no one thinks of you."

Then Professor Nyokong shrugs philosophically and adds: "But it's my job to look after everybody, especially my postgrads. They are so full of energy. I love them."



Postdoctoral Research Fellow  
Dr Balaji Babu  
Credit: Chris Marais



Postdoctoral Research Fellow  
Dr Muthumuni Managa  
Credit: Chris Marais



Postdoctoral Research Fellow  
Dr Pinar Şen  
Credit: Chris Marais

## Postdoctoral Research Fellows

In 2019, Professor Nyokong supervised three remarkable Postdoctoral Research Fellows.

**Dr Muthumuni Managa**, originally from Venda, has done all her tertiary studies at Rhodes, with a triple major in microbiology, biochemistry and chemistry before specialising in the latter from her Honours year through her Masters and PhD.

"I'm interested in the biology of enzymes and drug delivery systems - how we get the molecules to be water-soluble. My Postdoc has been on carbon-based nanomaterials, graphene quantum dots, and dyes to enhance anti-cancer medication with minimal side-effects."

Working on a similar line of research is **Dr Pinar Şen**, who comes from Istanbul, Turkey. Right from her undergraduate years, she was interested in dyestuffs. During her MSc and PhD years at Marmara and Sakarya Universities respectively, she focused on what these substances could do at a nano level.

Her Postdoctoral research at Rhodes has focused on synthesising phthalocyanines (blue dye) within the application for photo-dynamic therapy when treating cancer.

"Professor Nyokong is very well known in my country. I wanted to come here to study with her."

An added bonus was being in a relatively small town.

"Here life is easier. I can walk to university. In Turkey, everything is crowded and very busy. You have to take the bus or the underground."

**Dr Balaji Babu**, of Chennai in India, echoes her sentiments.

"Everyone is so friendly. I love it here, and Professor Nyokong is great."

Balaji has studied at universities in Bangalore and Chennai, and is now specifically focused on tin porphyrins, which have antibacterial properties, and ferrocene-based metal complexes to treat cancer.

By **Julienne du Toit**



From left to right: Distinguished Professor Tebello Nyokong and Postdoctoral Research Fellows, Dr Pinar Şen, Dr Muthumuni Managa and Dr Balaji Babu  
Credit: Chris Marais



## Secrets in the Blood

Development of early-detection devices for various diseases and viruses and high-tech blood analytical systems lie at the core of Dr Philani Mashazi's research work at Rhodes University.

Twenty years ago, a young man from Nqutu in KwaZulu-Natal arrived at Rhodes University, highly ambitious and determined to fulfil one of his life-goals: to graduate with a University degree.

He soon realized that better command of English would have to be his first priority. At first, it would be a struggle, as English was his second language.

Right through his childhood and school years, he had been guided and supported by his family. Now he was on his own for the first time - and it was not going to be easy.

Today, Dr Philani Mashazi lectures a full auditorium of 400-plus students on the finer points of Computational Chemistry and Nanotechnology. He writes regular academic papers, supervises Masters and PhD candidates and puts in long hours at the Chemistry Department labs.

### Beginnings

The nearest large towns to Nqutu are Dundee, Vryheid and Newcastle, in the heart of what is known as the 'Anglo-Zulu Battlefields Route'.

"The landscape is mountains, valleys and filled with livestock - a lot of livestock," he says. "My family had 20 head of cattle and I was the herder. As a child, you find excitement in small things. I remember all the village herders, of varying ages, taking their animals to the dip. There were always bullfights and these were really exciting."

"If you were the smallest herder, there would always be an older person to go with you and help you with the cattle in the veld. And even if your household didn't have cattle, you would still go out and look after someone else's herd. I lived in a very supportive village - we all looked out for each other."

*Dr Philani Mashazi*  
*Credit: Chris Marais*





*Dr Philani Mashazi and Posdoctoral Research Fellow, Dr Omotayo Adeniyi in the Chemistry Department Labs*  
Credit: Chris Marais

## School and Family

Philani's father, Sipho Mashazi (RIP Nsele Zwelibanzi), was a policeman at Johannesburg International (now OR Tambo) Airport, with his mother staying home to look after four children.

"Dad worked in Johannesburg and we saw him every once in a while, bringing presents and clothes," he says. "We were always excited to see him."

At school in Nqutu, Philani fell in love with Science.

"The teachers were quite good," he says. "The Science done in villages like ours was mostly theory - we had to make do without lab facilities. However, I liked that. Being given everything on a plate is not ideal. So when you eventually come to a place with world-class facilities, the classrooms, the equipment and the labs, your imagination flows freely - because of the strong theoretic background."

## Rhodes University

After Matric, Philani applied to many universities to continue his studies.

"Rhodes responded quicker than the other institutions," he says. "They offered further assistance and really made me feel welcome from the start."

Once at Rhodes, Philani stayed at Adamson House residence until he completed his undergraduate degree.

"I commenced a BSc degree with Chemistry and Computer Science as my major subjects," he says.

"In the course of your education, you might find a subject that you enjoy," he says. "Chemistry was that subject for me. I enjoyed it, even though I was at first very scared to mix chemicals due to lack of experience. I remember struggling to get started at first year practicals, but then the demonstrators made me feel comfortable. By the beginning of second term, I was confidently doing experiments by myself."

## Computational Chemistry

Philani's choice of BSc majoring in Chemistry and Computer Science.

"At that stage it seemed like an unusual combination," he says. "But somehow I knew Computational Chemistry was the future. Nowadays it has become crucial. Most industries like to optimise reactions via computer systems to measure aspects like parameter effects."

Computational Chemistry uses computer simulations to assist in solving chemical and biochemical problems. The results from these simulations are added to those of normal chemical experiments, especially in the design of new drugs and materials, optimizing chemical reactions, investigating chemical interactions with biological molecules, and finding reactive sites in enzymes.

**It is also used to study the fundamental properties of atoms, molecules and chemical reactions. Computer skills and a sound knowledge of Chemistry are essential in becoming a computational chemist.**

## Lessons from a Supervisor

For his Honours degree, Philani did Chemistry under the supervision of the department legend, Distinguished Professor Tebello Nyokong.

"From the moment I stepped into her lab (S22) and witnessed how excited her students were to be doing research, I wanted to be part of that excitement," he says.

"Professor Thuli Madonsela (former Public Protector) once said of Distinguished Professor Nyokong that she had managed to multiply herself in every student she has produced. This is true. You see it in her former students, the passion we have for Science. It comes from her. She is a world-renowned scholarly researcher with her main interest in her students. She mentors them to be international researchers."

"You can also see the strong influence of Distinguished Professor Nyokong in the way I supervise my Masters and PhD students. I require of my students to have published their MSc and PhD research in peer-reviewed international journals," says Philani.

## Plan B

Back in Johannesburg with his father and freshly graduated with a BSc Honours degree, Philani began looking for a job. After three months, Mashazi Snr asked his son:

"OK, so what's Plan B?"

"Going back to Rhodes to do my Masters," Philani replied.

A one-way ticket to Grahamstown was bought and Philani went back.

"With no place to stay and funding for his studies, I went straight up to Distinguished Professor Nyokong's office," he says. "We managed to organise a Graduate Associate Bursary, for which I would serve as a Chemistry Department demonstrator and tutor for first-year students. Distinguished Professor Nyokong also assisted me to get a small bursary that would cover my food and living expenses."

Philani went looking for affordable 'digs' and found something near Kingswood College that suited his shallow pockets.

"It was a tiny room, a pantry really, and a single bed just fitted inside it. But that was fine."

## Things Change

The Johannesburg mining company, Mintek, contacted Distinguished Professor Nyokong. They were looking for gold-based research projects to fund. Philani Mashazi was asked to present the details of his project, which involved the development of electro-chemical sensors which could be used for diagnostic purposes.

**"Suddenly, I was the richest student around," he laughs. "They gave me a bursary to cover all my costs and the promise of a job after my Masters. It was a dream come true."**

His father, Mashazi Snr had to sign the contract with Mintek on behalf of Philani.

"What am I signing?" he asked the young student.

"Don't worry. Just sign. I'm getting money. Plan B has just become Plan A," Philani replied.

"Now I could send money home to Nqutu. That year, doing my Masters, I worked really hard and managed to publish two papers. I still lived frugally. I still stayed in my pantry."

## Off to Belgium

The following year, Distinguished Professor Nyokong sent Philani to Ghent University in Belgium for four months, to continue his project.

"They had very good lab facilities, so I enjoyed the research work. From time to time I would go out for a drink with someone from the lab and at lunchtimes we would order in a selection of those incredibly delicious Belgian sandwiches."

"Even when Distinguished Professor Nyokong came to visit, she wanted to experience 'that footlong sandwich'."

The extended daylight hours of a typical European summer also confounded the young scientist at first.

"The sun sometimes went down after midnight," he says. "Initially, I would stay awake as long as there was daylight. After supper, when everyone else was preparing for bed, I would catch a tram to the CBD of Ghent City and explore. I found the best chocolate and cheese I had ever tasted."

## Seven Years at Mintek

After Belgium, Philani went to work at Mintek, from 2007 to 2013. His brief was: "Whatever you were doing at Rhodes University, you need to duplicate it here."

By now he had also applied for his PhD, but the next two years had to be spent setting up a complicated chemical laboratory from scratch at Mintek.

"Procuring and managing all the equipment and stock of chemicals was a huge learning curve for me," he says. "But in my third year of PhD studies, I began to publish with a few of my colleagues and we became a very strong team trying to advance the knowledge of science."

In 2009, during the massive national outbreak of measles which began in Johannesburg, there was only one laboratory doing measles testing: the National Institute for Communicable Diseases (NICD). Due to locality of the laboratory, the results were taking too long to be really effective and for isolation and hence the spread of measles to all the provinces in South Africa.

"We started a project to get a faster diagnostic system and that, ultimately, became the gist of my PhD work," he says. "We developed these tests where you simply take a throat swab and use that to get a positive or negative result for measles."

After his PhD (supervised by Distinguished Professor Nyokong) was published, the measles diagnostic system was in the public domain. In October 2013, he rejoined the Rhodes University Chemistry Department as a Senior Lecturer of Inorganic-Analytical Chemistry. Philani had come home.

## The Mission

In recent years, Dr Mashazi has been researching ways to

diagnose various non-communicable diseases like diabetes, certain types of cancer and early signs of cardiac arrest.

"Regarding cardiac arrest, we are looking for a protein that the body produces in large quantities when there is induced stress on the heart," he says. "Those biomolecules last until you get the heart attack and then they decrease in concentration after the event. They are always present in your body, but it's important to note when they spike, it is an indication of an imminent cardiac arrest."

"So, the minute there is a chest pain, you test immediately, see the spike, call the ambulance, they arrive and perform CPR, stabilise and treat you with something so that you're already recuperating on your way to the hospital. That is if you are lucky to live in areas where an ambulance can get to you as quickly as possible."

**"We're looking for systems that can detect early signs of cardiac arrest or inflammation so that urgent and timely prevention can be actioned. Also to assist the doctor to test you and get results within seconds."**

## Teamwork

Dr Omotayo ('Tayo') Adeniyi works with Dr Mashazi as a Chemistry Postdoctoral Research Fellow.

He grew up in a small Nigerian village in Osun State, called Ilado. After his father's untimely death, Tayo's mother supported herself and her six children by teaching and running a corner café in the village.

"After school, we would all help out in the café," he says.

He completed a BSc degree in Applied Chemistry at the Ladoko Akintola University of Technology and went on to do his Masters at the University of Ibadan.

"After that, I got a job in Lagos at a medical laboratory," he says. "There, I developed a particular interest in diagnostics. That's when I decided to do my PhD, so I wrote to a number of universities. On the Rhodes University website, I found Dr Mashazi's profile and realised that a lot of what he was doing overlapped with my interests."

"I began to correspond with him - he always answered my emails promptly. Not long after, I was accepted for a PhD at Rhodes."

"When I came here, it was a very different way of operating from what I was used to. In other countries, you ask a technician to operate the equipment and they give you back the results. Here we do it ourselves, which is a challenge, but I learnt so much. Exposure to equipment allowed for increase in my expertise as chemical researcher."

"The first project was working on lung cancer detection. Lung cancer is typically detected when it is too late - at Stage Four, this is when the tumour has already spread to other organs outside of the chest. If we can detect it when it's still localised and small, then it can be treated more effectively."

"There is a set of proteins that are present in the blood at the early stages of cancer, which is a mutation of the body. Your system reacts by secreting a protein. So my doctorate was on developing a biosensor that could test for the presence of these proteins in the blood."

"Obviously we want to avoid false positives and high costs. We're looking for a diagnostic system that is cheap, and readily available. How do you make a low cost biosensor from easily available material, like paper? So, now in my Postdoc, I have carried on with the research."

**Tayo and Dr Mashazi's research benefits from the amazing instruments in the Institute for Nanotechnology Innovation, founded and directed by Professor Tebello Nyokong. Dr Mashazi is a Deputy Director of the Institute.**

They use the X-ray Photoelectron Spectroscopy to check the interaction between materials at molecular and atomic level. The other piece of high-tech equipment is the Time of Flight Secondary Ion Mass Spectroscopy, which literally measures the time of flight of the ionised and charged fragments from the samples to the detector which is displayed by their atomic mass.

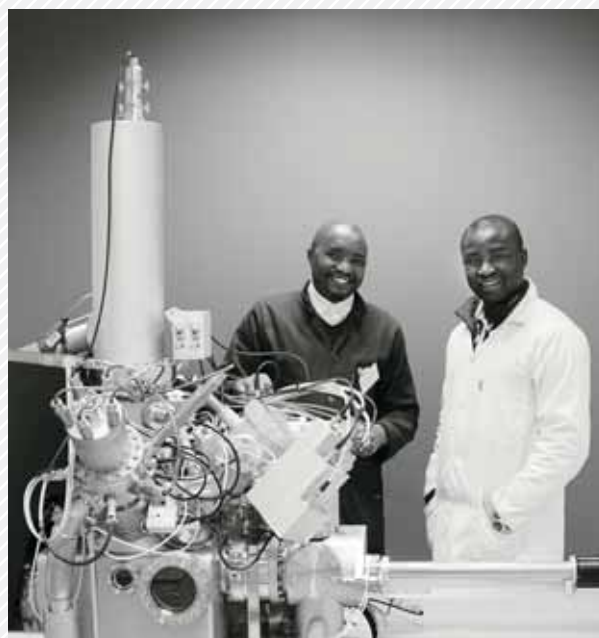
"This is one of the very few places in the world where there are these astoundingly advanced machines together under one roof," says Dr Mashazi.

"This makes pursuing research and being exposed to such state-of-the-art equipment worthwhile. More importantly, we have published articles in high impact international journals like the *American Chemical Society Journal*, *Elsevier* and the *Royal Society of Chemistry Journal*."

He says that having so many advanced machines of this nature in one place offers unparalleled opportunities for specialised research.

"It's one of a kind".

**By Chris Marais**



Dr Philani Mashazi and Dr Omotayo Adeniyi  
Credit: Chris Marais





## Postdoctoral Research Fellows beating the weeds

Postdoctoral Research Fellows at the Centre for Biological Control leave with real-world skills that make the path to employment much easier.

When Dr Lenin Chari graduated with his PhD in Entomology from Rhodes University in 2017, he was acutely aware that the subject of his doctorate had been, as he puts it, “fairly technical”.

There are comparatively few employers out there waiting to snap up doctoral graduates who know all the secrets of spiders and their role in transferring nutrients from riverine to terrestrial habitats. It was the subject to which he had devoted three years of his life.

“For my Postdoctoral research I decided to switch my focus from something that is very academic to something that has real practical application. The use of insects to control weeds appealed to me. I knew it would make it easier for me to get employment. It will be good for my CV.”

Dr Chari is now among several Postdoctoral Research Fellows at Rhodes University’s Centre for Biological Control (CBC).

**Distinguished Professor Martin Hill, Director of the CBC, explains that at the Centre, there is a focus on helping Postdoctoral Research Fellows and Postgraduate students make the transition to real world demands and issues.**

### An Industry Awaits

“Being able to describe the hind wing venation of a fig wasp is fantastic, and it’s necessary, but how do we take it a step further so that these students have skills they can use? Once they leave here, they will need to do proposals and presentations, make plans of action, work out budgets, report back to land-owners or employers, and know how to handle their own finances.”

Writing up research and having it published in a reputable journal is only one part of the mission, says Martin Hill.

“How do we take it into the field? We want to produce graduates who are knowledgeable, skilled and relevant - basically employable. There’s a chronic skills shortage in South Africa, and industry needs graduates who have them.”

**Fortunately, he adds, South African-trained students have a reputation in the world for being multi-skilled and well rounded.**

“They are the ones that will most likely be able to help get a vehicle going again, or plug a hole in a boat where needed, as well as being critical thinkers in the academic space.”

*Left to right: Dr Evans Mauda, Dr Antonella Petruzzella, Dr Lenin Chari, Distinguished Professor Martin Hill, Dr Michael Jukes and Dr Candice Coombes*

*Credit: Chris Marais*



Postdoctoral Research Fellow  
Dr Antonella Petruzzella  
Credit: Chris Marais



Postdoctoral Research Fellow  
Dr Candice Coombes  
Credit: Chris Marais



Postdoctoral Research Fellow  
Dr Lenin Chari  
Credit: Chris Marais

## The Perfidious Boxthorn

The problems caused by invasive plants have grave consequences for landowners and ecosystems. The work being done by Lenin and Postdoctoral Research Fellow Dr Evans Mauda is a perfect example of the applied nature of the Centre's work.

They are working on plant species that are indigenous to South Africa but invasive in Australia.

"One of them is the African boxthorn (*Lycium ferocissimum*). It's a very thorny bush, growing up to two or three metres high. In Australia, few if any insects eat it," says Lenin.

"Vertebrates don't browse it either, and it tends to injure livestock. Without competition or natural predation, it grows fast and invades grazing land. It makes fires worse and many pests like foxes and rabbits hide in the dense thickets."

"So it's really a problem. The plant is indigenous to southern Africa and we've got insects here that love to eat it. We are cooperating with the Australian CSIRO to find those goggas."

## A Likely Gogga

Dr Chari and Dr Mauda have narrowed down the potential list of boxthorn predators to a herbivorous ladybird, a tortoise beetle and a small flea weevil. The latter seems the most promising - although it can be a challenge to collect.

"This weevil jumps like a flea, so when we're collecting them, we beat the bush and we have a sheet underneath, then we have to quickly close it so they don't escape."

Evans, who recently completed his doctorate at Rhodes University on the African boxthorn, outlines some of the issues involved in finding the right predator.

"In South Africa, we have one population of boxthorn in the Western Cape and a slightly different one in the Eastern Cape and we also find hybrids of the two. Fortunately in Australia they don't hybridise, but these insects are picky in what they eat, so we have to match the right insect with the right form or genotype of the plant.

Boxthorn is part of the Solanaceae family, which includes economically important plants like tomatoes, chillies and potatoes, so we are doing preliminary trials to make sure they stay away from other similar plants."

## Of Grasses and Ice Plants

Gamba grass (*Andropogon gayanus*), indigenous to southern Africa, was originally imported to Australia because livestock eagerly consume the tender young growth. But it can grow up to four metres tall, becoming hard and unpalatable. It has become a major fire hazard.

"We are still looking for a host-specific insect for that one," says Lenin, who adds that they will be extending their search further up into Africa.

Evans is also working on a South African succulent, *Mesembryanthemum crystallinum* (better known as ice plant) that is becoming invasive in parts of the United States. He is following up on historic documentation of two kinds of weevils in South Africa that were recorded as having killed several specimens in the Willowmore and Prince Albert districts.

"One of those weevils feeds on the crown and the fruit, while the other attacks the root."

## The Evolutionary Arms Race

Distinguished Professor Martin Hill explains that insects are generally quite specific in what they eat.

"Essentially what we are trying to do at the Centre for Biological Control is to reunite the invasive plant with its home country predators."

"I've always been fascinated by this whole insect-plant interaction," he explains. "Insects want to eat plants, and many millions of them do, yet the world is still green. Why is that? Because plants fight back. There is an evolutionary arms race

between plants and insects and then you throw predators and parasitoids on top of that. It absolutely fascinates me.”

South Africa’s highly successful citrus export industry in the Sundays River Valley around Addo offers a good example of how insect predators can be deployed for a positive outcome. Rhodes University has a long history of collaboration here.

## Death to the FCM

The False Codling Moth, which is indigenous to South Africa, is a nondescript brown creature with a larva that has the unfortunate habit of burrowing into the fruit. It is classified a phytosanitary pest by the European Union and is the bane of the citrus industry. A solitary contaminated orange means the entire consignment could be rejected. It is a problem that could easily be handled with agrochemicals. But European consumers are increasingly rejecting the use of pesticides on fruit.

“To get around that, we work on something called Integrated Pest Management,” says Martin.

Several researchers, Postgraduate students and Postdoctoral Research Fellows at the Centre for Biological Control are working on ways of outwitting the False Codling Moth (FCM or *Thaumato-tibia leucotreta*). A number of graduates from the Centre for Biological Control have been employed by Citrus Research International for their expertise.

CBC Researcher Dr Candice Coombes has identified a fungus that attacks the moth. Spores infest the larva when it falls out of the fruit to the ground, ready to pupate. The fungus penetrates the insect through the cuticle, using the host as a nutrient source and causing 80% mortality.

**“It happens in nature anyway. We’re just amplifying it to some extent.”**

Postdoctoral Research Fellow Dr Michael Jukes is researching the use of viruses against the moth.

One had been used for the last twenty years (*Cryptophlebia leucotreta granulovirus* or CrleGV-SA), while the other (*Crypto-*

*phlebia peltastica nucleopolyhedrovirus* or CrpeNPV) was discovered far more recently.

Dr Jukes has been researching whether a combination could be even more effective as a natural insecticide.

“After spraying the food source - in this case the orange - with the virus, it takes three days for the moths to succumb. It causes their innards to basically liquify. In doing so they contaminate other plant material so you can have secondary control that passes on after you have this initial spray of the virus. Unlike chemicals that have to be sprayed several times, the virus replicates its effect by itself. And it is completely safe to everything except the False Codling Moth.”

## A Dog in the Packhouse

While the small lesion left by the FCM’s larva is difficult to see, there are other ways of identifying contaminated fruit, says Martin. When an orange is damaged, by a moth larva burrowing into the fruit, for example, it releases a distinct scent signature made up of four volatile compounds that sends out a signal to a parasitoid wasp.

“They’re attracted to the plant that’s giving off a damaged volatile, basically communicating ‘I’m being hurt, come and help me. And the reward is that you’ll find an insect here that you can lay your eggs in’. We’ve shown that this little wasp can pick up that volatile with 100% accuracy. It’s really amazing.

“While the wasp is effective in the orchards, we are working on technology that will allow us to use its great sense of smell in the packhouse, but we have not yet found an appropriate application.”

However, the Centre has found that a dog can be taught to identify the smell. A German Shepherd Dog was trained, “and Max got it right every time, but again, how do you bring a big dog like that into a busy packhouse?”

With one of its partners, Citrus Research International, the CBC is now trialling ways of extracting the scent from every carton of fruit and concentrating it onto a filter that the dog can smell in a quieter section of the packhouse.



Postdoctoral Research Fellow  
Dr Evans Mauda  
Credit: Chris Marais



Postdoctoral Research Fellow  
Dr Michael Jukes  
Credit: Chris Marais



"If the dog picks something up, then you know that carton should not be sent for export."

## Righting the Imbalance

The Centre of Biological Control has been working for quite some time on predators that can control water hyacinth - plant hoppers, aquatic grasshoppers, weevils and mirids. But in places like Hartebeespoort Dam with high levels of nutrients in the water and cold winter temperatures that slow down insect activity, the national Department of Water and Sanitation has succumbed to the temptation to spray herbicide year after year. This has not proven a sustainable solution.

"Three years ago, there was a moratorium placed on herbicide spraying. The insects have been able to get going and do their thing and two years later, we have less water hyacinth on that dam than we've had in decades," says Martin.

But not all of CBC's work focuses on fighting problem plants and insects. The Centre is also looking at what happens after the natural boom and bust cycles that unbalance ecosystems after invasive plant infestations.

Postdoctoral Research Fellow Dr Antonella Petruzzella, from Rio de Janeiro in Brazil, has been busy working on the issue of restoring plant community health in aquatic environments.

"We get rid of the floating plants but we get invaded again by submerged plants. So how do we avoid that? How can we restore the native vegetation, and how can it be made more resistant to new invaders? I am trying to ensure a new native plant community has more resistance to these invading plants. So now I'm working on restoration and community ecology.

"Where I work is what comes after biological control."

By Chris Marais

## A Brief History of the CBC

In 2017, an informal research team (called the Biological Control Research Group) at the Department of Zoology and Entomology became the basis of the Centre for Biological Control.

Initially the CBC represented a consortium of Rhodes University, the University of Cape Town, the University of the Witwatersrand, the University of KwaZulu-Natal, Citrus Research International, and the Agricultural Research Council - Plant Health and Protection.

In 2019, memoranda of agreements were signed with the University of Free State, the University of Pretoria, and the University of Mpumalanga. The CBC now also collaborates

with agricultural and research institutions in Argentina, Australia, the USA, Brazil and more.

With 42 staff and more than 50 Postgraduates, the Centre is funded by the state via the Department of Environment, Forestry and Fisheries, the Water Research Commission of South Africa and the National Research Foundation through the South African Research Chairs Initiative. Other funding is sourced through through industry - for example Citrus Research International.

\* *In 2019, Distinguished Professor Martin Hill was elected as president of the International Organisation for Biological Control (IOBC), a four-year position.*

By Chris Marais



## Postdoctoral Research Fellow Dr Michelle Caputo: A Sea-Going Sleuth

A chance encounter in Newfoundland led Michelle Caputo to South Africa where she fell for the country's dramatic coastline, rich biodiversity and the chance to solve some of its enduring mysteries.

Michelle Caputo was born in Calgary, Alberta, and raised in Ottawa, a typical nature-loving child. She swam in lakes, camped in forests, snowshoed through Canada's icy winters.

More than a decade later, she was in Newfoundland, a place of cliffs, icebergs and whales, doing her Masters degree with Memorial University in the city of St John's. By night she'd be drinking beer with local fishermen and listening to Irish jigs. By day, she'd be on the beach in her trademark Day-Glo orange cap, immersed in fish blood and slippery entrails.

"No one loves gutting fish, so I did it for the fishermen as a way to get the fish heads and retrieve the otoliths (ear bones) that I hoped would reveal more about the strange habits of brook trout."

### Ear bone clues

Newfoundland used to be world-famous for its cod fishery. There were so many cod that, it was said, you could practically

walk on their backs. For 500 years it seemed there would be no end to the bounty.

But in 1992, the stocks collapsed, the victim of rampant overfishing and mismanagement. Most of the breeding cod have gone, never to return. More than 35 000 fishermen lost their jobs. Today those who remain make a living from Canadian government subsidies and from other fish - including the brook trout that interested Michelle.

These are freshwater fish. But for reasons no one could quite fathom, they periodically leave the safety of the lakes and head out to sea.

"It's possibly to access more food, but not all members of the population undertake the journey, so that's peculiar. Also, it's a long journey and the ocean is a lot more dangerous than the lakes," says Michelle.



*Dr Michelle Caputo and Professor William Froneman  
Credit: Chris Marais*

"Fish otoliths grow like a tree, with rings or a little more bone added every year. These rings can reveal a lot, for example, the ratio of two calcium and strontium isotopes in a particular ring would indicate whether they left the lake in that year, or not."

"I had studied biochemistry before switching to environmental science, and was lucky enough to have one of the leading fish biologists in Canada as my supervisor. He introduced me to the concept of using biochemistry - which governs everything in the body, from digestion and cell development to muscle contractions and metabolism - to look at conservation questions."

**Many months and hundreds of fish heads later, the ocean-going habits of freshwater brook trout remain a mystery.**

"We found there was no pattern. It's completely random."

## Salt Marshes and Dolphins

While she was still in Newfoundland, Michelle saw an advertisement for the Canadian International Development Agency. The CIDA would fund suitable candidates to go anywhere in the world for six months, to do development work in marine science.

"I applied on a whim and was sent to South Africa, working as a field technical assistant to Postgraduate students studying estuarine ecology and botany at the Nelson Mandela University in Port Elizabeth."

She worked on the estuaries of Knysna and Swartkops and helped count whales and dolphins in Algoa Bay. She also had a tantalising glimpse of the Wild Coast.

"Here in South Africa there is this huge, dramatic coastline, and so much biodiversity. Yet it's relatively understudied."

Michelle was introduced to Professor William Froneman, head of the Zoology department at Rhodes University. He spoke to her about a possible doctoral project on the marine mammals she'd glimpsed along the Wild Coast. Were the dolphins there all year round? Or was it only during the Sardine Run? Here too was a mystery.

## Knowledge Gaps

"The reality is that this is one of the most amazing biological processes in the world, yet we know very little about it. Most of the fisheries research is done in the Western Cape and West Coast," explains William.

"One of the real advantages of coming to South Africa as a Postgraduate student, is the freedom you are afforded," he adds. "In developed countries, opportunities for study are far more controlled and fragmented. And of course here, the fundamental questions still need to be answered."

"Our coastline appears to be particularly vulnerable to global climate change. We need to understand the response of our marine ecosystems to it. There's so much baseline data that's missing. In many places, we literally don't know what's there."

It was a dream PhD project, but Michelle's visa was about to expire.

"I went home and worked for the government in Ottawa, but I kept applying for money to come back and do this project. I was pretty much in love with South Africa, especially the ocean."

## The Coast gets Wild

Stars and funding opportunities aligned a few years later. Michelle started her first field trips to the Wild Coast in 2014.

"We had three field sites within Marine Protected Areas; one at Kei Mouth, one at Hluleka and the other at Mkambati Nature Reserve, going out three times a year from each location for three weeks at a time.

The idea was to visit each place in June, November and February over three years so we would be there during and outside the midyear sardine run."

The Wild Coast lived up to its name.

"I grew up around lakes in Canada with plenty of protected harbours on the sea. Here we were launching through the surf, and conditions on the Wild Coast can change pretty quickly.



We'd be sitting with this lovely sunny day and all of a sudden it would be foggy. Couldn't see a thing."

Surf launches entail a group of people wading chest-deep into the sea to hold the boat steady, its nose pointed into the oncoming waves. The skipper makes the call and within seconds, everyone who has to be aboard has to scramble in. On one particularly scary occasion at Mkambati, the boat nearly capsized in freakishly large swells that came out of nowhere.

"The one girl falls back screaming and bleeding. My other colleague bails out the back and swims ashore. The engine doesn't start because it's flooded, there's a wall of water in front of us and the skipper says 'Now we are going to die'. I yell, no, we are not going to die. We are going to jump out of this boat."

Somehow the engine started, they got back to shore, and "we're all crying and laughing and hugging each other."

## Tens of Thousands

Although they were focusing on dolphins, Michelle and her field team were amazed at the number of whales they saw in June of each year - southern right whales that were extended their range from the Western Cape, as well as humpback whales heading towards Mozambique to calve.

"Whenever we saw dolphins, or even whales, we'd stop and take data with the GPS as well as noting temperature, depth and a variety of other environmental conditions. We took photographs of their dorsal fins, which are as distinctive as a thumb print. And we took biopsy samples of dolphins for biochemical analysis. I had a modified rifle that shot a dart nicking a small sample (5mm) of skin and blubber. And yeah, I am a pretty good shot."

The results of her findings were a surprise. Sightings and biopsy samples of Common and Bottlenose dolphins made it clear that there were resident groups numbering in the tens of thousands along the Wild Coast. (They only saw humpback dolphins once.)

"Previous research had suggested that Common dolphins on the Wild Coast were only associated with the sardines. But there they were, feeding and clearly resident or semi-resident, in November and in February," says Michelle.

**Another surprising finding was that the resident groups of bottlenose dolphins are separate. They don't interact or mate with one another.**

"Genetically they may be similar," says Michelle. "But when we looked at the biochemical markers we saw the Bottlenose dolphins in Algoa Bay didn't overlap at all with the Wild Coast, specifically the Mkambati and Hluleka populations. The Kei mouth ones were also separate and similar to the Algoa Bay group. So it's like there's a separation somewhere in the middle of the Wild Coast. These ones stay this side, those ones stay that side."

This is important for management of the species, says William.

"The Newfoundland cod was seen to be one population, but it was actually two separate ones that needed to be managed in different ways. Because they were not, both groups crashed."

## Mada Mysteries

Michelle had one more encounter with death before she was done with her doctorate - this time, nowhere near a boat. After sitting at her desk day after day for 16 hour stretches, trying to identify dorsal fin photographs, a bloodclot formed in her leg and travelled up to her lungs. She fainted in a shopping centre, gasping for breath.

"So the desk is no safer than the sea. I finished my thesis in hospital."

Her Postdoctoral research promises to be just as dramatic. They are being supervised by Professor Froneman, along with collaborator Dr Jeremy Kiszka from the Florida International University.

Michelle will be spending long periods of time in the translucent oceans off northwest Madagascar, studying the Humpback dolphin. Its population has crashed in a number of places and it is now rarely seen off South Africa's coastline. This dolphin hunts close inshore, so it is very sensitive to human interaction and is vulnerable as a bycatch in nets. Yet this shy marine mammal still occurs around Nosy Be in surprisingly large numbers.

The Madagascan project is part of an educational grant from the US National Science Foundation, bringing together American and Malagasy students from previously disadvantaged backgrounds to learn ecological study methods.

"On our most recent trips, we were out during the mackerel fishing season, with Humpback dolphins weaving in and out of the boats, rushing the fish towards the nets, using them as a barrier to corral the fish. So we are going to do fisherman surveys this year to find out if they see a benefit to having dolphins there. Do the dolphins help chase fish into their nets?"

It's another mystery to solve for the sea-going sleuth from Canada.

**By Julianne du Toit**



## In the company of carnivores: Postdoctoral Research Fellow Dr Jessica Comley

Predators are always animals that surprise. They have fascinated Dr Jessica Comley since childhood.

By day, brown hyaenas live in the shadows, resting up in the thick shade of a thorn. By night they ramble over distances of 35km and often more, sniffing the wind and following alluring scents through the veld.

As omnivorous opportunists, they'll eat what life presents. If there is no water, they will take in moisture from tamma melons. If there is no fresh carrion to be had, they will make do with whatever else they can find - a beetle, a berry, a bone, a scrap of dried hide, a wild cucumber, a striped mouse, an unwary springhare. Whether it moves or not, brown hyaenas (*Parahyaena brunnea*) will probably check it out as a potential food source.

If a springbok lamb or Cape fox moves within their sprinting range, the chase is on. Their hunting efforts are usually described

as "unsophisticated", "clumsy" or "lacking in stealth" but a small percentage of their food is fresh - with korhaans, bat-eared foxes and larks being frequent victims.

They generally forage alone but they live in clans, consisting of a mother, pups safe in an underground den, sub-adult females and occasionally, roaming males.

Brown hyaenas bring food back to the den for pups to eat or will cache it under bushes or rocks.

Full grown, they look uncannily like an unkempt German Shepherd with shaggy brown pelts, pointy ears and thick cream-coloured manes.

*Dr Jessica Comley installing a tracking collar on a juvenile lioness*  
Credit: Jessica Comley

## Cunning and Technology

In 2008, three brown hyaenas - a male and two females - were introduced to the Mountain Zebra National Park outside Cradock. They had last been identified in the area over a century before.

Unlike spotted hyaenas that hunt in clans, and have distinctive whooping and cackling calls, brown hyaenas are elusive, shy and nearly silent.

Once translocated, their characteristically secretive nocturnal ways meant their welfare and whereabouts remained a real mystery. Jessica (Jess) Comley aimed to cast some light via her Masters degree in Zoology with Rhodes University in 2014.

Her MSc assessed the population through the use of camera traps over a year. Since it is nearly impossible to follow the nightly meanderings of a brown hyaena through rough terrain, Jess turned to cunning and technology to assess their population instead.

Camera traps, if in the right place, can yield fascinating data. They are movement activated and often reveal unexpected behaviour.

She studied what they ate (their feeding ecology) via their scats, and investigated Cheetah and lion kill sites to study the impacts these species have on brown hyaena.

"Before lions were reintroduced to the Mountain Zebra National Park, brown hyaena predominantly scavenged on medium-sized prey. After their release, they began to scavenge on the larger animals that lions primarily killed."

## Making Snakes

Using innovative ways of tracking down knowledge has long been part of a zoology student's arsenal. As part of her Honours degree research, also at Rhodes, Jess Comley decided to record how sedan drivers would react to a snake crossing the road. She fashioned mock serpents out of bicycle tubes stuffed with sand, their heads and tails made from silicon and cornstarch.

On the road to Kenton, not far from Salem, she took up her post with a clipboard behind some bushes on a long straight stretch of road, her mock snakes diagonally across the middle of the road - clearly visible but not in the direct pathway of traffic. She recorded how sedan drivers reacted.

The small mock-snakes were mostly ignored or overlooked. One was 'run over' by mistake or on purpose. When it came to the medium and big mock-snakes, drivers either continued straight or swerved to miss them. A few swerved towards them, but did not actually touch them.

"One dear lady actually stopped to help the snake to the other side of the road!"

Although they were not part of the study, Jess was left open-mouthed at the reactions of bakkie-drivers, who invariably

swerved to run over the mock-snakes and never missed.

Professor Dan Parker, University of Mpumalanga and Associate Researcher at Rhodes, has supervised all of Jess Comley's Postgraduate studies.

## The Feeling of Being Watched

For her Doctorate, Jess chose to study carnivores at Selati Private Game Reserve near Gravelotte and Hoedspruit. More specifically, she analysed kill sites and carnivore scat, seeking to understand how the lions, spotted hyaenas and leopards coexisted and competed for food and space in an enclosed and relatively small yet productive reserve.

"Apex predators and mesocarnivores like hyaenas and jackals are so important in shaping the ecology of an area."

Lions can be terrifyingly unpredictable and dangerous, which is why Jess worked with field assistants to make sure they were nowhere near when she was checking kill sites on foot. Most of the lions were collared and their whereabouts could be checked via telemetry. Sometimes the reserve manager or other personnel would go with her into dense and dangerous territory - like riverbeds.

One afternoon, Jess was out walking with a third year student, when suddenly, there was an ominous sound in the undergrowth.

"The Number One rule with lions is: Don't run. The student, who was walking at the top of the riverbank, bolted back to the vehicle. I clapped my hands and two male lions showed themselves. Fortunately they were quite full after a good meal. When I was confident that they would not chase me I made my move back to the vehicle."

"We spent a good five minutes laughing in the vehicle, then carried on with our work of looking for lion and leopard kill sites."

She had also used camera traps to capture individual animals and their actions. But some animals do not enjoy the feeling of being watched.

"Generally speaking, elephants react to cameras more often than most animals. They like to mess with them, especially if they are on a metal stake," says Jess. "We prefer to put them on trees, but sometimes for a specific angle you need to put it on a pole. Those are the ones that elephants mostly attack. And for some reason they love to throw cameras into water."

"Rhinos will also come up and examine them, then scratch themselves on them. Baboons like to fiddle with them. And a lion has just bitten one of mine right off the tree in Kariega."

## Back to Brown

For her Postdoctoral research at Rhodes University, Jess Comley circled back to the intriguing and mysterious brown hyaenas. One of the concerns, since they remained mostly





*Dr Jessica Comley searching for lions in Selati Game Reserve with the help of telemetry*  
Credit: Jessica Comley

unseen, was whether they were becoming genetically inbred. In the Mountain Zebra National Park, numbers had grown from three in 2008 to between 12 and 21 by 2015. This was a 400% increase in less than a decade.

She is now also studying the brown hyaenas of Kariega, Lalibela and Amakhala private game reserves.

Jess and colleague Rebecca Welch of the University of Mpumalanga have found that brown hyaena population sizes in small, enclosed reserves such as MZNP and Kwandwe Private Nature Reserve seem to be correlated to lion densities. "The more lions, the greater the food availability, which means more brown hyaenas."

**To avoid stressful and expensive capture for blood or tissue samples, she collected scat and analysed it along with their distinctive territorial marks for genetic clues and insights into their diet.**

Many animals mark their territory, but few in such an unusual manner as the brown hyaena. Every few kilometres, a male and female will straddle a grass stem, evert their anal gland and paste a black and white substance. The white part fades relatively quickly. The darker part remains faint but visible and pungent for longer. Both contain genetic material. Jess eventually

developed a near-supernatural gift for spotting them on grass stalks, often astounding park rangers.

## Gifts from Hyaenas

Having hyaenas in a reserve or ecosystem has distinct advantages. With their strong jaws and superpowered digestion, they clear up carcasses that could linger and cause disease.

The bone shards they leave behind are critical for the health of vultures. Adults take them back to nestlings for much-needed calcium. In the absence of bone fragments, vultures have been known to pick up any likely-looking white bits, including porcelain. Tortoises often eat brown hyaena scat for the calcium too, the better to build strong shells.

Large, brown hyaenas are definitely not part of the charismatic megafauna when it comes to tourists. They are altogether too silent and elusive, seldom spotted by ecotourists and even park rangers. How many brown hyaenas has Jess seen during all her years in the bush?

"Only one," she says ruefully. "It was during my Masters studies, and was disturbed during the day by tourists tracking cheetahs."

**By Julianne du Toit**



## Environments of Learning

Understanding life on this planet, and what it is to be a human being in this complex and inter-connected system, is a vital part of education, says Distinguished Professor Heila Lotz-Sisitka of Rhodes University's Environmental Learning Research Centre.

From the age of eight, all young Heila Lotz-Sisitka wanted to do was teach small children. It was her burning ambition, right through school in Port Elizabeth.

After studying Foundation Phase teaching at Nelson Mandela University, she plunged straight in. One of her most memorable posts was at Plettenberg Bay Primary School, where she taught Grade 1, the sea and regular views of whales and dolphins visible from the schoolyard.

At university she had learnt how to teach and what to teach. But now, standing in front of a class full of kids every day of the week, she was kept wondering about questions no one seemed able to answer. How do little children actually learn? How do they begin to read? How do they master language?

"It's a very under-researched area. But I was lucky because Stellenbosch University was running a B.Ed Honours course on Foundation Phase for a year, as a kind of trial. I just grabbed the opportunity and went. The course helped a lot. I still draw

on what I studied there. So that's where I started with learning theory, and combining it with environmental education."

It was such an intriguing subject that Heila opted to plunge straight into her Masters degree at Stellenbosch University during the early 1990s, as South Africa was readying itself for the great re-set and democracy. Environmental learning was an important part of this re-set, a topic she took up.

### This Key Opens Everything

"Children develop their language in the environment they find themselves in - both the social and the ecological environment. It is a key foundation aspect of all their learning. This in turn holds all the other areas, including language and mathematics. So you need to expand their environmental experience in order for them to expand their language and all the other skills and knowledge sets."

At the time, the subject of Biology or Environmental Studies was very narrow, technical and fact-based. Children were taught about the frog and its life-cycle, for example.

“But if you don’t teach children that frogs are indicators of biodiversity health, they’re only getting half-educated, and the whole point of education is to understand life and being a human in this inter-connected world.”

Her practical work with teacher educators during her Masters was in the Cape Flats and the greater Cape Town area, and she could see there that the children were not relating to what they were being taught in the classrooms.

“The system was not supporting children in learning about themselves within their environments. Water, land and healthy environments are foundations for everyone’s well-being. If we are going to survive as a species on this planet, then education must be leading the way to help children think about themselves and their relations in the world.”

The idea that environment is only about green conservation is so limited, she says. It was clear to her that inequality, the disconnection from nature, matters of waste, and ill health were all part of the same problem.

## The Fast-Forward Button

The first few years of the 1990s defined Heila’s future career path. Everything converged. Her Masters degree was upgraded to a PhD; she became a junior researcher and a founding member of Stellenbosch University’s Environmental Education Unit; she was recruited to become a publisher of school books at Juta; and she connected with Rhodes University’s Dr Eureta van Rensburg who had been appointed as Murray & Roberts Chair of Environment and Sustainability Education.

Heila also wrote and published a number of educational books, including one called *Our Street*, which was a fictional road in Khayelitsha. It drew on an education philosophy called Place-based Learning, which arose in the early 1990s.

Place-based education, she says, allows learners to engage with that which surrounds them - the history, culture, economies, stories and realities that are part of a place. These offer rich learning experiences, new vocabularies, and a change to link practice and theory.

After her Doctoral award in 1996, Heila came to Rhodes University to join Eureta, and in 1997, Heila was appointed as the Director of the Goldfields Environmental Education Service Centre.

## A New South African Education System

This was an exhilarating time to be in environmental education - specifically as the government was changing the old curricula. The ANC prioritised environmental education along with social justice and human rights, and declared it a principle in the 1995 White Paper on Education and Training.

By the time of the 2002 World Summit on Sustainable Development in Johannesburg, South Africa was a recognised leader in the field of environmental education.

“Our curriculum and our approach to biodiversity and sustainability concerns were very, very good.”

It all tied in well with the new approach of Outcomes-Based (OB) education, but there were problems right from the beginning.

“OB teaching can work well if you have teachers who are experienced in working in a broad and flexible way, with enough access to a range of different learning materials. We work with such fantastic teachers, and they are willing, but are not always well supported with training, or the scope and range of materials.”



Professor Eureta Rosenberg (second from left) and Distinguished Professor Heila Lotz-Sisitka (third from left) with Postgraduate students.  
Credit: Chris Marais



South Africa has struggled to integrate the new system of teaching, and in the latest iteration of the curriculum, has reverted to more of the older traditional methods and content - all the way back to rote learning and the lifecycle of the frog.

The ELRC has now become central in supporting teachers involved in environmental learning. One of the major projects, running since 2014, is called *Fundisa for Change*. It involves all South Africa's major environmental organisations - from the level of state departments to non-governmental organisations - in strengthening teaching capacity and providing relevant material.

Rhodes University was involved in the initial co-ordination of the *Fundisa For Change* with teachers, subject advisors and network partners, and now works across eleven southern African countries to implement a programme called 'Sustainability Starts with Teachers', which involves partners from the Fundisa for Change Programme.

## Rise of the Environmental Learning Research Centre

By 2007, the Environmental Education Unit had evolved and grown into the Environmental Learning Research Centre, a leader in its field. The United Nations University and the Ubuntu Commission have recognised it as a UN Centre of Expertise in Education for Sustainable Development.

In 2010, the Environmental Learning Research Centre was opened on the Rhodes University campus, built via a partnership between the South African National Biodiversity Institute, the Makana Municipality and Rhodes University.

With every year that passed, and with more and more Post-graduates, the ELRC's links, projects and status as one of the world's leading centres of environmental education learning grew.

As of 2016, Heila has held the DSI/NRF South African Research Chair Initiative (SARChI) Chair in Global Change and Social Learning Systems. Her research shines a light on a fundamental issue: how learning leads development. This has immense importance for a country and a world undergoing climate change shifts, degradation of ecological function and the global commons, a world desperately in need of new knowledge networks, and green skills in an economy that is undergoing transformation.

## A Growing Network

"At the ELRC we work collaboratively instead of competitively. We are focusing on the collective model of learning - one that can hopefully result in a broad social movement. Much of my work these days involves fundraising for students to do the research and to take a leadership role in their fields," says Heila.

After some years of absence, Professor Eureka Rosenberg (nee Van Rensburg) rejoined the ELRC as Chair of Environment and Sustainability Education, with Professor Rob O'Donoghue retiring Emeritus Professor of Environmental Education in 2016.

The ELRC works with UNESCO, with colleges and universities in Southern Africa, and has close alliances with countries in the Global South (notably India and various South American nations) that have similar challenges. The Centre also collaborates with Global North countries, including Sweden, Germany, Canada, Australia and Japan.

The ELRC also builds on its own growing alumni network.

"We bring students with us, through Masters and PhDs and student communities, to work strategically in areas that need new energy."

"We have a good alumni network that we draw on. They are mentors to many, and we have a community of scholarship. Our scholars, past and current, work together and learn from each other," says Heila. "The whole project is a highly collaborative team effort."

## Green Skills

Environmental education is increasingly important in a whole new sphere of future employment. These 'green skills' will help, in many ways, to help restore the planet's ecological functions, points out Heila.

"Wherever you find an interface of people and the environment, and if you want the environment to integrate into the economic activity in its broadest sense, you need skilled people."

The ELRC programme is analysing Government's various Sector Education and Training Authorities (SETA) systems in manufacturing, mining, agriculture, water and energy to plan better for green skills.

"For example, in agri-SETA, you need environmental competence around strengthening agro-ecological approaches to farming, and climate-affected agriculture. In the mining value chain, you need green skills mostly for rehabilitation, which is very under-developed in this country. There is major potential for green jobs if rehabilitation and compliance are taken seriously. Then you also have the more traditional environmental managers, people who manage the water systems, pollution, acid mine drainage and so on. There are plenty of green skills needed in the mining system, but people don't always see them."

"We did one study in the paint sector, and you won't believe how many green skills you need in paint manufacturing. One of our Postdoctoral Fellows is working on green skills in tourism and looking how you can mobilise the Expanded Public Works Programmes to strengthen community-based eco-tourism."

She explains: "You have to 'surface' the green skills in all these sectors and make them visible to the SETAs. If they can't see

that this is a relevant skill in an occupation, they're not going to fund the training."

## Transgressive Learning

To reverse climate change and ecological damage requires a society-wide change in ways of thinking and doing.

"It challenges you to look at where the boundaries must be transgressed if we really want to bring about change. These boundaries can be multi-dimensional. They can include the need to consider people's indigenous, local and practical knowledge - not just technical or academic knowledge."

"Norms must also be transgressed - specifically things like fossil fuel usage."

Sometimes the changes just seem like common sense, but are nonetheless fundamentally transformative. Heila mentions working with a student in Mozambique who was studying small-scale sugar farmers along the Save River. These farmers were expected to commercialise sugar cane farming. But the farmers soon realised that the sugar plantations led to soil quality that was too poor to support their livelihoods.

"So they transgressed the dominant norm, and established an alternative, which in this case was claiming some of their land back for vegetable production. Sugar cane co-ops pay only once a year and once its spent, there is no more money coming in. Vegetables offered them a chance to feed their families throughout the year, from their own crops and sale of surplus."

## Building a Societal Imaginary

Heila is extremely proud of how many environmental educators have graduated from the ELRC.

**"This centre is definitely a leading seedbank for environmental education. There are not many programmes in the world that have such a critical mass and dynamism."**

"I have personally supervised 100 Masters and PhDs. It is such a stimulating field because it is so complex and because we are learning all the time, so there are constantly new concepts in circulation."

"The scope of the work is expanding in a sense that many more people are taking it up, both from a policy perspective as well as from practice. That's why I love this field so much. There is a multi-dimensional complexity to it. And it is innovative."

"We are building, basically, a whole new societal imaginary in which education is the interface between people and the environment. It is what connects people to the world. This is a values-driven field, and people become passionate about it. That's why they tend to stay within it."

The Centre prioritises building bridges between academia, the professional world and communities.

"Students need to be seen, they need to engage, to continue with creative work but also to be involved with broader issues."

**Graduates from the ELRC often find jobs in government, academia, international organisations like UNESCO and environmentally or socially oriented organisations, she adds.**

"We also support our Postdoctoral Research Fellows, mentoring them in the professional field where their research will flourish. They start a project in the field, become project leaders, build a name for themselves and we help create a platform for them to flourish at that level. The approach here is this Community of Practice, where we build research leadership competencies."

"What keeps me optimistic? The young people I work with - they are unbelievable. We have such amazing young people in this country and in the southern African region. They are so ready. They're keen, they're interested and they just love it when they get a collaborative and interesting space where they can flourish and grow."

"That's my work - I encourage them to fly."

**By Julienne du Toit**



## The Scientific Social Sculptor: Dr Dylan McGarry

As a leading member of the international One Ocean Hub project, Rhodes University's Dr Dylan McGarry co-directs an intensive transformative governance research programme that aims to treasure, conserve and share the world's ocean heritage for all of society.

Dylan McGarry is the proverbial man of many parts: environmental scientist, educational sociologist, expert in sustainable rural development, mono-fin mermaid, critical researcher, dramatic storyteller, transgressive learning practitioner, empath and a self-confessed bumblebee that gathers and pollinates new concepts from one discipline to another.

"What I am not, is an academic," he will tell you. "If anything, you could call me a 'pracademic'."

Officially, Dr Dylan McGarry is a Senior Researcher at the Environmental Learning Research Centre (ELRC) at Rhodes University. He is also the Director of the Institute of Uncanny Justice, a co-founder of the Empatheatre Project and a co-Director of the massive One Ocean Hub backed by a 20 million pound grant from the Global Challenges Research Programme, which is run by Strathclyde University in the United Kingdom.

Dylan holds a transdisciplinary PhD in Environmental Education and Art. He specialises in Social Sculpture, a term coined by

Joseph Beuys, a German artist and co-founder of that country's Green Party as being the actions of an artist "who creates structures in society using language, thoughts, actions, and objects".

Social sculpture explores the potential of art to transform society, and this lies at the core of what drives Dylan McGarry.

### Animal Rescue

He was born at the seaside (Warner Beach, KwaZulu-Natal South Coast) and, at the tender age of one day, moved with his parents inland to a smallholding near the Valley of a Thousand Hills.

"My mom ran an impromptu animal rescue centre there," he says. "We always had little creatures like birds and bats limping around the property, plus about 20 tortoises that my mom rescued from fires. She also worked as a volunteer for the local



horse care unit. As a result, I grew up with a deep love for animals and Nature."

But Dylan's blissful days in the countryside ended when his parents divorced and he was sent to a leading boys' school in Durban.

"It was conservative and macho and all about rugby," he says. "For me, that was a nightmare."

## The Rhodes Experience

However, in 2001, Dylan McGarry's life took a turn for the better when he arrived in the far more liberal, creative space of Rhodes University to study subjects chosen from both the Science and Humanities disciplines.

"I did Fine Art, Zoology, Chemistry and, later, Environmental Science, with electives in Ichthyology and Marine Biology," he says. "I did my Honours in Environmental Science."

For his Masters, specialising in Sustainable Rural Development under Professor Charlie Shackleton, Dylan spent a lot of time with village children who lived along the Wild Coast and foraged regularly in nearby forests and along the shores.

"I discovered that more than 70% of their diet, animal-based proteins and macro-nutrients, was coming from wild foods," he says. "I started seeing the conflict between the 'white space' of classic Apartheid-era conservation and social justice."

## A Secret Society

"The children would secretly catch and eat wild animals like dassies and pigeons from the forest," he says. "They didn't tell their families because then they might be fed less at home. They formed this little group who helped each other, went to village elders (who were not relatives) for hunting advice and shared this knowledge between themselves."

Dylan McGarry worked on his study at three sites around the Coffee Bay area, and another three around Mount Ayliff.

"It was important to keep the kids' identities a secret," he says. "I also realised that conservation does not have to be driven by trying to protect animals. It can be driven by trying to protect a safety net for children vulnerable to, for instance, HIV/AIDS and TB. Protecting the biodiversity of these forests was protecting the children's social security - it shifted my perspective completely."

"Working with the kids, I got to use art in these projects. We ended up making sticker books, in which I illustrated all the species they were catching and the kinds of foods they were having. They started keeping anonymous two-week diaries with stickers, because a lot of them couldn't read or write."

"The innovation around trying to create new research methodologies through art was amazing - I thought: I can do this, I love this."

## The Arkwork Collective

By now, Dylan had formed a very close friendship with the legendary Reza de Wet, who lectured in the Drama Department at Rhodes. During the course of her career, she had won more theatre and literary awards than any other South African playwright.

"Reza was my self-proclaimed godmother," says Dylan. "She was also my greatest role model and teacher. When I came back from the Masters project, I was determined to use my art in a practical, instructive manner - and she helped me all the way."

Dylan had also launched an NGO called The Arkwork Collective with artist Mary-Ann Orr. One of its first major projects was an intensive round of practical research on the young town dump-dwellers of Makhanda (Grahamstown), Colesberg in the Northern Cape and Nelson Mandela Bay.

As had become his method, his first research steps here were to watch, listen and learn from his subjects until he understood more about their circumstances.

"We began exploring issues like self-esteem, new kinds of approaches to livelihoods made from the dumps and, eventually, trying to get the youngsters away from there," he says. "I worked with Mary-Ann, and we would make puppets from the plastic refuse that the people could use to tell their stories."

Another mentor for Dylan was (and still is) Professor Heila Lotz-Sisitka, who holds the South African National Research Foundation/Department of Science and Technology Chair in Global Change and Social Learning Systems, and is a Distinguished Research Professor at the ELRC at Rhodes University.

"She invited me to do a PhD through the Centre and at first I said no, I'm not an academic. I just want to make art, work with storytelling and try to shift practices. She said well, that's exactly what we do here. Heila suggested I do a grounded theory project in any medium, and thus began a journey down an incredible rabbit hole."

## The Earth Forum

The title for his PhD would be *Empathy in the Time of Ecological Apartheid - developing pedagogies for ecological citizenship*.

"The Conference of the Parties, known as COP17, was due to be staged in Durban two years from then," says Dylan. "I then met Professor Shelley Sacks, an artist who ran the Social Sculpture Research Unit at Oxford Brookes University. She had come out to SA to run a workshop I was part of."

"I told her I wanted to travel by train to as many towns as possible in this country, and create a piece of something that

would incorporate the stories and speak on behalf of all the people of South Africa at COP17.

"Shelley and I co-developed something called the Earth Forum, which centred on a sculptural object on a round oiled cloth we would take to different communities on this train trip. We would try to get a diversity of citizens sitting around this cloth and going through a deep, immersive, empathetic public storytelling experience based on their relationship to land. They would then put a handful of soil from their home-place on the cloth as a signature. The oiled cloth would absorb the soil.

## The Climate Train

"At first, we were just going to 'take the train', so to speak, and in preparation for this we did a regular Trans-Karoo rail trip from Cape Town up to Johannesburg," Dylan says. "We stopped over in three towns along the way, just to get a sense of what we would do on the big journey. Then someone suggested: why don't we just get our own train and travel around, like the circus trains of old, from town to town?"

Dylan, in collaboration with other artists, accessed funding for this ambitious programme from the British Council, the German government and South African authorities, and in the form of support from the Passenger Rail Agency of SA (PRASA).

"They let us have one of their trains for 41 days and we retrofitted it," he says. "There were 2 sleeper carriages (30 beds), a dining car, a conference carriage, a gallery carriage, cinema carriage,

open-studio carriage and two carriages dedicated to just plants, vegetables and seedlings.

"We put out a call to South African artists, poets and filmmakers and once we had our team, we travelled to 17 towns around the country, staying in each place for two days and moving on at night."

"At each platform where we stopped, we would unpack and the visual artists would work with local people. I would do the Earth Forum, there would be meetings with all kinds of community groups. My right hand person throughout was Elizabeth Fletcher, who runs an online media agency in Cape Town. We ended up in Durban in time for COP17, during which the train became a side-event venue and meeting place."

## Deep-Diving

Dylan McGarry's PhD drew heavily from his arduous but life-changing Climate Train experience. But it left him exhausted.

He accepted an invitation from his brother Travis, who managed a 60-foot catamaran for an internationally prominent family, doing regular crossings between the Mediterranean and Caribbean regions.

"I joined my brother for 9 months," he says. "I worked as a skivvy on the boat. Travis bought me a monofin and I spent a lot of time learning how to deep-dive - I basically went to Mermaid School."

**It was an essential in-the-water experience for Dylan McGarry, in terms of projects that lay ahead in his future.**

## Empatheatre

Returning to South Africa, Dylan joined playwright and theatre-maker Neil Coppen in developing a research-based, theatre-making methodology they called Empatheatre.

"It was a perfect mix of my PhD learnings and all the work Neil had done in theatre," says Dylan. "The term comes from our collaborative work in sculpting new social spaces that act as amphitheatres for empathy."

The Empatheatre website explains further:

"The process begins with extensive action-based research in which co-participants and key partners work to identify matters of concern and a pressing central question."

"Through these research explorations the team works iteratively to shape the research data into an engrossing, relevant and true-to-life theatrical experience. The theatre production offers new ways of seeing different perspectives on a complex situation, and above all honours the participants' narratives."

One of the project's major successes was a 2015 theatre production called *Ulwembu* (isiZulu for spiderweb), dealing with brown heroin use in the communities around Durban. Locally



*Dr Dylan McGarry and his service dog, Pearl  
Credit: Chris Marais*

known as Whoonga, the drug is a blend of cheap heroin and other toxic chemicals. Research of the subject and creation of the subsequent production took two years.

"The play was toured around different drug centres and communities and staged, for a week, in the Hillbrow Theatre," says Dylan. "Politicians, policing authorities and addiction experts saw it. It was the first time the script of a play became a policy report, and resulted in extra-legal changes to the drug laws."

## T-Learning

Once again, Professor Lotz-Sisitka introduced Dylan McGarry to a new concept: T-Learning, which refers to "transformative, transgressive learning in times of climate change."

The T-Learning Knowledge Network spans nine partner countries across Asia, Africa, Latin America and Europe, and seeks to "uncover and enable T-Learning processes at the climate-energy-food-water security and social justice nexus."

"At our first T-Learning meeting, Heila said you love methodology and working between art and science. So why don't you become a bumblebee in this network, operating between the different projects in the nine countries, learning their methods and sharing them with the members?" says Dylan.

"It was perfect for me."

Dylan combined his Empatheatre work into the T-Learning project and then met Saskia Vermalen, a legal anthropologist at Strathclyde University in the UK.

"She was fascinated by the Empatheatre *Elwembu* story, how we worked with legal processes without going through court-rooms," says Dylan. "We were facilitating deep empathy to get people to think about their practices, rather than going through the long legal process."

## One Ocean Hub

Saskia told Dylan that the Environmental Law Centre at Strathclyde University was compiling a 20 million pound proposal from the Global Challenge Research Fund for a huge project called the One Ocean Hub.

"She saw the T-Learning work and Empatheatre as a part of this," says Dylan. "They had been looking for a process of learning that could be used across many disciplines."

Asked about the One Ocean Hub, he says:

"It's a gathering of lawyers, marine scientists, anthropologists, sociologists, artists, economists, all coming to think about how we can change and manage the way in which we govern the oceans - everything from international marine law to social justice rights to access to small-scale fishing licences to indigenous practices and spiritual connections to the sea."

"The whole point of the Global Challenge Fund was that these had to be intractable, incredibly complex problems, and that you're putting the best minds together to try to respond to them."

Dylan McGarry joined the team and became co-Director of both the Arts and the Transformative Governance programmes.

"This year (2019) has mainly been spent setting up the first year of research," he says. "I have 4 permanent staffers on my team, a large network of collaborators and Empatheatre, which is being used as one of the main methodologies. The countries directly involved in the One Ocean Hub are Ghana, Namibia, Fiji, Solomon Islands and South Africa. Bursaries and scholarships will also emerge from Hub funding and my goal is to create an Ocean Humanities and Education programme here at Rhodes."

"The ocean is an amazing unifier, and everyone has a different reason to appreciate and love it."

By Julianne du Toit





## Living in a Mediated World: Professor Lynette Steenveld

Professor Lynette Steenveld, head of a landmark Andrew W. Mellon Foundation funded research project at the Rhodes University School of Journalism & Media Studies, is a storyteller with a passion for documentary film.

Our interview with Professor Lynette Steenveld of the School of Journalism & Media Studies at Rhodes University takes place on the grand old back porch of her home in Makhanda.

The late afternoon light casts stencilled shadow-shapes onto the wall through the wooden filigree and a soft breeze keeps the wind-chimes in business.

"This is my favourite place in the world," says Lynette. And as the afternoon goes along, we realise we are passing time with a classical storyteller who has, indeed, seen the world.

Lynette, a group of her colleagues in the department and various members of her Postgraduate cohort are busy with a four-year project funded by the Andrew W. Mellon Foundation, entitled *Media and Sociality: Probing Coloniality and Decoloniality through the Media-Social Belonging Nexus in Contemporary South Africa*.

It examines the ways in which digital media enable (or not) different ways of social belonging and social connectedness amongst the marginalised.

"Those whose lives are still traumatised by colonialism and apartheid," she says.

"The aims are to probe the ways in which digital and social forms of communication, knowledge-making, and archiving are being used in this new iteration of an ongoing struggle for full personhood, recognition and inclusion," the Mellon funding proposal states.

"The teaching programme explores the ways in which the digital and social media are being taken up by the 'wretched' of South Africa in their processes of forging new socialities, new social

relationships, new knowledges, and new forms of political association as ways of challenging and transforming coloniality: of being, knowledge and power."

This project utilises the experience and resources of a journalism school that has grown in academic stature since its inception more than 50 years ago. One of its stated aims is to keep abreast of the ever-changing South African media world so as to produce graduates with the right skill sets and theoretical grasp of their field.

And Lynette Steenveld, one of the key theorists at the School, is critical to this mission.

## Childhood in Two Worlds

"I was born in Plumstead, Cape Town," she says. "When I was 14, Plumstead was declared a White Group Area and as a so-called coloured family we had to move out. I remember one particularly depressing Sunday afternoon, when my dad drove us out to an old tenement building somewhere on the Cape Flats that the Government had offered us as an alternate accommodation."

English immigrants bought the family home.

"The crisis of where to live was solved by the extended family: an aged sister living by herself sold her home to my dad so that we could have a 'decent' roof over our heads," says Lynette.

"The new home was still on the Cape Flats, but better than the government-built tenement. A couple of years later, my visionary parents tried to mitigate the trauma of our forced removal by using what little capital they had 'gained' from the transactions - they took the family to Europe for six months.

"It was the first time any of us had stepped outside South Africa, and it was life-changing for me and my family."

Their journey was one of those old-time overseas trips that only the very rich and idle could afford these days: they sailed up to Trieste, Italy, bought Eurail tickets, saw the Continent and spent the last few months in England.

"You have to understand the context," says Lynette. "Although we had lived in Plumstead, we went to school in the old District Six, where both my parents taught. We were the only children at that school who ever arrived by car."

"On Sundays, we would go for a drive around parts of the coast and around the Peninsula. At Sea Point, where the promenade is now, there used to be a set of swings for children. We were not allowed on them."

"We knew where we could and could not go in South Africa. My parents were critically aware and politically involved."

And here, suddenly, was a six-month break from all that. They could go anywhere, sit anywhere and not have to police themselves.

"We must have visited every museum in Europe," says Lynette. "That trip showed me the scope of my parents' imagination.

It showed me who they really were. I mean, people like us did not do things like that back then."

But another surprise lay in store for young Lynette Steenveld - she would not be returning to SA for a while. Lynette and her brother were taken care of by an uncle in Derby who'd had to leave South Africa on a one-way exit permit. Lynette did her O and A-Levels at a local school. She then went on to finish an undergraduate degree at what is now Anglia Ruskin University.

After a brief spell back in Cape Town, she returned to England and completed a Postgraduate teachers' training course at Brighton Polytechnic, where she most memorably read and wrote about the Brazilian educator, Paulo Freire.

## Return to South Africa

In 1980, Lynette came back home and taught at Harold Cressy High School in Roeland Street for three years.

"I had formed a little African Literature club, and in the afternoons, we discussed works from the African Writers Series, published by Heinemann at the time," she says. "I got them from my dad's library (many books kept in the boot of his car), as he was doing the same thing at his school."

This landmark series included the works of Bessie Head, Wally Serote, Denis Brutus, Peter Abrahams, Sol Plaatje and authors from East and West Africa, her favourites being Ngugi wa Thiong'o and Ayi Kwei Armah.

"Then I came to Rhodes," says Lynette. "I thought I might want to be a journalist."

Not long after enrolling at the School of Journalism & Media Studies, she discovered another passion: documentary film. The course was run by Professor Keyan Tomaselli, who later wrote *The Cinema of Apartheid and Appropriating Images*.

"Keyan supervised my Masters, which was on the anti-Apartheid documentaries of the 1980s," Lynette says. "Many of these films were about how you build community and how you give people a sense of dignity and change consciousness. They were aired in South Africa at events like the Weekly Mail Film Festival and privately, to various community groups. That was a very important part of the Struggle - using film to discuss issues."

## The American Leg

Then Lynette Steenveld left Rhodes briefly to study for another Masters, this time in the United States at the University of North Carolina at Chapel Hill. There, she had another 'free moment' experience:

"When I was doing my Masters at Rhodes in the 1980s, the library had a Banned Book Room," she says. "You had to get permission from your supervisor to read a particular banned book, take the slip to the librarian who would then find the book for you and place it on a table. You would have to read the book right there."

"At Chapel Hill, I had to research the Black Panther movement. I just went into their library, looked up the Black Panthers on microfiche and had access to all their newsletters. I remember thinking how extraordinary this was."

Her MA thesis in the USA centred around three fictional films with a South African subject: *A World Apart*, *A Dry White Season* and *Blue Freedom*.

She spent six weeks travelling through North America on a Greyhound Bus, working her way from California through the Southern states and up the East Coast.

"Sometimes I stayed with friends, other times I would find cheap accommodation in little towns and just talk to the people," she says. "My personality, my world, is about openness, exploring and questioning."

## Back to Rhodes

Lynette returned to South Africa, and expanded the film offerings in the School of Journalism & Media Studies to include African Film, Latin American Film, Gay Film, Feminist Film and basic European Film Movements, opening the world to her students. She completed her PhD there on the *Mail & Guardian*.

"I loved the teaching and still do," she says. "I always felt I could give my students a world consciousness by teaching film."

She taught them, for instance, about the Italian journalist Oriana Fallaci, a controversial war reporter who specialised in profiles on people of power.

Former US Secretary of State Henry Kissinger recalls his interview with Fallaci as one of the most disastrous decisions of his life. Asked about his popularity, he 'confessed' that it was because of his Lone Ranger approach to foreign policy. He offered the image of the lone cowboy riding ahead of the wagon train, into towns and villages with only his horse - but, of course, also his gun.

Lynette also gave a course on the Muckrakers, American reformist journalists from the first decades of the 20th Century. Their working lives hold great current significance because of the various magazine investigations they carried out, which included urban poverty, child labour, corporate monopolies and corrupt politicians.

"They were the people who exposed the nascent growth of Capitalism in America," says Lynette, who also helped establish the Masters in Journalism & Media Studies at Rhodes.

"At first the Masters was very popular with African journalists from outside this country, who wanted to add to their qualifications. We taught them how to think critically about the world and newsroom practice. Now more South African students are doing the course."

The University bought the local *Grocott's Mail* in the 1990s and for some years Lynette was Chair of the Board at the newspaper.

"It gave me a good insight into the everyday workings of a newspaper," she says. "The production, the management, the finances and the audience."

But her first love is the wide field of Media Theory. Even as a self-confessed "non-social media person", for instance, she is completely engrossed in one of her students' MA thesis on Black Twitter, one of South Africa's most influential digital communities.

## The Mellon Project

"This work began in 2018," says Lynette. "The funding was for research and a number of Honours, Masters and PhD scholarships. The project looks at the way in which digital media creates different kinds of socialities, different ways of being together. It tracks the way changes in the media change relationships between people."

Part of the programme is also to explore Southern Theory, which dissects colonisation as a key moment in world history and how it has shaped relations between countries.

"Europe, for instance, colonises the world, hands it back to the colonised and still manages to be top dog - how does that happen?"

Southern Theory challenges Western dominance in all spheres of influence and identifies alternate ways of thought and action.

"What processes produce under-development? What does it mean to be Modern?" asks Lynette. "Contemporary literature recognises that 'Europe' is a consequence of the stolen wealth of many places. Southern Theory, as a part of the Mellon funded project, is also being integrated into courses at our School."

"It's a set of ideas that the students are hungering for, in this moment of history."

By Chris Marais





## A Curious and Tiny World

Structural Bioinformatics is a fairly new field of science, drawing on several other disciplines to better understand the macromolecules that make life function. It is Professor Özlem Tastan Bishop's abiding fascination.

What does it look like when a drug particle binds with an enzyme at molecular level? And on that very subject, what are the visuals of a protein mutating, or starting to become drug resistant?

These are some of the scientific questions that Professor Özlem Tastan Bishop loves to explore. She has seen these very phenomena, happening at levels so impossibly tiny and insubstantial that they are barely more tangible than thought.

This is the field of structural bioinformatics, one of the newest scientific disciplines in the world. It brings together computer science, mathematics, physics and biology to fathom unimaginably minute but essential activities happening within living bodies.

These very disciplines have all been part of Özlem Tastan Bishop's life, starting with mathematics and physics.

"I grew up in Istanbul, Turkey, and lived with my parents and brother in a house on the European side of the city. One of my first memories was my father introducing the trees in the garden to me. He worked at the Central Bank and spent a lot of time

with me, teaching me mathematics and playing *tavla* (backgammon). He's the one who made me love maths and physics."

From primary school onwards, Özlem's favourite subject was always mathematics. But for a few years in high school, thanks to the *Indiana Jones* movies, she yearned to become an archaeologist. In the end, she decided to follow her life-long love, a career in physics and mathematics.

### Physics Makes You Stronger

She was able to get a place at Bogazici University in Istanbul, one of the top institutions in the country. The Physics Department there was known to be tough, and the graduation numbers were very low.

Adding to the stress was the time spent getting to and from the university - six hours in the traffic every day.

"So I went into residence, and there I made friends with a student studying biology. I heard from her about DNA and genes and so on over our long night chats. It sounded much more

interesting than what we had studied at school. At university, we had to take an extra module each semester, and I made a point of choosing a biology one every time."

"I stuck to physics though. I was determined to make it."

Özlem graduated with a mere handful of other physics students. Now she wanted to study further, preferably in a field that would pair biology and physics. There was no such option at Bogazici University, so she settled for a Masters Degree at the University's Department of Genetics and Molecular Biology.

"By then I had switched more to living things. But it was challenging to learn biology after physics. It's a totally different language and way of learning. I could work anywhere to solve a physics or mathematics problem - at a café, in a bus while going home; but for biology I had to concentrate and read in total silence. I was also not good at memorising. I could derive a Schrödinger equation easily, but I could not remember a simple metabolic pathway."

Özlem loved laboratory work and leapt at the chance of an offer to do her doctorate at a major Japanese university with someone who believed he had done the impossible - synthesise proteins without ribosomal proteins. This scientist offered Özlem the chance of a lifetime - to be part of this ground-breaking work, to join in the experiments and have her name published in a prestigious journal.

## Everything Goes Wrong

"Unfortunately it turned out to be nightmare. I couldn't produce the results in any of the experiments. He asked me to find another PhD project for myself. Not long after that, his findings were published in a journal."

There was only one tiny light at the end of the tunnel, and that was a promised trip to the Max Planck Institute of Molecular Genetics in Germany, to start with a new project that Özlem had designed in Japan.

"I didn't give up on that promise because I was tough, thanks to that Physics Department in Turkey."

During the months at the Institute in Berlin, under new guidance and in new conditions, Özlem tried repeatedly to produce the elusive results, and failed.

Eventually, she, her host-supervisor and other scientists at Max Planck concluded that what had been claimed was impossible. She returned to Japan and had to tell her Japanese counterparts that they were mistaken, that the premise of the article was wrong and they would have to publish an erratum.

"It was nearly impossible. I had to return with this terrible burden."

Later, she decided to finish her doctorate on the subject of ribosomes at the Max Planck Institute and Free University in Berlin, graduating in 2003.

"I learned to triple-check my experimental results. Now, I strongly teach this important principle to my students. I feel so happy

when they tell me that they have identified a mistake and will need to repeat the calculations. It is important to be able to identify experimental mistakes but more than that, it is very important to be able to share those mistakes to do better."

## The Path to Structural Biology

During her PhD degree, Özlem began to familiarise herself with structural biology, specifically x-ray crystallography and cryo-electron microscopy. The Max Planck Institute for Molecular Genetics was one of the starting points of a long journey of ribosomal crystallography - which took almost 30 years by persistent scientists to achieve results. In the end, the Nobel Prize in Chemistry 2009 was awarded jointly to Venkatraman Ramakrishnan, Thomas A Steitz and Ada E Yonath.

Yonath started to study the structure and function of ribosomes at the very same institute in Berlin roughly 20 years before Özlem completed her PhD.

Özlem studied structural biology during her Postdoctoral years, specifically cryo-electron microscopy at the University of Texas, Houston, USA, and x-ray crystallography at the University of Western Cape and University of Cape Town in South Africa.

Cryo-electron microscopy means freezing samples, capturing the two-dimensional images in different orientations, and then building a three-dimensional structure of these macro-molecules, using computation to bring it all together. X-ray crystallography, on the other hand, requires crystallisation of the macromolecule, collecting diffraction patterns and using computation to solve the three-dimensional structure.

## DNA, RNA and Very Busy Proteins

While the coding of the human body happens courtesy of the DNA, its commands are translated by RNA and ribosomes into proteins. There are tens of thousands of different kinds of proteins and in terms of work, they do the heavy lifting.

They whizz around the body in the form of hormones, enzymes, transmembrane proteins and other molecules, carrying messages, executing orders, repairing damage, extracting nutrients, activating nitrates, dealing with toxins and fighting intruders - all at a frenetic rate. This biochemistry keeps the body and all its many working parts operating smoothly, without the least bit of awareness or input from our conscious brains.

Proteins behave and function differently based on their chemistry and their distinctive shapes, which can be as complex as "furiously mangled coat hangers", as science writer Bill Bryson once put it.

It is these shapes that Özlem is pinning down. Her favourites are enzymes.

"They are easy-going proteins, especially if you learn how to speak their language," she says. "They are also very important because they catalyse all reactions. They basically make us."

X-ray crystallography is one of the best ways to envision these tiny objects.

"After the protein has been purified and crystallised, the x-ray goes through and diffracts. The diffraction basically depends on the position of the atoms in the protein. So you do this from one position, get a diffraction, turn it a little, get another diffraction. You get a number of them and then from the position of the dots, using physics, you can build the 3D structure of the protein."

## Bioinformatics and Big Data

In 2006, Özlem was offered a Postdoctoral Research Fellowship at the University of Pretoria (UP), where she could finally develop in her chosen field of bioinformatics.

**"This is a field that was first called 'computational molecular biology' - and is basically the application of computers to address biological questions. It involves a huge amount of data."**

"With the completion of the human genome data in 2003 and other technological developments, geneticists and biologists started to produce lots of data which had to be stored, organised and analysed. So this exponential growth in data production and entailed needs boosted the bioinformatics field further."

"It is very broad, and can be applicable to genome analysis, establishment of databases, and the tools to analyse those things. So my interest is in structural bioinformatics, which is studying the structure, dynamics and interactions of macromolecules, mostly proteins."

"Structural bioinformatics is very important in rational drug discovery - an approach that uses the three-dimensional information of drug target proteins. That's what I started to learn more about."

Özlem hosted a series of workshops on bioinformatics at UP in 2008, and it was then that she first encountered Professor Gregory Blatch of Rhodes University. He later encouraged her to apply for a position there to set up Postgraduate studies in Bioinformatics.

## A Decade of Bioinformatics

Özlem joined Rhodes University in October 2009. She cleared out a storage area in the Biological Science building and with the help of many people turned it into the bioinformatics computer lab.

In 2010, she says, the lab started with three MSc students who followed her from the University of Pretoria. Three years later, the lab became a Unit, and Özlem was appointed Director.

"Since then the Research Unit in Bioinformatics (RUBi) has grown exponentially. This is mainly due to our one-year MSc in Bioinformatics programme. This is a unique programme in

the country and it attracts a lot of students. We have at least 30 applications every year from throughout Africa. We select a maximum of 8 students and the top students usually continue with their PhD degrees with us.

"In the last 10 years, I have graduated 13 PhD candidates and more than 30 MSc students. Currently, I have 4 Postdoctoral Research Fellows, 15 PhD candidates, 2 MSc and 1 Honours student. I regard my Postgraduate students as my 'academic children'. I love seeing them maturing intellectually and some getting their own positions or jobs while others become collaborators."

## The Domino Effect

In recent years, Özlem's research focus started to move from traditional rational drug discovery. She is now mostly interested in identifying alternative drug targeting sites and analysing mutation effects on proteins.

"Most of the current drugs are designed to block the function of protein by binding to functional site, which is called an 'active site'. This could get problematic if the drug is targeting a protein of a microorganism that causes disease (pathogens), as humans might have a similar protein. Then the drug could interact with the human protein too and cause toxicity, as the active sites are highly conserved," says Özlem.

"An alternative way is to find protein regions away from the active site that are not so similar to the human and pathogen proteins and that can change the activity of the active site from a distance in the presence of drugs. These regions are called allosteric sites and they are my favourites."

"An allosteric site is like the first domino in a row going to the active site. When you give a push (by drug binding), then all the other dominos fall down and carry the effect of the push to the active site."

But it is not enough to identify alternative drug targeting sites. One also needs to keep in mind the effects of mutations. Mutations are changes in the DNA of an organism. Özlem's interest is in missense mutations - the ones occur that in the proteins.

"My more recent interest is in understanding the effects of missense mutations on protein structure and function, in order to understand the underlying causes of many inherited diseases; to uncover drug resistance mechanisms; to investigate drug sensitivity issues in certain populations for precision medicine purposes and several other applications," adds Özlem.

## A Very Tiny Arms Race

There is no consciousness, no thinking presence at the level of biochemistry. Yet molecules proceed as if there is. They communicate, they act in unison at times, they accept and reject drugs, they evolve or mutate. Özlem has seen how amino acids, the smallest building blocks of proteins, communicate with one another.

"It's almost like a level of consciousness is happening."



She and her research team have produced videos showing how proteins accept or reject HIV and TB drug molecules.

“So sometimes you can see the flap opening and the drug getting out. You identify a signal from one amino acid to another. We developed a dynamic residue network analysis to show which residues (communication paths) are popular.”

“It’s like at a party, where some people are more popular than others. They go and talk, and everybody knows them. Some residues are like that - very popular and functionally important. This popularity sometimes changes with mutations though.

“We discovered that sometimes mutations can have allosteric effects too, hence the resistance to existing drugs. Pathogens can be very clever in introducing mutations to escape from drug pressure.”

To get around growing drug resistance, an effector molecule can be bound onto the protein, away from its active site.

“We are trying to use that mechanism to design drugs that don’t bind to active sites but bind to somewhere that is actually a mutation, to try to reverse that defence mechanism.”

“It’s like an arms race. It’s like science fiction, that’s what it seems like to me.”

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**By Julianne du Toit**



## Hook, Line and Sinker: Professor Warren Potts

What Professor Warren Potts and his team at the Department of Ichthyology and Fisheries Science have learnt in the past year about Marine Protected Areas holds immense hope for coastal fisheries as climate change transforms local conditions.

There are at least 400 000 recreational anglers eagerly swinging their bait into the surf somewhere along South Africa's 3 000km of coastline every year. They all have their favourite secret places, lures and methods, but collectively, they are hauling out at the very least 400 tons of fish annually.

And that's only if you calculate that anglers take out 1 kilogram of fish per year. It's probably way more, but even at this unrealistically low estimate, the collective catch is still equivalent to one of the commercial fisheries, points out Professor Warren Potts of Rhodes University's Department of Ichthyology and Fisheries Science (DIFS).

South African recreational anglers are also exceptionally keen. They are out there an average of 30 days a year, nearly double the rate of most other anglers in the world. They are a highly competitive lot, with many investing in the best tackle. Some

are even using drones to drop bait into areas of the surf zone that were previously unreachable.

### An Obsession

This is a tribe that Warren has known since the age of 5, when he and his family, then living in Kempton Park, Johannesburg, holidayed at Shaka's Rock north of Durban.

"I saw a rock pool and there were fish swimming around in it, and I was completely fascinated from then on."

His uncle took him fishing, and the bug bit hard.

"After that, it became a permanent, complete obsession. Wherever I was, I fished. In Jo'burg I fished for carp, bass and barbel - mostly at the Vaal and Hartebeespoort Dams. I ended up fishing competitively."

When Warren was 9 years old, he was picked to join the Drakensberg Boys Choir School where he spent the next 5 years singing all over the country and touring the world - starting as a soprano and finishing as an alto. Any spare time Warren had between academics and singing, was devoted to flyfishing for trout.

"I went overseas with the school, probably 5 or 6 times. We even went behind the Iron Curtain, to Hungary in 1985 - an amazing experience. It was still full-on Communism. We sang in cathedrals all over Europe."

For 3 weeks at a time, they would tour South African provinces, with the boys staying in groups of 2 or 4 with local hosts.

"From Springbok to Pongola, everywhere in the country. It really exposed me to the broadness of South African society."

## The Lure of Ichthyology

Back in Johannesburg, at Sandringham High School, he remembers paging through a thick book full of possible vocations, jobs and training during a career guidance class.

"I found an entry on fish and ichthyology. It noted that anyone wanting a career in it would need to study at Rhodes University. I closed the book and thought, well, that's what I'll do. I was sorted from that day."

At that time, Ichthyology at Rhodes was only a Postgraduate course, so Warren did his BSc in zoology and entomology - enjoying the latter so much he nearly deviated off course to study insects further. But fish won the day.

"Sadly, it took me until my Honours year to get into rock and surf angling, mostly around Port Alfred and Kenton. I was lucky. I met up with some really good local fishermen."

In Honours year, he studied fish conservation. For his Masters degree, he focused on aquaculture. During his PhD, he researched freshwater fisheries. In his Postdoctoral Research Fellowship, Warren plunged into sea fisheries.

Then in 2005, Head of Department Professor Warwick Sauer came to Warren and partner Amber Childs (who had just finished her Masters degree at the department) with an irresistible offer. The owner of a fishing resort in Angola was amenable to research being done on this little-studied part of the coast and ocean - preferably a couple who could guide guests.

## The Angolan Years

Then followed one of the most intense, gruelling and exciting 2 years of field work in the young couple's lives.

The lodge, about 250km north of the Kunene River, is at the confluence of the very cold Benguela current flowing northwards, and the warm Angolan current which flows south.

"Where they meet, you get this super-high productivity."

Sourcing supplies was always a challenge. Tea and coffee were only occasionally available. After the civil war, the Angolan government devoted itself to building up infrastructure and

essentially let the citizens forage for food - most of it from the sea.

"Even at the lodge it was very, very hard to get food and we relied predominantly on fish. The main target species at the lodge were Leervis (Garrick), a common fish we also get on our coast. We took out Shad, which you get in South Africa too, but these were bigger, as well as Kob, different to the one we know by that name."

Most of the anglers were from South Africa and Namibia.

"I met my match with manic fishermen, but right throughout, Amber and I kept on collecting biological data. Every day, we'd bring back the fish that we were going to eat, have drinks and supper with the guests and finish at around midnight. While the guests were sleeping, we'd dissect, measure and take otoliths (ear bones) out of the fish to determine their age. We'd get to bed around 1.30 or 2am, then up by 5.30 for breakfast and guiding. No time for naps either."

## The Nature of Recreational Anglers

Warren and Amber learnt plenty about Angola's coastline and the marine environment, but even more about how recreational fisheries operate.

"Like many fisheries scientists, I always imagined that you go out and assess a fish stock and based on what the populations are like, you put out regulations. Then you basically assume that anglers are going to stick to them, and that your fishery is managed that way."

"I discovered that it's entirely the other way around. We shouldn't be managing fish, we should be managing people, understanding how they think, what they do and why they do it. Basically, human behaviour changes fisheries."

Warren realised that there are profound differences between the commercial and recreational sectors. The latter is far more challenging to manage because it has complex drivers, he says.

"People don't only go fishing for economic benefit. There are a whole lot of other reasons. For example, even when the fish populations decline to levels where commercial fishermen would not make the effort, a recreational angler still goes fishing because he's there to be in the natural environment, or to get away from work. Some might only be interested in catching a trophy specimen, others might be interested in catching for food."

There is also a real misconception about inshore and offshore fisheries, says Warren.

"Recreational anglers often fall into the trap of thinking, ah, what difference does it make how many I take out, because the Chinese trawlers are taking out so much. But those factory ships are fishing for different species further out to sea. The



anglers are the ones causing the damage to their own fish stocks."

## Where is the Money?

Our entire inshore fishery is problematic because South Africa has an open access recreational fishery, says Warren. Anyone can buy a permit, which costs between R75 and R200 a year. These permits generate R32 million annually, which goes into the Marine Living Resources Fund (MLRF).

"There is unlimited access, no monitoring, no idea of the impact on fish populations."

Shore-based recreational anglers compete directly with subsistence or livelihood fishers, Warren points out. The recreational sector is also much better resourced in terms of tackle and the latest technology. It easily out-competes the sectors that are important for livelihoods.

**Yet none of these fisheries (subsistence, small scale and recreational) is being monitored by Government, despite the availability of funds.**

"You can go to the annual MLRF reports on the Government website to see what they have been doing with this money. I have been monitoring it for 10 years, and it only gets spent on travel. Nothing is spent on monitoring, management and improving the livelihoods of subsistence fishermen or anyone else. So for me it's a class action waiting to happen. That's a lot of money that could have employed many people to monitor fish populations and protect subsistence fishers."

## Unlocking Income in Rural Areas

Warren firmly believes that South Africa's recreational fishing industry has the potential to solve some of the country's rural development problems.

"You've got wealthy people going to these areas, spending time there, fishing, but they're not leaving the money behind. There's economic leakage out of those regions. They come with everything they need, and then leave."

"If local people can provide fresh produce, wood and even seafood, that would help. One of my students (Edward Butler) looked at the economics of another fishing lodge just south of Luanda, in Angola. Around 90% of the money that overseas anglers brought in was spent in foreign-owned businesses like Shoprite, and only 5% to 10% stayed in that community."

"I would love to see the rural development minister, social development minister and tourism minister getting together and working out how we can optimise the massive potential. Tourism can generate far more than subsistence fishing."

## Catch and Release

Many people think that catching a fish and releasing it back into a river or the ocean means a happy ending for fish and angler. But that's not always the case. A fish that is hooked,

fought to shore, then lifted out of the water for a photograph is the equivalent of a human running a 400m race, then having his or her head held under a bath of water. Injured, weakened and sometimes trailing blood, the fish may die or become prey.

"Catch and release causes massive stress in the fish", says Warren. "Their survival depends on how they are treated. It's very context specific. For example, some of the most difficult cases are when you are fishing from a boat in deep water and bring it up fast, causing barotrauma (the bends). Here their swim bladder expands massively, their stomach gets inverted and pushes out through their mouths, their eyes get full of gas bubbles and pop out their heads. There are ways of countering these effects, but generally in those extreme cases you have very low post-release survival."

"On the other end of the scale, trout fishermen look after their fish quite well. They get them, they land them, they don't even pull them out the water. They just lift them briefly for the picture, and put them back, so air exposure is 3 to 5 seconds. There's a bit of a physiological effect from the fight which means lactate and glucose build-up and potentially some hooking injury, but they usually use very small hooks that are barbless, so the injury is comparatively minor."

Warren and members of the recreational fisheries research team at DIFS have been engaging with the Rock and Surf Super Pro League (RASSPL) to minimise its environmental impact.

"Slowly, through education drives and incentives, we are helping to change behaviour. Fish are being released in much better condition than they were previously. Plus we've educated a whole lot of competitive anglers who set the bar for behaviour."

## Climate and Resilience

**Climate change is already a reality along South Africa's coastline and is being acutely felt along the shoreline of the Eastern Cape.**

"We're getting warmer waters from the Agulhas current, interspersed with very intense upwelling because the easterly winds are increasing in speed and frequency. Two days of strong easterly winds and you are likely to get an upwelling event. The wind pushes away the warm surface water and the cold water from the bottom rises. Temperatures can drop from 24° C down to 9° C in the space of a few hours."

"Most fish have a thermal range or ideal temperature where they're active and feeding. Some can feed all the time because they've got a broad thermal range or tolerance. Others can only feed in a very narrow range. Their metabolism is basically set. If we are having such extreme changes, we need fish with a broad temperature tolerance."

"Those are the ones that are exploited all the time. They're feeding and they're the ones taking the bait, regardless of the temperature. So they disappear out of the population. But those are the very ones we need to keep. Desperately. Because our climate is changing and so are conditions along our coast."

## Marine Protected Areas and Good News

Research in 2019 has brought some good news on that front, along with an increase in promulgations of Marine Protected Areas (MPAs) where fish populations are protected from any kind of fishing. This has particular benefits when it comes to protecting the broad tolerance individuals.

“We did a lab study where we found differences in physiology between exploited and unexploited populations. Then we took it into the field and stuck telemetry tags into the fish, inside and outside the area. These telemetry tags had the ability to monitor activity. We looked at different temperatures and we saw that in the MPAs, when it got really cold, those fish were still active, and outside the MPA, where the fish with broad tolerance had mostly been removed by fishermen, they were just sitting, doing nothing.”

“Our lab work was showing it translates to real stuff in the wild, which is amazing. It was a real breakthrough for us.”

### MPAs benefit Anglers

“Our group is the first to have tied the benefits of MPAs to fish physiology and I think it’s going to have global repercussions. It’s going to really provide not only fisheries managers but conservationists with ammunition to say we need to promulgate more MPAs if we need to keep our fish populations resilient to the impact of change.”

“The majority of our resident fishery species spawn in the MPAs and luckily their eggs and larvae basically disperse in the currents and they move out, so these sanctuaries are permanently seeding the surrounding areas with resilient fishes. Without that, we would just have fish that can only cope with a very narrow thermal range. Increasingly they would be struggling to feed, grow and reproduce. Their productivity would go down, plus it would become more difficult for fishermen to catch them because they’d only take the bait at temperatures that are ideal for those individuals.”

About 5% of South Africa’s coastline is currently protected by MPAs, thanks to 20 new promulgations by the South African National Biodiversity Institute (SANBI) in the last year. Twenty percent would be ideal. Ironically though, it is mostly recreational anglers who would benefit that oppose them, says Warren.

Improving the environmental attitudes and behaviour of recreational anglers has become Warren’s obsession. His commitment to help save South Africa’s inshore fishery is not only for professional and ethical reasons. It is also highly personal.

“My 5-year-old son Josh has developed a passion for fishing, and his little sister Riley Jo has also pulled in a few. Generations to come deserve a future where the South African coastal waters provide goods and services for all of us.”

By Julianne du Toit



## The Man Behind the Microscope: Professor Rod Walker

Professor Rod Walker of the Rhodes University Pharmacy Faculty, is a mix of Old School apothecary and cutting edge industry change-agent. He also shoots a mean hoop.

Spend some time talking with Rod Walker, and you'll quickly discover that when it comes to his career, he's a man who wears three hats.

Hat #1 and you'll meet a teacher.

"Whenever I need inspiration, I look at my office wall and see the photographs of many Postgraduates who have graduated under my watch," he says. "That's what it's all about."

A variety of Rod's graduates have gone on to land substantial corporate jobs on a global scale. They have joined big-name firms like McKinsey & Associates, SA Breweries, Tiger Brands, Aspen and Coca Cola.

Others occupy top spots at academic institutions or have become community pharmacists. In fact, the current Head and Dean of Pharmacy, Associate Professor Sandile Khamanga, is one of his former graduates.

"It's good to know that, wherever they are, many of them are doing really well and making a difference," he says.

### The Researcher

Hat #2 reveals a committed pharmaceutical researcher.

"Here in the Pharmacy lab, we research delivery mechanisms of various medications," says Rod. "My students have worked on, for instance, creams, lipid nanoparticles, ophthalmic products, vaginal gels, suppositories and micro-capsules. I always urge them to consider how a successful product can be made to scale and thus brought to market."

One gets a glimpse of the huge and varied world of pharmaceuticals when scanning the list of projects that Rod Walker and his team are engaged with:



Recent research subjects include:

- Niosome formulations for targeting the brain;
- Thermosetting vaginal gels;
- Floating technologies for treating *Helicobacter pylori*;
- Solid lipid nanoparticle and nanostructured lipid nano-carriers for delivery to the brain;
- Microencapsulation;
- Application of Quality by Design to formulation of pellets;
- Development of formulations for Devils Claw;
- Manufacture of co-crystallised anti-retroviral compounds for enhanced therapy.

Potential projects:

- Combination dosage forms for the treatment of TB;
- Manufacture of SLN and NLC using high pressure homogenisation for targeted delivery;
- Characterisation of oils as pharmaceutical excipients.

## Passion for the Industry

Hat #3 is a man totally committed to, passionate about and still fascinated by the pharmaceutical industry both here and abroad.

Which is why, in October 2019, Rod Walker became the first-ever academic recipient of the SA Pharmacy Council's prestigious Pioneer Pharmacy Award. Held every three years, the SAPC Pioneer Pharmacy Awards recognise excellence in all pharmaceutical professions.

"It is an honour and a privilege to win this award and to be the first academic to be recognised by both the Pharmacy Council and the profession," Rod said at the time. "This is extremely exciting and makes me feel that all the hard work has been worth it. It showcases what we do in the Faculty of Pharmacy at Rhodes University."

Professor Khamanga weighed in:

"It would have been an injustice if such a brilliant person was not rewarded for all his great contributions to Pharmacy in South Africa. I am glad that his dedication, enthusiasm, insight and hard work have paid off. It is such a pleasure to work with someone who knows how to make an inspiring work environment."

## Coming to the Eastern Cape

Rod Walker's father was a production manager at Unilever, and was transferred from their base in Johannesburg to Cape Town, then Pietermaritzburg and eventually Durban. As a result, Rod completed his schooling at Durban Boys' High where, in his Matric year, he learnt about the Rhodes University Pharmacy Department.

"I found it interesting that a small-town university like Rhodes had a dedicated pharmacy faculty," he says.

And once he arrived in Grahamstown (now Makhanda), he was completely charmed by both the campus and the Eastern Cape frontier lifestyle.

"I was in Thomas Pringle men's residence up on the hill and so close to the faculty building you could fall out of bed and roll into class," he says. "I could play my basketball at a very competitive level and basically loved the small town life of Grahamstown and all the amenities it offered. In later years it became, for us, a great town to raise a family in."

## The Pharmacy Faculty

Formal courses leading to a degree in Pharmacy at Rhodes have been offered since 1956, and in 1980 a fully-fledged Faculty of Pharmacy was established. The Bachelor of Pharmacy degree is a four-year course followed by a year of internship, which can be completed in a community, hospital, industrial or academic pharmacy setting.

In vacations during his undergraduate years, Rod Walker worked in the Unilever laboratories in Durban, where he gained a lot of experience, especially in the quality control section. On completion of his studies at Rhodes, he did his internship at a pharmacy in Pinetown. And although he chose academia instead, Rod has great praise for a good "corner chemist".

"Without those pharmacists, we'd be in big trouble," he says. "The ideal role of a community pharmacist would be to actually engage with both patient and prescribing doctor. Your pharmacist knows your medical history, what medications work for you. A new doctor attends you and possibly writes a prescription in conflict with medications you've taken in the past. A good pharmacist would pick that up and consult with the doctor before simply filling out the prescription and handing over the pills."

Mis-prescribing falls under the category of 'medication errors', and when he attended a conference in Glasgow in later years, Rod Walker was shocked to discover that more than 350 000 patients died every year in the USA alone as a result of this. In fact, a Johns Hopkins study found that medical errors are the third-leading cause of death after heart disease and cancer in North America.

## A Mentor

Returning to Rhodes for his Masters in Pharmacy, Rod was supervised by the university's first Professor of Pharmaceutics, Dr Isadore (Izzy) Kanfer.

"I did my Masters in Pharmacokinetics," he says. "Professor Kanfer was a great mentor to me."

**Pharmacokinetics (in layman's terms "what the body does to a drug") refers to how a drug moves in and out of a body - its absorption, bioavailability, distribution, metabolism and excretion.**

His studies in the subject continued into his PhD work, and in 1995 Rod Walker joined the Rhodes University staff as a Lecturer in pharmaceutics. In 1998, however, he found his direction as a researcher while on a sabbatical in the United States.



Professor Rod Walker  
Credit: Chris Marais

"During that time I worked for a research organisation in Wilmington, North Carolina," he says. "They picked up contracts from clients who needed development work in the pharmaceutical industry. It all opened my eyes to the kinds of research I could pursue."

## Big Pharma

Even as Head of Research of the Rhodes University Faculty of Pharmacy, Rod Walker keeps a weather eye on the industry. He has served on the Academy of Pharmaceutical Sciences of SA and the SA Pharmacy Council.

We discuss the 'dark side' of Big Pharma, and he says:

"There are medicines that don't make it to market, not because they can't be made, but because they can't be made on a large enough scale. I tell my students that the goal is to produce something in the simplest way, so that it can be scaled up. If we don't have exactly what we need, I say to them well, how can we do it with what we've got."

"Secondly, if you think the pharmaceutical industry is philanthropic - it's not. It is there to answer to its shareholders, and there's the biggest problem with the industry. Without it, we are in trouble. With it, we have trouble. The money that big pharmaceutical companies make is obscene, but if they invest it in the right way and we get better medicines, is that obscene?"

"Having that philosophical debate with undergrads is very important. For instance, if AIDS were not a global disease we would be in a desperate situation here in Africa."

His Pharmacy students choose the research projects they would like to work on.

"Often, they choose a particular project because they have a family member who has that particular medical problem," he says. "It gives meaning to their project, there is a potential end-point."

By Chris Marais



## Knowledge-Making: the Centre for Postgraduate Studies

A wide-ranging interview with Professor Sioux McKenna, Director of the Centre for Postgraduate Studies at Rhodes University.

What constitutes an all-round academic who is skilled in the lecture hall, research writing and dedicated to the public good? What makes a proficient PhD Supervisor, who is able to work with a student in a contemporary relationship, for a mutually-successful outcome? How does a Postgraduate student escape the trap of academic alienation and Impostor Syndrome?

These are some of the conversations being explored at Rhodes University's Centre for Postgraduate Studies, directed by Professor Sioux McKenna, who holds a long-time track record in issues of Higher Education.

### The Night Teacher

Sioux, who says she had a "traditionally blinkered" upbringing in Westville outside Durban, landed her first teaching job at Pinetown Girls' High which, in the mid-1980s, was an entirely-white space.

"And then I fell pregnant," she says. "In those days, if you were pregnant you had to be married to keep your job. I resigned from Pinetown Girls' and managed to get a job teaching in

Umlazi. It turned out that being pregnant and unmarried was not an problem for the system if you were teaching black schoolchildren."

"But that was also the time of political upheaval between the ANC and Inkatha, and Umlazi was a hectic place. As a result, a lot of our teaching happened in what is now the Mangosuthu University of Technology. I then got a job doing the part-time night classes teaching Communication to Engineering students."

"There was this idea that you could teach students English without grappling with the question of who they were and what their fields of study entailed," she says.

### Ways of Writing

"I began to read up about literacy practices," says Sioux. "What is the relationship between knowledge and the way we write at university? Why does a technologist's lab report look so different from a philosopher's essay, which looks so different from a physicist's journal article, and yet we call them all academic writing?"



"Academics can articulate some of this, but some of it is just in their blood. Different platforms have different values, intents and audiences."

In her Professional Inaugural address she made decades later, Sioux McKenna would say:

"Unfortunately, the dominance of what is known as the autonomous model of literacy means that many of us believe that good thesis writing is all about the mastery of neutral language skills."

"We are less aware of the extent to which it is the acquisition of discipline-specific norms and values that allow us to write strong arguments built on chains of claims substantiated by legitimate evidence."

"And the means by which we build such arguments has far more to do with the structure of the target knowledge and the political histories of our disciplines than it has to do with grammar."

## Broader Academic Interest

Sioux then took a job at the Natal Technikon (now part of the Durban University of Technology) after which she joined the University of KwaZulu-Natal to teach in Higher Education Masters and PhD programmes.

"In addition to having an interest in how knowledge is made and literacy practices in general, I began to look at the role of universities in society, how they are funded and why the average tax-paying citizen should care about having a university," she says.

Sioux was at UKZN for a scant 18 months before "the perfect job" became available at Rhodes University: to design a PhD programme in Higher Education Studies from scratch.

"It was a gift," she says. "I did that job for 10 years - my students were academics from universities across Africa and beyond. We used all sorts of online learning systems to communicate with one another."

## The Centre for Postgraduate Studies

In 2014, Rhodes University opened its Centre for Postgraduate Studies (CPGS).

"It was set up by Professor Heila Lotz-Sisitka (who heads the university's Environmental Learning Research Centre) and the idea was to have a space that conceptualises what Postgraduate study is, and what both Postgrad students and their Supervisors need."

Two years later, Sioux McKenna became the full-time Director of the Centre. The system she works on can be compared to that of a pocket battleship that can send for the big guns in the fleet when they're needed.

"I can run some of the workshops," she says. "But I couldn't run a workshop on, for instance, Experimental Design or a short course on Statistical Analysis. I can't understand the workings of all disciplines, so I call on the various experts to run workshops pertaining to their fields. I co-ordinate, conceptualise and bring the students together, but I rely on my colleagues to actually do much of the teaching. And when you get experts to do the job, the students will come."

## Interdisciplinarity to resolve 'wicked problems'

The research-rich nature of the university means there are a wide range of scholarly interests and the CPGS encourages conversations between researchers at different levels and in different fields.

The complexity of science in the 21st century requires greatly specialised knowledge makers who can also listen to and learn from other fields. Few social or environmental concerns can be resolved from within one discipline, so becoming aware of the range of methodologies and research approaches out there is key to addressing the 'wicked problems' that surround us. The CPGS serves as an institutional structure within which interdisciplinary and transdisciplinary conversations can be had.

## Communication beyond academia

Another key goal of the CPGS is to support the translation of science into public communication. "When we communicate with each other in the academy," Sioux explains, "we use complex terminology and approaches required to contribute at the boundaries of the field. But we need to also develop the capacity to translate our work into language that can make sense to the general public. This is especially the case in a post-truth era where anti-intellectualism is rife."

## Postgraduate education as a public good

Postgraduate researchers are absolutely essential to the country's wellbeing. They produce the bulk of the knowledge that drives the country forwards. But this is not always a public good.

"Unremitting economic growth which plunders the planet and increases social divides is a public bad," asserts Sioux. "And yet much of the knowledge being produced in universities is exactly towards this end. We develop better ways for multi-nationals to avoid paying taxes or being held to any law. We work out how to exhaust the world's resources in the interests of more consumer goods. We develop ways to make people believe that they need more and more 'stuff' despite the cost to the planet."

The CPGS participates in conversations around ensuring that Postgraduates take seriously their responsibilities as critical citizens serving the public good.

## Postgraduates as an institutional asset

The large number of Postgraduates is not only a public good, it is also an essential part of the university's academic project. "Having such a large percentage of Postgraduates makes the environment 'research rich' to the benefit of undergraduates and academics too. Postgraduates act as tutors and participate in all aspects of the life of the institution. This means that undergraduates are surrounded by those who can show that a university is not about transmitting knowledge, it is about making a contribution. It is about each of us developing a transformed relationship to knowledge and thereby to the world."

## Cracking the Code

Through the Centre for Postgraduate Studies, Sioux McKenna wants to help Rhodes University students discover how knowledge is made in their disciplines. She wants them to contribute with pride to our understandings of the world.

"We want to help them crack the code, figure out the relevant knowledge making practices, become a novice member in their field - even at undergraduate level. I would like it to be known that when you come to this university, we won't just give you access to the knowledge, we'll show you how it is made."

## The Supervisory relationship

In her 2017 Inaugural address, Sioux McKenna said:

"Undertaking a doctorate and becoming a recognised member of the field is a process of acquiring the knowledge production norms of the discipline, and indeed challenging them boldly whenever necessary. This process requires supervision that can focus on how such knowledge production norms are evidenced in the literacy practices of the thesis."

One of the many workshops offered by the Centre is 'How to Manage Your Supervisor'.

**"Supervisors are human, and sometimes things go wrong in the relationship," says Sioux. "Then the student can come to us, we call the relevant people together and have a discussion."**

"I have a very similar workshop for Supervisors. A lot of what needs to be done is talking through a problem, aspects like feedback and setting timelines. There is a need to make explicit how we will work together as experienced and novice knowledge makers. And sometimes, what looks on the outside like a confident, bolshy student is someone simply trembling inside."

## The Impostor Syndrome

"Impostor Syndrome is at least partly driven by factors like systemic sexism and racism," she says. "But we all get it at some stage of our lives, feeling like we don't belong, that we're going to be found out, like the voices in our heads keep saying we're not worthy."

"Many of the students I work with battle with Imposter Syndrome, but I think young, black, woman students, sometimes experience it in particularly acute forms. Students have come to my office to tell me that they don't really belong here - they're not really clever enough. And the structural racism that exists in all our universities keeps reinforcing that voice that says 'you're not welcome'. We have to ask: is the intellectual space (of a university) rewarding to all students, or is it alien to many?"

"A careful combination of a pedagogy of discomfort and an ethics of care is needed to ensure that students are simultaneously welcomed and challenged to make the best contribution they can. Every unit of the university has to engage with these issues."

## Academic Journals

Another crucial part of making knowledge is getting work disseminated.

"In a research-intensive university, you need to understand the conversation at the frontiers of your discipline, and to find out current concepts, concerns and methodologies, you need to at least be reading that stuff" says Sioux McKenna.

"The government pays universities a block grant every year, and in that block grant there is funding for getting published in accredited journals. So most universities, except for Rhodes University and University of Cape Town (UCT), work on a direct-incentive scheme and pay a bonus to researchers every time their work is published on an accredited platform."

"But you don't get a bonus for doing good community engagement work, you don't get a bonus for being a fantastic lecturer - so why do you get a bonus for published research?"

An unintended consequence of direct incentives, says McKenna, is the massive boom in predatory publications. "Most significantly, this focus on publication metrics stops academics from thinking in terms of knowledge contributions and to instead think of units and incentives. And that saps the joy out of being part of something bigger than ourselves."

## Words of Advice

Based on responses from a survey she conducted with nearly 30 Doctoral scholars on their PhD journey, Sioux McKenna has these observations:

**"All those who said they'd really enjoyed their PhDs had a strong sense of the doctorate as being part of developing their own identity. They were deeply invested in their growing capacity to contribute meaningfully in their disciplinary community."**

"They worked on the doctorate almost every day. The regularity of input seems to be key. Some scholars spoke of sharing the completion of a chapter with their PhD colleagues through a



Professor Sioux McKenna

Credit: Rhodes University Communications and Advancement Division

WhatsApp message. Others stuck a list of milestones to the fridge and their family made celebratory dinners whenever one was met.

"Some scholars seem to be able to keep looking ahead instead of beating themselves up about poor progress."

"One thing was very clear: even though it's an individual piece of work, the doctorate doesn't have to be a lonely endeavour. Those who seemed to be most enthusiastic about their doctorates had found fellow travellers and developed ways to regularly engage with them."

"The Centre for Postgraduate Studies seeks to be a place that nurtures collaborations and celebrations for all the wonderful knowledge creators in the university. It seeks to be an asset for this research-intensive university where leaders learn."

By Chris Marais





## The Sky is the Limit: Kuyasa Combined School

The ongoing success of Kuyasa Combined School in Port Alfred, Eastern Cape, is due to a massive collaborative effort spearheaded by an innovative Principal, Mr Xolani Mayana, a Masters graduate of Rhodes University.

We arrive at Kuyasa Combined School on a fine summer's day, along with nearly 1 400 students from Sub-A to Matric level, who mostly come strolling in from their surrounding homes in Endlovini township, Port Alfred.

The gated school yard is litter-free and water-wise - there seems to be a big water tank attached to most gutter outlets on the buildings.

Once inside the face-brick reception area, we are welcomed and led off to the office of the principal, Xolani Mayana. We had interviewed him as a Masters student in the course of the *Rhodes University Research Report 2018*, and he had invited us to visit his remarkable school.

"Then you will be able to see, first-hand, what we do here," he said.

### Extra Lessons

There are a lot of chairs and spare tables in his office - the man obviously holds his multi-stakeholder meetings and workshops here. We find out later that a local bank (Standard), in the middle of a refurbishment, donated the furniture to the school.

But there is no Mr Mayana. We drink coffee, wait for a short while and then he appears, big smile on his face.

"I've been giving some early Maths and Science lessons," he says.

Determined to keep raising the Matric pass rate at the school, Xolani leaves his home in Makhandla (formerly Grahamstown) before dawn in the summer and drives the 60-odd kilometres

*Kuyasa Combined School teacher Mrs Nomazwi Balura, teaching isiXhosa Home Language to Grade 12s*  
Credit: Chris Marais

eastwards to Port Alfred into the rising sun. Before the rest of the staff members arrive and the school begins to bustle with daily activities, he is busy giving extra lessons in the 2 subjects he holds dearest.

## Working Together

If you look on the board in the reception area of the school, you will see the abstract of Xolani Mayana's Masters degree submission, which pretty much defines the reason for the recent successes at Kuyasa Combined.

His Masters is about exploring opportunities and hindrances when indigenous knowledge is integrated into the topic of waves and sound in a Grade 10 Physical Science township class.

"I am fascinated by the potential of integrating indigenous knowledge, prior learning and mother tongue, into the formal education system," he says.

**The inclusion of indigenous knowledge is but a component of the larger picture of collaboration that emerges during our visit to Kuyasa.**

The Port Alfred community at large is occasionally (and very willingly) roped in. The local Rotary Club is a long-time fundraising ally, as is Stenden University, a hospitality college based in the area.

"As part of the 'teamwork in teaching' principle, we got the learners' parents involved in supervising evening classes," he says. "Teachers and parents began report back to each other - that has been one of the major factors in turning the school's fortunes around."

## Down to the Sea

Why choose waves as an education tool, we ask.

"We live by the sea," he replies. "The students see the endless waves coming in and going out. It's a perfect way of demonstrating sound and other waves, longitudinal and transverse.

"It is also meant to catalyse a discussion. The sea is a resource. Our groundsman, Alfred Mbatsha, talks to learners on sports day outings to the beach. He tells them about our cultural beliefs and practices to do with the ocean, and they are fascinated."

Xolani takes us outside briefly to meet Mr Mbatsha, a dignified and friendly older man who has volunteered his services as groundsman and general Mr Fix-it at the school. We also meet his 'apprentice', young Thembanani Matshisi, who is busy in the vegetable garden.

As we pass his neat flower beds, Alfred Mbatsha scoops out some Cape Rain Daisy seedlings for us.

"They grow so easily," he says. "Put them in your garden."

## Xolani and Kuyasa

In 1998, a freshly-graduated Xolani Mayana heard from a friend that the Science teacher at Kuyasa Combined School had left. There was, however, a moratorium on hiring staff at the school.

"So I became a volunteer teacher in Maths and Physical Sciences," he says. "They did a bit of fundraising to pay me a tiny stipend."

That year, all the Matriculants passed their Physical Science examinations.

After that, Xolani's career as a salaried teacher kicked into top gear, with a 10-year stint at the high-end Woodridge College off the N2 between Jeffrey's Bay and Port Elizabeth. He was eventually promoted to Head of Department for Physical Sciences.

His decade at Woodridge gave Xolani the best basic grounding a teacher could ask for: the private school work ethic, the bonding between teachers, parents and learners and the latest teaching methods. As a lover of the outdoors, he also got to take school groups on camping and hiking trips.

But he was also keen to take on challenges in his own community, so when the Kuyasa Combined Principal's post was vacated, he immediately applied. He received his acceptance letter on January 28, 2008 - a particularly auspicious day for him.

"It was on my birthday."

## The Challenge

But he and everyone at Kuyasa had a big mountain to climb. When he arrived, the Matric results were sitting at a dismal 26% pass rate. Xolani had just come from a school "where the biggest pressure came when learners were not constantly getting A's" and the contrast was stark.

So he separated Physics and Chemistry, filling in himself whenever he had to, introduced major classroom discipline and brought the parents into the mix.

"In keeping with what I learnt at Woodridge, I worked on improving extramural activities at Kuyasa. I think incidents of bullying and fighting are worse in schools with no sports, hikes or camping."

Xolani talks about how he also tries to instil trustworthiness in learners and teachers.

"Your word must mean something."

Parents and teachers share a WhatsApp social media group where the children's behaviour and progress are discussed. Social workers are invited to come to the school to talk about teenage pregnancies.

"The rates of teenage pregnancy have gone down from around 6 learners per year to only 1 or sometimes none," says Xolani Mayana.



*Mr Xolani Manyana in the classroom at Kuyasa Combined School in Port Alfred*  
Credit: Chris Marais

Now the Matric pass rate regularly tops 80%, the buildings have been refurbished, there is a full annual programme of outings and an air of optimism and purpose in both the school yard and the staff room.

"Let me introduce you to everyone," says Xolani, rising from his seat and leading us outside.

## The Assembly Session

Gathering nearly 1 400 children from Sub A all the way up to Matric into a classroom quadrangle is never an easy matter - in the mornings, before breakfast, it can be like herding cats.

But Xolani Mayana and his team of teachers have this down pat. The level of discipline is high at Kuyasa, and within minutes everyone is gathered to pray, to sing, and to hear the words of their principal:

**"You are the generation that gives us hope for the leaders of tomorrow," Xolani says.**

Introducing his mentor and Masters supervisor, Kenneth Ngcoza, Associate Professor in Science Education in the Faculty of Education at Rhodes University, he continues:

"Rhodes is your university in the Eastern Cape. Through it we are giving back to the community of Port Alfred."

Professor Ngcoza quotes from Martin Luther King's *I Have a Dream* speech and tells the learners how proud he is to help facilitate Xolani's Masters in Education degree.

## The Photo Session

Then gardener Fumanekile Siyolo fetches a long ladder, the photographer climbs onto the roof with his gear, everyone looks up and waits for instructions. When it's time to wave for the camera, a sea of moving hands goes up and the smiles come out.

The Matric class gathers for their special group photograph with Xolani. Most are dressed in school uniform, but some teenagers have clay on their faces, caps on their heads and they wear different jackets. These are the recent initiates, back from the bush and very proud. They're allowed to wear these clothes that set them apart as men for six months.

Principal Mayana has also enlisted the help of the recently initiated. He gives them various school responsibilities and special privileges which they must earn by being good role models to their juniors, and behaving like good men. They are called *uBhuti*.

Photo session done, final instructions for the day delivered, assembly ends, learners find their classrooms and, once everyone is settled, breakfast is served.

## Keeping a Journal

One of the teaching innovations Xolani Mayana introduced at Kuyasa Combined is student journalling.

"It has proven to be an extremely effective teaching method," he says. "It specifically helps the quieter ones."



Several of the learners provided the feedback that formed a critical part of Xolani's Masters degree in Education.

"They are some of my core researchers," he says proudly. "They have to look at things via scientific construction."

He encourages exploratory reflective writing.

*"This is a very good habit for pure science scholars, who often battle to write. If you write reflectively, you can help shape it and understand it. It helps you internalise what has been talked about."*

"I ask the children to be completely honest and write down their thoughts about what they have learnt. I was struggling with lessons. They helped me to refine and design the lessons. Part of my Masters focusses on how their writing is part of their sense-making of the lesson."

"They are really enjoying being core researchers," says Xolani, who plans to sign up for his PhD after completing his Masters.

At the mid-morning break, we take the opportunity to ask a few Matric students how they see their future.

"I'm going to study Pharmacy," says Adam Nomphele.

"I'm either going to be a family doctor or a heart surgeon - I haven't decided yet," says Asemalile Lose.

"The sky is the limit," says Bili Ntosh, quoting the school motto.

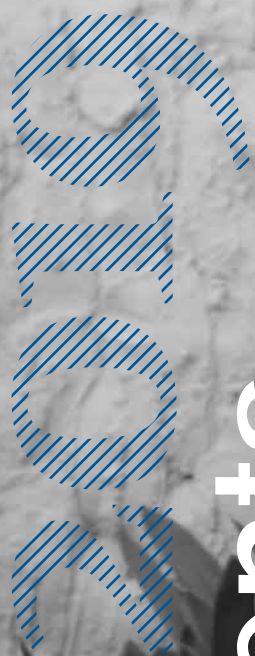
The last word on Principal Xolani Mayana belongs to Abongile Ngesimani, who posts on the school's Facebook page:

"Xolani is a cool guy. He once said we should live and talk Physics. I went to this girl I was crushing on. I expressed my feelings and told her that our love could be like positive and negative electrons resulting in a reaction. That day my proposal was accepted, because I applied myself."

**By Chris Marais**



*Professor Ken Ngozo of Rhodes University's Department of Education (left) who supervised Principal Xolani Mayana's Masters thesis (right). They are surrounded by Kuyasa Combined School learners at assembly  
Credit: Chris Marais*



RHODES UNIVERSITY

# Departments



*Postdoctoral Research Fellow, Dr Jessica Comley  
Credit: Chris Marais*





In addition to its role supporting the academic project of the University through various staff and student development programmes, the Centre for Higher Education, Research, Teaching and Learning (CHERTL) staff supervise Postgraduate students, and conduct research on key issues in the field of Higher Education Studies. Staff contribute to accredited publications and to popular publications. Currently, much of the research done by the CHERTL staff is in the area of knowledge in the curriculum, social justice in Higher Education and student access to knowledge practices in Higher Education.

### Postgraduates / Graduations

#### PhD graduations

- **MPHAHLELE, Matee Martha.** *Conceptualisations of and Responses to Plagiarism in the South African Higher Education System.* Supervisor: Professor S McKenna. Co-supervisor: Dr D Layton.
- **MUSARA, Ellison.** *A comparative study of conceptualizations and practices of inclusion as an aspect of social justice in three teacher education institutions in Canada, South Africa and Zimbabwe.* Supervisor: Professor JA Vorster. Co-supervisor: Professor C Grant.

#### Postgraduate Diploma in Higher Education (PGDip (HE))

In 2019, a record number of scholars completed the PGDip (HE) course successfully. Twenty-six (26) candidates completed the course for lecturers, eight (8) of them with distinction. Fifteen (15) candidates completed the course for academic developers, with four (4) achieving distinctions.

#### Distinguished Visitors / International Visits

CHERTL invited several guests to our Doctoral Weeks (Doc Weeks) in 2019. In July 2019, Professor Kathy Lockett from University of Cape Town (UCT) conducted a series of seminars on curriculum research in South African Higher Education during the second of the three (3) CHERTL Doc Weeks.

*CHERTL and Rhodes colleagues at the Third International Legitimation Code Theory Conference, 2019, University of the Witwatersrand*  
Credit: CHERTL





*CHERTL staff and associates at the 2019 HELTASA Conference, hosted by Rhodes University*  
Credit: CHERTL

We were honoured to welcome three (3) recent CHERTL graduates, Dr Temwa Moyo, Dr Mlamuli Hlatshwayo and Dr Evelyn Muthama to share their doctoral journeys with the current cohort of Doctoral candidates at the July Doc Week.

In October 2019, Professor Crain Soudien from the Human Sciences Research Council (HSRC), and Professor Vivienne Bozalek from the University of the Western Cape (UWC) contributed to a seminar series on *Social Justice in Higher Education*. Professor Soudien presented a public lecture during his visit.

## Significant Research Aligned Events

In June 2019, CHERTL Doctoral candidates, Anthea Adams, Rieta Ganas and Puleng Motshoane joined scholars from the University of Zululand (UNIZULU) and the Durban University of Technology (DUT) on a study visit to Pennsylvania State University. Professor Sioux McKenna and Professor Lynn Quinn also accompanied the scholars.

The Phakamisa Doctoral project is funded by the Department of Higher Education and Training (DHET) as part of the Staffing South African Universities Framework (SSAUF). The project is part of a national drive to ensure that seventy-five percent (75%) of academics at South African universities acquire doctorates by 2030, in line with the National Development Plan.

In 2019 CHERTL received funding for a second Doctoral project that is part of the DHET SSAUF. The project, co-funded by the British Council and led by Professor Sioux McKenna, brings together colleagues from Rhodes University (RU), University of Venda (UNIVEN) and Lancaster University, United Kingdom (UK). Doctoral candidates selected for the programme embarked on a structured two (2)-year coursework programme after which they will initiate research towards their Doctoral dissertations.

**Professor Jo-Anne Vorster**  
*Head of Department*



*Editors of the Routledge book, Building knowledge in higher education: Enhancing Teaching and Learning with Legitimation Code Theory, (left to right) Professor Christine Winberg, Professor Sioux McKenna and Dr Kirstin Wilmot.*  
Credit: CHERTL

## Books/Chapters/Monographs

Clarence, S.

Clarence, S. (2019). Reimagining knowledge in the curriculum. Creating critical spaces for alternative possibilities in curriculum design. In: Quinn, L. (ed.). *Re-imagining Curriculum: Spaces for disruption*. Cape Town: African Sun Press. p.89-108. ISBN: 9781928480389.

Quinn, L.

Quinn, L. (2019) *Re-imagining Curriculum: Spaces for disruption*. Cape Town: African Sun Press. ISBN: 9781928480389.

Quinn, L. and Vorster, J.A.

Quinn, L. and Vorster, J.A. (2019) Why the focus on "curriculum"? Why now? The role of academic development. In: Quinn, L. (ed.). *Re-imagining Curriculum: Spaces for disruption*. Cape Town: African Sun Press. p.1-22. ISBN: 9781928480389.

## Peer-Reviewed Subsidy-Earning Journal Research Publications

Clarence, S.

Clarence, S. (2019) Exploring the gap between what we say and what we do: Writing centres, 'safety', and 'risk' in higher education. *Stellenbosch Papers in Linguistics Plus / SPiL Plus*. 57 (2019). p.117-130.

Ellery, K.

Ellery, K. (2019) Congruence in Knowledge and Knower Codes: The Challenge of Enabling Learner Autonomy in a Science Foundation Course. *Alternation: Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa (Formerly International Journal for the Study of Southern African Literature and Languages)*. 26 (2). p.213-239.

Hlengwa, A.

Hlengwa, A. (2019) How are institutions developing the next generation of university teachers? *Critical Studies in Teaching and Learning* 7(1). p.1-18.

Knowles, C.R.

Knowles, C.R. (2019) Access or Set Up? A Critical Race, Feminist, Black Consciousness, and African Feminist perspective on Foundation Studies in South Africa. *Alternation: Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa (Formerly International Journal for the Study of Southern African Literature and Languages)*. 26 (2). p.117-137.

McKenna, S.

Mphahlele, A.M.M. and McKenna, S. (2019) The use of Turnitin in the higher education sector: Decoding the myth. *Assessment & Evaluation in Higher Education*. 44 (7). p.1079-1089.

Sobuwa, S. and McKenna, S. (2019) The obstinate notion that higher education is a meritocracy. *Critical Studies in Teaching and Learning*. 7 (2). p.1-15.

Quinn, L.

Giloi, S. and Quinn, L. (2019) Assessment of Sustainable Design: The Significance of Absence. *Design Journal*. 22 (6). p.833-851.

Quinn, L. and Vorster, J.A.

Quinn, L., Behari-Leak, K., Ganas, R., Olsen, A.M. and Vorster, J.A. (2019) Reflecting on feedback processes for new ways of knowing, being and acting. *International Journal for Academic Development*. 24 (4). p.330-341.

Southwood, S.

Ngcoza, K.M. and Southwood, S. (2019) Webs of development: Professional networks as spaces for learning. *Pythagoras*. 40 (1). p.1-7.

## Peer-reviewed Proceedings

Maton, K.

Waite, J., Maton, K., Curzon, P. and Tuttiett, L. Unplugged Computing and Semantic Waves: Analysing Crazy Characters. *1st UK and Ireland Computing and Education Research Conference*. University of Kent, Canterbury. United Kingdom. September 2019.

McKenna, S.

Mphahlele, A.M.M. and McKenna, S. Plagiarism in the South African Higher Education system: Discarding a common sense understanding. *4th International Conference - Plagiarism across Europe and beyond 2018*. Ephesus. Turkey. May 2018.

## Other Publications

McKenna, S.

McKenna, S. (2019) 'The model of PhD study at South African universities needs to change' *Mail & Guardian*. 5 December 2019.

McKenna, S. (2019) 'South African research output has risen, but caution must temper celebration'. 9 May 2019. In: *The Conversation*. Johannesburg.

McKenna, S. (2019) South Africa takes steps to assure the quality of its doctorates. 6 November 2019. In: *The Conversation*. Johannesburg.

McKenna, S. and Mphahlele, A.M.M. (2019) 'Universities must stop relying on software to deal with plagiarism'. 19 March 2019. In: *The Conversation*. Johannesburg.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Ellery, K.

Ellery, K. Learning to learn: Autonomy tours for autonomous science learners. *Third International Legitimation Code Theory Conference (LCT3)*. University of Witwatersrand, Johannesburg. South Africa. January 2019.

Ellery, K. Learning to learn in science. *Higher Education Learning and Teaching Association of Southern Africa (HELTASA) conference*. Rhodes University, Grahamstown. South Africa. November 2019.

Knowles, C.R.

Knowles, C.R. The politics of theory: shaping ideas about the First Year Experience. *5th Annual SANRC FYE Conference 2019*. Garden Court Marine Parade, Durban. South Africa. May 2019.

McKenna, S.

McKenna, S. Human Capital Theory and Postgraduate Education: Keynote. *Postgraduate Supervision Conference*. Spier, Stellenbosch. South Africa. May 2019.

McKenna, S. Don't count the things you do; Do the things that count. *UNISA Research Development Conference*. UNISA, Pretoria. South Africa. August 2019.

McKenna, S. Publish and perish: The perils of supervising in an age of performance metrics. *Keynote: University of Johannesburg Supervision Conference*. University of Johannesburg, Johannesburg. South Africa. June 2019.



The research outputs of the Community Engagement Division continues to grow. Our researchers are not only publishing, but also participating in high level conferences. The year of 2019 was one of finalising and starting PhDs, and submitting the first book edited by the Division. Both our research and operational staff have been involved in conference presentations and Creative Research Outputs.

### Postgraduates / Graduations

The Community Engagement Division has a team of five (5) PhD candidates, four (4) Masters students and one (1) Honours student, all involved in engaged research.

### Distinguished Visitors / International Visits

Dr Joana Bezerra was one of The Association of Commonwealth Universities (ACU) Blue Charter Scholars that spent weeks at the Dalhousie University, Canada, to work with two (2) other Blue Charter Scholars and Dr Tony Walker on plastic pollution.

Ms Hornby travelled to the United States of America, where she networked with leading researchers in the field of Community Engagement in two (2) universities. She also had the opportunity to showcase the work of the Community Engagement Division.

Ms Hornby and Ms Talbot attended the Digital Storytelling and Social Innovation consortium meetings in Alicante, Spain. This is part of a multi-year project that the Division is involved with.

Mr Duxbury presented at the 4th World Conference on Qualitative Research in Portugal. He and the co-authors were invited to submit a book chapter for a book derived from the conference.

### Significant Research Aligned Events

The Community Engagement Division hosted a one (1) day Imbizo in May 2019. There were different presentations from students, lecturers and practitioners around community engagement related themes: education, asset-based model, service-learning courses in Makahanda and the politics of engagement.

Knowledge production and dissemination are at the core of what the Division does and to promote and celebrate that the Division organised a Digital Storytelling screening, giving an opportunity for participants to showcase their digital stories.

**Ms Diana Hornby**  
*Director*

*The ACU Team at Dalhousie University Canada January 2019*  
From left to right: Dr Tony Walker, Dr Joana Bezerra, Dr Andrea Clayton and Dr Issahaku Adam  
Credit: Community Engagement Division





(far right): Mr Duxbury with his peers at the 4th World Conference on Qualitative Research, Porto, Portugal  
Credit: Community Engagement Division



Ms Hornby welcomes the participants of the 2019 Imbizo  
Credit: Community Engagement Division



One of the flyers of the Digital Storytelling screening  
Credit: Community Engagement Division

## Concerts, Exhibitions, Performances, Workshops, Events

**Matyobeni, T. and Gedze, T.**

**Matyobeni, T. and Gedze, T.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *Academic workshop*. Rhodes University, Makhanda. South Africa. 5 - 7 August 2019.

**Matyobeni, T. and Gedze, T.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *St. Mary's (Education) Workshop*. St. Mary's DCC, Makhanda. South Africa. 18 - 20 November 2019.

**Matyobeni, T. and Gedze, T.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *Academic Workshop*. Rhodes University, Makhanda. South Africa. 30 September - 2 October 2019.

**Matyobeni, T. and Gedze, T.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *Academic workshop*. Rhodes University, Makhanda. South Africa. 25 - 27 September 2019.

**Talbot, A.L.P.**

**Talbot, A.L.P.** Participant. Exploring partnerships between Schools-Communities-Universities. *National Imbizo*. Nelson Mandela University, Port Elizabeth. South Africa. 25 - 27 September 2019.

**Talbot, A.L.P.** Facilitator. Upcycling with Shweshwe. *Bloemfontein Learning Festival*. University of Free State, Bloemfontein. South Africa. 2 - 5 September 2019.

**Talbot, A.L.P., Hornby, D. and Nqowana, T.**

**Talbot, A.L.P., Hornby, D. and Nqowana, T.** Facilitator. Common Good First Project Launch. *Common Good First*. Welgemeend, Cape Town. South Africa. 8 - 10 October 2019.

**Viedge, J.M.**

**Viedge, J.M.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *Digital Story Telling for Social Innovation*. Rhodes University, Makhanda. South Africa. 8 - 10 April 2019.

**Viedge, J.M.** Organiser, Facilitator. Digital Story Telling for Social Innovation. *Digital Story Telling for Social Innovation*. Rhodes University, Makhanda. South Africa. 24 - 26 June 2019.

**Viedge, J.M.** Facilitator/Host. Digital Story Telling for Social Innovation. *Digital Story Telling for Social Innovation*. Rhodes University, Grahamstown. South Africa. 15 May 2019.

## International Visits

**Bezerra, J.**

**Bezerra, J.** Dalhousie University, Halifax, Canada. *Plastic Pollution in and around protected areas*. 6 - 31 January 2019.

Hornby, D.

Hornby, D. Rutgers University, Newark, United States. *Chancellor Nancy Cantor - Embedding of the University into the fabric of the community, Diversifying campus, Institutionalizing CE and the establishment of 3rd spaces jointly owned by University and Community. Second meeting was with Professor Tim Keatman who runs an Honours in Learning and Living Community.* 18 - 19 September 2019.

Hornby, D. Syracuse University, Syracuse, United States. *Meeting with Pam Kirwin Heintz from the Mary Ann Shaw Centre for Public and Community Service - Anchored Neighbourhood Programmes and Global Citizenship initiatives. Also visited the South Side Innovation Centre working with social innovation and entrepreneurship.* 20 - 21 September 2019.

Hornby, D. and Talbot, A.L.P.

Hornby, D. and Talbot, A.L.P. Alicante University, Alicante, Spain. *Digital Storytelling and Social Innovation consortium meetings.* 20 - 24 May 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Bezerra, J.

Wolff, M.G., Cockburn, J., De Wet, C., Bezerra, J., Weaver, M.J.T., Finca, A., De Vos, A., Ralekhetla, M.M., Libala, N., Mkabile, Q., Odume, N.O. and Palmer, C.G. (2019) Exploring and expanding transdisciplinary research for sustainable and just natural resource management. *Ecology and Society*. 24 (4). p.1-10.

Weyer, D., Bezerra, J. and De Vos, A. (2019) Participatory Mapping in a Developing Country Context: Lessons from South Africa. *Land*. 8 (134). p.1-16.

Talbot, A.L.P.

Saneka, N.E. and Talbot, A.L.P. (2019) Engaging children as 'agents of change': The Grahamstown Scout Group. *HTS Teologiese Studies-Theological Studies*. 75 (1). p.1-8.

## Peer-reviewed Proceedings

Paphitis, S.

Davy, J., Weaver, K.N., Todd, A. and Paphitis, S. "Ergonomics on the ground": a case study of service learning in ergonomics education. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence, Italy. August 2018.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Bobo, B.

Bobo, B. "Okokuqala nook ndandiqala kwaku ngekho easy": Feeling empowered to take collective action through community engagement. *5th UK Community Psychology Festival*. University of Brighton, Brighton. United Kingdom. September 2019.

Bobo, B. "At the same time they also learn from us, I also learn from them": Community engagement as an enabler of transformative learning at Rhodes University. *Southern African Students' Psychology Conference*. University of Johannesburg, Johannesburg. South Africa. June 2019.

Bezerra, J.

Bezerra, J. What is the experience of community members in Knysna regarding plastic pollution and their perceptions of their role in solving it? *3rd Garden Route Interface Meeting (GRIM): Science and management co-learning to navigate social-ecological issues*. Pine Lake Marina, Sedgefield. South Africa. September 2019.

Bezerra, J. Who do we speak to? Improving communication in the Tsitsikamma through social network analysis. *3rd Garden Route Interface Meeting (GRIM): Science and management co-learning to navigate social-ecological issues*. Pine Lake Marina, Sedgefield. South Africa. September 2019.

Bezerra, J. and Paphitis, S.

Bezerra, J. and Paphitis, S. Service-Learning as transformation? Lessons from a case-study in the Eastern Cape. *Higher Education, Learning and Teaching Association of Southern Africa*. Rhodes University, Grahamstown. South Africa. November 2019.

Bezerra, J. and Paphitis, S. Service-Learning as transformation? Lessons from a case-study in the Eastern Cape. *Transforming Classroom Experiences for the Helping Professions*. Wits School of Human and Community Development, Johannesburg. South Africa. June 2019.

Hornby, D.

Hornby, D. University Engagement: The Imperatives for Authentic Community Development. *South African Higher Education Community Engagement Forum*. University of Mpumalanga, Nelspruit. South Africa. December 2019.

Paphitis, S.

Paphitis, S. and Mannell, J. Storytelling for Health: acceptance, expression and recovery. *Sexual Violence Research Initiative Forum*. Cape Town International Convention Centre, Cape Town. South Africa. October 2019.

Paphitis, S. and Bezerra, J.

Duxbury, T., Paphitis, S., Tandlich, R. and Bezerra, J. Building health resilience: An engaged, systems analysis and epistemically just approach to rural health development. *4th World Conference on Qualitative Research*. Universidade Lusófona do Porto, Porto. Portugal. October 2019.

Duxbury, T., Paphitis, S., Tandlich, R. and Bezerra, J. Engaged Rural health Development: A Social Justice Framework. *Postgraduate Conference*. Rhodes University, Grahamstown. South Africa. August 2019.

Paterson, C.J.

Paterson, C.J. The Lost Art of Cattle Racing: Artefacts of an Indigenous Racing Tradition in the Eastern Cape, c.1850-1950. *27th Biennial conference Southern African Historical Society*. Rhodes University, Grahamstown. South Africa. June 2019.

Talbot, A.L.P.

Talbot, A.L.P. Volunteerism and Digital Storytelling. *Beyond Painting Classrooms*. Sandton, Johannesburg. South Africa. September 2019.

Talbot, A.L.P. Social Capital for Social Innovation: Nine Tenths Matric Mentoring Programme. *South African Higher Education Community Engagement Forum*. University of Mpumalanga, Nelspruit. South Africa. December 2019.

Thondhlana, M.M.

Thondhlana, M.M. The nexus between Community Engagement and Academic Language Development. *Rhodes University/Umeå University International Exchange: Education, the public good and transformative practices. Understanding our research as a contribution nationally and globally*. Rhodes University, Grahamstown. South Africa. March 2019.

Thondhlana, M.M. Students experiences of language in participating in the Engaged Citizen Program (ECP) at Rhodes University. *2nd Biennial SOTL in the South Conference/Annual CUT SOTL Conference*. Central University of Technology, Bloemfontein. South Africa. October 2019.

Thondhlana, M.M. Joining the academic conversation: Students experiences of participating in the Engaged Citizen Program at Rhodes University. *Postgraduate Conference*. Rhodes University, Grahamstown. South Africa. August 2019.



Ms de Kort presenting her findings at the Garden Route Interface Meeting, Sedgefield, Western Cape, September 2019

Credit: Community Engagement Division



In line with *Goal 3* of the Rhodes Institutional Development Plan to, *"Maintain and strengthen our unique institutional niche as a research-intensive university outside a major urban area"*, the Library and Information Services' strategic objective is to *"Provide active and advanced research support services to Rhodes University research communities"*.

### Distinguished Visitors / International Visits

In addition to regular visits by Rhodes University (RU) scholars, Cory Library continued to attract distinguished Professors, researchers, scholars, Postdoctoral Research Fellows and writers from all over, including:

- **Tanya Hammel**, University of Basel.
- **Buyiswa Ndibongo**, Massachusetts Institute of Technology.
- **Annwen Bates**, School of Oriental and African Studies, University of London.
- **Mike Kenyon**, Research Associate of Michigan State University.
- **Peter Scott**, Emeritus Professor University of London.
- **Sue Ogterop** on behalf of Professor Joel Cabrita, Stanford University.
- **Diane Salters**, United Kingdom Council for Psychotherapy.
- **Professor Brian Willan**, University of London.
- **Dr William Barham**, University of Colorado.

The following scholars are South African based:

- **Alex Wheeler**, University of the Free State.
- **Ncedile Mhlauli**, University of Fort Hare.
- **Nadine van der Merwe**, University of Pretoria.
- **Patricia Hayes** delegation, University of the Western Cape.
- **Kate Highman**, University of the Western Cape.
- **Timothy Keegan**, University of the Western Cape.
- **Professor Nomalanga Mkhize**, Nelson Mandela University.
- **Ms Thandiwe Hlam**, Nelson Mandela University.
- **Lwandile Dlamini**, Durban University of Technology.
- **Robert van Niekerk**, Professor of Policy Studies, University of the Witwatersrand.

*From left to right: Professor Asafa Jalata, a Director of the Board of the OSA, Dr Sandy Shell (centre), Senior Research Associate and Professor Asfaw Beyene, Chair of the Board of Directors of the OSA. Senior Research Associate at Rhodes University's Cory Library, Dr Sandra Rowoldt Shell, recently spoke at the 33rd annual Oromo Studies Association (OSA) conference, which was held on 'home ground' for the first time in history. Dr Shell's interest in the East Cushitic Oromo people led to her doctoral thesis topic: "From Slavery to Freedom: the Oromo Slave Children of Lovedale, Prosopography and Profiles". This later culminated in her book, "Children of Hope: The Odyssey of the Oromo Slaves from Ethiopia to South Africa", which was the basis of her OSA conference presentation.*  
Credit: Sandra Shell



The scholars in this category are from RU and local communities:

- **Jake Bezuidenhout**, Freelance researcher, writer.
- **Megan Vetch**, Independent local history researcher.
- **Marguerite Poland**, novelist.
- **Hazel Crampton**, renowned freelance writer.
- **Lin Andrew**, Archivist of St Andrew's College.
- **Professor Jeff Peires**, Senior Research Associate, Cory Library.
- **Fleur Way-Jones**, Cory Library Professional Associate.
- **Professor Mike Bruton**, ichthyologist and author.
- **Zongezile Matshoba**, Amazwi Literary Museum (NELM).
- **Katherine Gillam**, Local History researcher.
- **Stephanie Victor**, Rhodes University PhD candidate.
- **Paul Maylam**, Emeritus Professor and Rhodes University historian.
- **Julia Wells**, Emeritus Professor, Rhodes University.

## Significant Research Aligned Events

### Annual Research Week

The event was hosted from 03-07 June 2019, and has become an annual event geared towards enhancing access to information resources and the visibility of Rhodes University research output. The theme of *"Your e-journey in research"* was adopted. Some of the activities covered during this event were: Incites Discover and Publons; Copyright and introduction to a research data management platform - Figshare.

### Scholarly Communication

In the second quarter of 2019, ten (10) academic researchers requested the update of their ORCID profiles. The Rhodes University Library (RUL) continued to lead awareness campaigns within the research community to showcase how ORCID and other tools can be used to promote and enhance researcher and institutional visibility.

### Research Data Management Service

The Figshare project is driven by the South East Academic Libraries System (SEALS) consortium. The kick-off meeting was held on 15 March 2019. The liaison between the FigShare coordinator, RU IT and Librarians has been ongoing on a daily basis via FigShare Basecamp in 2019. Locally, the Library together with the relevant stakeholders worked on a proposal for a complete Research Data Management (RDM) plan as part of our Digital Scholarship Services.

The RDM plan will include the associated policies and procedures in support of making research accessible. The policy will furthermore include requirements for publishing data sets as required by funders. A test site running the recommended data management service (for more information on FigShare see <https://figshare.com/>), and will be working towards launching the Rhodes Data Management Service by the end of 2019 to 2020. The Library managed to assist with the submission of data sets, as well as assigning relevant digital object identifiers (DOIs) where required. The Library has also re-purposed one the vacant positions in making provision for the Digital Scholarship position in support of the Research Agenda.

## Postgraduate Research Support and Training

Several support and training activities are encompassed in the awareness sessions/workshops/presentations held throughout campus. These include the use of the following tools: Reference Management Software (e.g. Refworks, Zotero, Mendeley); Researcher identities (e.g. ORCID, ResearcherID, Scopus AuthorID, Google Scholar); Citation analysis (e.g. InCites, ResearcherID, Scopus, Dimensions, Microsoft Analytics), Research Media (e.g. ResearchGate, Academia.edu), Rhodes Digital Commons, Research landscape analysis tools Clarivate Analytics and Publons.

- **30 April 2019: Library CPD** - a presentation to showcase Publons which has been acquired by Web of Science.
- **22 May 2019: The Law Department Research Seminar** - a presentation on ORCID and researcher visibility.
- **22 - 23 August 2019: Librarians staffed a table at the Postgraduate Conference.** Twelve (12) ORCID members were registered and a five (5)-minute presentation on ORCID was given.

## Open Scholarship/Open Science Activities:

Open Scholarship or Open Science is an umbrella term that encompasses open access, open data, open educational resources, and all other forms of openness in the scholarly and research environment.

- **Rhodes Digital Commons (RDCs):** In 2019, as part of the strategic imperative to ensure that Rhodes research is made optimally visible, Library staff focused on ensuring that research output, especially articles, were made accessible on the Rhodes Digital Commons.
- The Rhodes Digital Commons is a collective responsibility of the institution, library, Research Office, and academics. The following illustrates the number of articles, electronic theses and dissertations (ETDs); E-Books, E-Journal articles, Citation and references submitted to the RDCs in 2019.

Collection	Added in 2019	Total in 2019
ETDs	285	6 702
Articles	339	1 885
E-Books	71	335
E-Journal titles	1	2
E-Journal articles	12	2 088
Citations & references	54	550
<b>Total</b>	<b>762</b>	<b>11,562</b>

## Open Access

RUL coordinated Open Access (OA) activities, and raised awareness of Open Scholarship as follows:

- An OA statement and an update on national activities were disseminated to all RU communities to raise awareness during the Open Access week.
- Open Access celebration in 2019. Presentations by Dr. N. Pallit of CHERTL, and Roza Carvalho of African Journal Online - thirty-nine (39) attendees.

- Participation in the SCOAP3 initiative.
- Extensive profiling of quality OA resources, on OPAC and Discovery layer, as part of collections.
- Participation via SANLiC on Taylor & Francis Transformative Open Access agreements.

**Ms Nomawethu Danster**

*Director: Library Services*

## Books/Chapters/Monographs

**Shell, S.R.**

**Shell, S.R.** (2019) *Indoda Ebisithanda ('The Man who Loved Us'): the Reverend James Laing among the amaXhosa, 1831-1836*. Cape Town: Historical Publications Southern Africa. ISBN: 97809994720726.

**Shell, S.R.** (2019) A visit of Liberated Oromo Slave Children to Mauritius. In: Alpers, E.A., Karghoo, S. and Teelock, V. (eds.). *History, Memory and Identity: Comparative Perspectives: Volume Two*. Republic of Mauritius: Nelson Mandela Centre for African Culture Trust Fund. p.37-47. ISBN: 9789994905812.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Shell, S.R.**

**Shell, S.R.** (2019) Of Inscriptions and isiXhosa. *Bulletin of the National Library of South Africa (Former Quarterly Bulletin of the National Library of South Africa)*. 73 (2). p.122-130.



*Rhodes University Main Library*

*Credit: Rhodes University Communications and Advancement Division*



The Department had a quiet research year in 2019, although Professor Lilla Stack continued her stellar record of supervising Postgraduate students, and two (2) of her Masters students graduated in April 2019.

Associate Professor Jackie Arendse continued to manage the annual updating of the book *Silke on Tax Administration* published by Lexis Nexis, and she remained active in presenting tax update seminars to Chartered Accountants and Registered Tax Practitioners as part of their *Continuous Professional Development*. She also presented a paper at a research conference at the University of Johannesburg.

Professor John Williams co-supervised a PhD candidate who graduated under the Department of Management, and he co-authored a paper that was presented at an academic conference at Nelson Mandela University.

## Postgraduates / Graduations

**Gumbo, Wadzanai Charisma**, LLB (Rhodes), in Taxation, in the Department of Accounting. Degree by coursework and thesis. Thesis: *The taxation of the 'sharing economy' in South Africa*. Supervised by Professor E Stack.

**Mabaso, Bandla Sazi**, HDipAcc (Wits), CA (SA), in Taxation, in the Department of Accounting. Degree by coursework and thesis. Thesis: *An analysis of the possible success of a tax on sugar-sweetened beverages in South Africa*. Supervised by Professor E Stack.

## Distinguished Visitors / International Visits

Following a visit from Dr Tasneem Suliman Joosub, and Professor Tola Adesina from Coventry University in 2018, a collaboration was developed in which Auditing 3 students and their counterparts at the Coventry University teamed up in a simulated international auditing environment. They worked on providing solutions to real-life scenarios. The feedback was overwhelmingly positive from students at both universities and it is hoped that the collaboration will continue next year.

**Associate Professor Jackie Arendse**

*Head of Department*

*Mr Sazi Mabaso, one of our staff members, who graduated with a MCom Taxation in 2019  
Credit: Department of Accounting*





*Professor J Arendse and Professor Lilla Stack*  
Credit: Department of Accounting



*Professor J Williams*  
Credit: Department of Accounting

## Books/Chapters/Monographs

**Arendse, J.**

Arendse, J. and Williams, R.J. (2019) Chapters 4-11: Chapter 4: Registration, returns, assessments and records. Chapter 5: Dispute resolution. Chapter 6: Advance rulings. Chapter 7: Administrative penalties, additional tax and interest. Chapter 8: Audit, investigation, search, seizure and access to information. Chapter 9: Payment of taxes, refunds and SARS collection powers. Chapter 10: Offences, unprofessional conduct and registration of practitioners. Chapter 11: Miscellaneous provisions. In: Campbell-White, W. (ed.). *Silke on Tax Administration*. 11th Ed. Durban, South Africa: LexisNexis. p.1-552. ISBN: 9780409115156.

## Concerts, Exhibitions, Performances, Workshops, Events

**Arendse, J.**

Arendse, J. Seminar presentation. Budget and Tax Update 2019. *Tax Update Seminars*. South Africa. 8 - 25 March 2019.

Arendse, J. Seminar presentation. Year-end Tax Update 2019. *Tax Seminars*. South Africa. 1 - 25 November 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Arendse, J.**

Arendse, J. Analysing interview data using coding to identify emergent themes. *Tax Research Methodologies Seminar*. University of Johannesburg, Johannesburg. South Africa. July 2019.

**Williams, J.M.**

Asah, F.T., Louw, L. and Williams, J.M. The availability of credit from formal financial sector to small and medium enterprises (SMEs) in South Africa. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.



*Rhodes university campus*  
Credit: Rhodes University Communications and Advancement Division



The Department of Anthropology continued to engage in research activities across two (2) of their core nodes of research namely; marine ecological issues and urbanization and nature.

Professor Aswani continued to head the social science component with a project entitled SOLSCISTE. Human driven environmental change has dramatically increased the levels of climatic and environmental unpredictability in coastal East Africa and, consequently, the vulnerability of coastal communities. His research teamed together with Anthropology Postgraduate students to document the coastal socioeconomic, governance, and local knowledge systems of fishing communities in Tanzania to understand local resource use patterns and responses to social, economic, political, and ecological changes. Community-level knowledge is being integrated with scientific oceanographic research to assess the vulnerability of local communities to climate change and establish participatory, just, and sustainable management of natural resources in coastal Tanzania.

The completion of the multidisciplinary research project, entitled *A Place to Belong*, led by Associate Professor Michelle Cocks and Professor Charlie Shackleton culminated in the compilation of a multi-authored edited book to be published by Earthscan. The book includes eleven (11) case studies from around the world reflecting on the relationships that humans forge with nature in urban settings. To complement the research findings of the project, local photographer Ella von Tonder was commissioned to provide one hundred and twenty (120) images illustrating values and appreciation of urban nature in Makhandia. The photographs will be the basis of a second illustrated popular book.

Each year Anthropology third year students carry out their own research projects as part of their undergraduate training. The Department initiated an Oral History Community Engagement project between the students and senior citizens at the Ethembeni Service Centre in Joza. The initiative was aligned to the teaching module offered by Dr Janet Hayward, *Ways of Knowing: science, belief, and indigenous knowledge in anthropological and interdisciplinary context*. The experience has also enriched our student's learning of anthropological research methodologies.

## Postgraduates

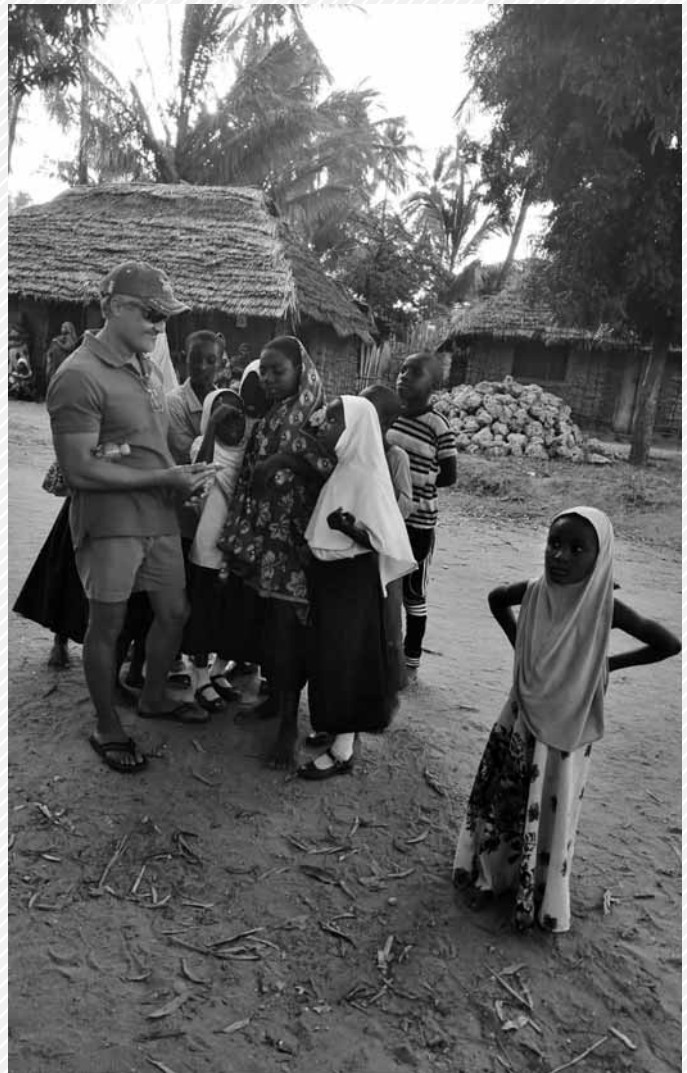
Martin Allison obtained his Masters degree at the age of eight-two (82). He graduated alongside three (3) Honours students, one (1) other Masters student, and two (2) PhD candidates in the Anthropology Department.

*Rhodes University research team documenting the coastal socioeconomic, governance, and local knowledge systems of fishing communities in Tanzania*  
Credit: Aswani Shankar



*Rhodes University research team documenting the coastal socioeconomic, governance, and local knowledge systems of fishing communities in Tanzania*

*Credit: Aswani Shankar*



## Significant Research Aligned Events

Professor Aswani was invited to present and participate in discussions around securing marine resources for marginalised communities' livelihoods at a number of local and international platforms, including the:

- 1) Australian Society for Fish Biology Conference held at the National Library of Australia, Canberra, Australia;
- 2) National Science Week Pre-launch Symposium held at Nelson Mandela University, Port Elizabeth and;
- 3) Future of Marine-Dependent Societies: Climate Change and Fishing Communities, at the University of Sao Paolo.

In September 2019, Dr Dominique Santos delivered the keynote address at the Anthropology Southern Africa conference. An annual gathering of local anthropologists and international scholars with research interests in the region. Her keynote address *"When Things Fall Apart: Lessons from the Adventure Playground"*. It challenged the anthropological norm by drawing on fieldwork conducted in the West and presented to an audience in the Global South. Her paper on the adventure playgrounds of South East London (United Kingdom), emerging

from the ruins of World War 2 Europe, led by multi-cultural working-class concerns to access space for children's play in densely populated social housing, threatened by the spectres of austerity and gentrification, offered local insights into the uncertainties, manipulations, paradoxes and resiliencies of a world in the midst of crisis.

Dr Janet Hayward was requested by the Institute for Security Studies' Violence Prevention Forum to compile a document outlining the demographics, history, politics and local governance of the Nyandeni Local Municipality in the former Transkei, as well as the most pressing social challenges faced by residents. She also participated in their forum in September 2019, which was a multi-sectorial collaboration between various practitioners, researchers, government departments and community members in an attempt to design an evidence-based violence prevention intervention.

**Associate Professor Michelle Cocks**  
*Head of Department*



## Peer Reviewed Subsidy-Earning Journal Research Publications

**Aswani, S.**

**Aswani, S.** (2019) Perspectives in coastal human ecology (CHE) for marine conservation. *Biological Conservation*. 236 (2019). p.223-235.

**Cochrane, K.L., Sauer, W.H.H. and Aswani, S.** (2019) Science in the service of society: Is marine and coastal science addressing South Africa's needs? *South African Journal of Science*. 115 (2). p.1-7.

**Cochrane, K.L., Rakotondrazafy, H., Aswani, S., Chaigneau, T., Downey-Breedt, N., Lemahieu, A., Paytan, A., Sauer, W.H.H., Malherbe, W., Scott, L. and et al.** (2019) Tools to Enrich Vulnerability Assessment and Adaptation Planning for Coastal Communities in Data-Poor Regions: Application to a Case Study in Madagascar. *Frontiers in Marine Science*. 5 (505). p.1-22.

**Cochrane, K.L., Sauer, W.H.H. and Aswani, S.** (2019) Reply to 'Society's needs cannot be met by applied science alone: A response to Cochrane et al. (2019)'. *South African Journal of Science*. 115 (7/8). p.1-2.

**Dutra, L.X.C., Sporne, I., Haward, M., Aswani, S., Cochrane, K.L., Frusher, S., Gasalla, M.A., Ganesella, S.M.F., Grant, T., Sauer, W.H.H. and et al.** (2019) Governance mapping: A framework for assessing the adaptive capacity of marine resource governance to environmental change. *Marine Policy*. 106 (103392). p.1-13.

**Cocks, M.**

**Masterson, V.A., Vetter, S., Chaigneau, T., Daw, T.M., Selomane, O., Hamann, M., Wong, G.Y., Mellegard, V., Cocks, M. and Tengo, M.** (2019) Revisiting the relationships between human well-being and ecosystems in dynamic social-ecological systems: Implications for

stewardship and development. *Global Sustainability*. 2 (e8). p.1-14.

**Mercon, J., Vetter, S., Tengo, M., Cocks, M., Balvanera, P., Rosell, J.A. and Ayala-Orozco, B.** (2019) From local landscapes to international policy: contributions of the biocultural paradigm to global sustainability. *Global Sustainability*. 2 (e9). p.1-11.

**Njwambe, A. and Cocks, M.**

**Njwambe, A., Cocks, M. and Vetter, S.** (2019) Ekhayeni: Rural-Urban Migration, Belonging and Landscapes of Home in South Africa. *Journal of Southern African Studies*. 45 (2). p.413-431.

**Van Wijk, Y.**

**Van Wijk, Y., Rust, R., Uithaler, E.M. and Wurz, S.** (2019) Ethnobotanical research at Klasies River linking past, present and future. *Ethnobotany Research and Applications*. 18 (34). p.1-24.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Cocks, M.L.**

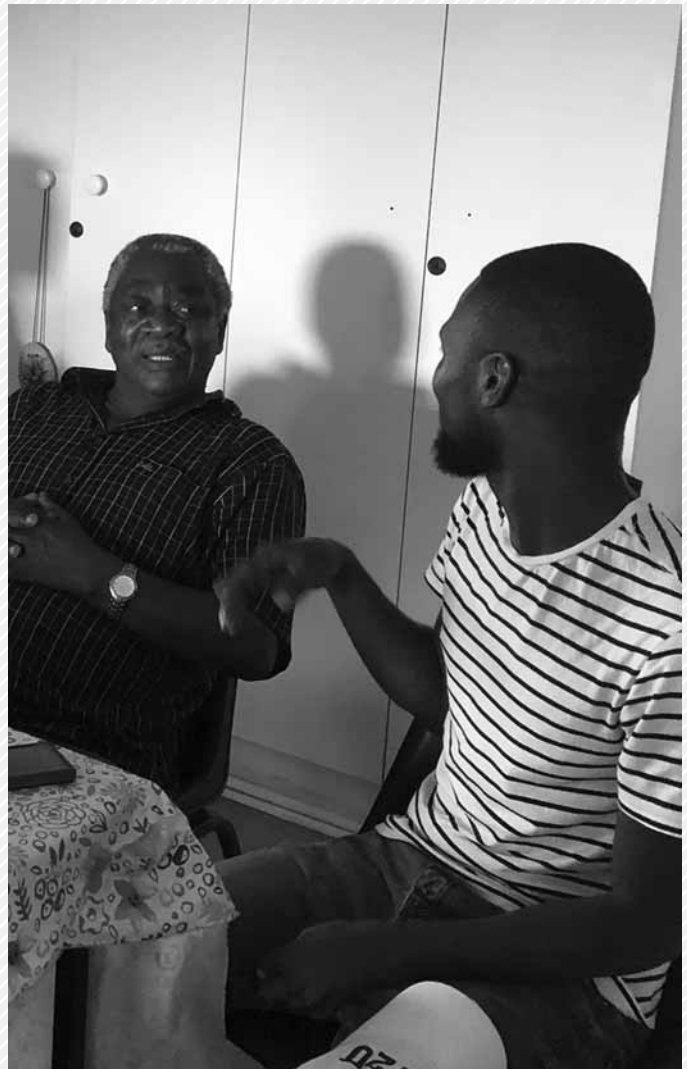
**Vetter, S. and Cocks, M.L.** Culture inextricably entwined with nature: cultural ecosystem services and wellbeing in the Eastern Cape, South Africa. *56th meeting of the Association for Tropical Biology and Conservation*. Antananarivo, Madagascar. July 2019.

**Hayward, J.M.**

**Hayward, J.M.** Nyandeni: A brief introduction. *The Violence Prevention Forum*. Ubebele, Johannesburg. South Africa. September 2019.



Anthropology 3 students collecting oral histories from senior citizens based at Ethemebni Service Centre, Makhanda  
Credit: Janet Haywood



# 2019 DEPARTMENT OF BIOCHEMISTRY AND MICROBIOLOGY



The Department of Biochemistry and Microbiology hosts ten (10) academic staff members, including two (2) Department of Science and Technology (DST)/National Research Foundation (NRF) South African Research Chairs Initiative (SARChI) in Molecular and Cellular Biology of the Eukaryotic Stress Response (Associate Professor Adrienne Edkins) and Marine Natural Products (Professor Rosemary Dorrington), and the Director of the Research Unit in Bioinformatics (Research Unit in Bioinformatics (RUBi), Professor Özlem Tastan Bishop). Associate Professor Edkins is also the Director of the Biomedical Biotechnology Research Unit (BioBRU).

Research conducted by the staff members spans a wide range of topics and sub-disciplines, including human molecular and cell biology, computational biology, enzyme biotechnology, natural product chemistry, aquaponics, virology, mycology, bacteriology and parasitology. Staff members also actively participate in the Centre for Chemico- and Biomedical Research (CCBR), a collaborative platform of Rhodes University scientists pursuing drug discovery projects aimed at infectious diseases and cancer.

Comprehensive renovation of the Biosciences building which accommodates the department was initiated in mid-2018 and continued throughout 2019. Despite the extensive disruptions and sacrifices entailed by these circumstances, it enabled the modernisation of research infrastructure and productivity was maintained, resulting in the publication of fifty-three (53) peer-reviewed journal articles and the graduation of thirty-two (32) Postgraduate students.

## Postgraduates / Graduations

Departmental Postgraduate students who graduated included six (6) PhD candidates, thirteen (13) MSc and thirteen (13) BSc (Honours) students. Elisa Kirigin and Ariana Watkins, both of whom are continuing their MSc studies under Associate Professor Edkins and Dr Abrahams, received the prizes for the top Biochemistry and Microbiology Honours students, respectively.

## Distinguished Visitors / International Visits

A significant feature of 2019 was the success achieved by Postgraduate students and Postdoctoral Research Fellows in visiting international research groups and conferences.

*The inaugural eight recipients of the Bill & Melinda Gates Foundation Grand Challenges Africa Drug Discovery awards were announced by the African Academy of Sciences in September and included three South Africans, all members of Biochemistry & Microbiology: Professors Heinrich Hoppe, Özlem Tastan Bishop and Adrienne Edkins (left to right)*  
Credit: Department of Biochemistry and Microbiology



Dr Natasha Boel, a Postdoctoral Research Fellow in BioBRU, won an Oppenheimer Postgraduate International Study Scholarship for research exchange to the laboratory of Dudley Strickland, University of Maryland (USA).

Mr William Samson, a PhD candidate in BioBRU, won an international Company of Biologists Travelling Fellowship for a research exchange to the laboratory of Lea Sistonen, Abo Akademi University (Finland).

Ms Elisa Kirigin and Mr Duncan Yapp, MSc students in BioBRU, received training in working with Kaposi's sarcoma-associated herpesvirus-infected cell lines in the laboratory of Adrian Whitehouse, Leeds University (UK), which was funded as part of the Newton Advanced Fellowship awarded to Associate Professor Edkins.

Ms Shantal Maharaj, a PhD candidate in BioBRU, was selected for an oral presentation at the Cell Stress Society International (CSSI) conference in San Diego (USA).

Dr Samkelo Malgas, Postdoctoral Research Fellow in Professor Pletschke's laboratory, presented a paper entitled: "*Acetylation of galactomannans affects their biodegradation by endomannanases*" at the 41st Symposium on Biotechnology for Fuels and Chemicals at the Hyatt Regency, Seattle (USA).

Mr Marcel van der Merwe, a PhD candidate in Professor Knox's laboratory was invited to attend a two (2) week Postgraduate course in Analytical Methods in Chemical Ecology held at the Swedish University of Agriculture (SLU) in Alnarp, Sweden. The course covered the basic theoretical background of GC-mass spectrometry and involved practical hands-on sessions where technical skills relevant to his PhD research were taught.

Dr Michael Jukes, Postdoctoral Research Fellow in Professor Knox's laboratory, attended the International Congress on Invertebrate Pathology and Microbial Control held by the Society for Invertebrate Pathology in Valencia, Spain where he was invited to present his work on baculoviruses in pest control.

In terms of staff, Associate Professor Edkins visited her collaborators at Embu University in Kenya and gave two (2) invited presentations on her work at Embu University and Kenyatta University during the visit.

In addition to presenting her work, Professor Knox also chaired a session in the Virology section of the International Congress on Invertebrate Pathology and Microbial Control in Valencia, Spain.

Professor Hoppe was invited to attend and present his work at the annual Bill & Melinda Gates Foundation Grand Challenges meeting held in Addis Ababa, Ethiopia.

## Significant Research Aligned Events

A significant achievement for the department was the bestowment of the Vice-Chancellor's Distinguished Senior Research Award 2018 on Professor Brett Pletschke at the 2019 graduation ceremony. He subsequently presented the Award Lecture entitled: "*Enzyme Biotechnology, Bioproducts and the Bioeconomy*" in August 2019.

In September 2019, the African Academy of Sciences (AAS) announced the award of the inaugural Grand Challenges Africa Drug Discovery grants, funded by the Bill & Melinda Gates Foundation, to eight (8) African scientists. Three (3) of the recipients were based in South Africa, and all three (3) are Biochemistry and Microbiology staff members: Professor Özlem Tastan Bishop, Associate Professor Adrienne Edkins and



*Rhodes stromatolite research team setting up for field experiments*

*Back: Visiting Professor Rachel Sipler (Memorial University, Newfoundland, Canada), Eric Isemonger (PhD); Front: Luthando Madonsela (PhD) and Idris Njanje (PhD)*

*Credit: Department of Biochemistry and Microbiology*

Professor Heinrich Hoppe. These are exploration grants of \$100,000 each, supporting "proof of concept" research in infectious diseases drug discovery, and contribute to the evolution of Rhodes University as a hub of drug discovery innovation in Africa.

Professor Pletschke was invited to present a talk entitled: "*Termite metagenome derived enzymes and their synergistic interactions for the hydrolysis of pretreated agricultural feedstocks*" at the Second Joint Workshop of the South Africa-Germany Bilateral Program on the 13-15 February 2019, at the Tala Collection Private Game Reserve, South Africa.

Associate Professor Edkins was appointed to as an Editorial Board Member and Associate Editor, *Heat Shock Proteins Book Series* published by Springer Nature. Associate Professor Edkins also conducted a number of public engagement activities including an invited lecture in the main SciFest Africa 2019 Lecture Series entitled "*Stress and human disease*". Associate Professor Edkins was invited to give talks on her research at the WITS Life Sciences Imaging Facility Research Day and the Symposium in Biophotonics in Cancer: Redefining Trends in Cancer Therapy, held at the University of Johannesburg.

During October 2019, Professor Dorrington's Marine Natural Products Research Group hosted a research visit by Professor Rachel Sipler, Canada Research Chair in Ocean Sciences at Memorial University, Newfoundland, Canada. During her visit, Professor Sipler joined the Dorrington group in the field conducting experiments to study nutrient cycling in stromatolites that occur along the southeast coast of South Africa. These "*living rocks*" are formed by complex and diverse microbial communities that represent the earliest cellular life on Earth and provide insight into how modern day atmosphere, oceans and climate evolved. In addition, the team is exploring the potential of novel secondary metabolites produced by the stromatolites bacteria as a source of new antimicrobial and antiviral compounds.

**Dr Brendan Wilhelmi**  
*Head of Department*



## Peer Reviewed Subsidy-Earning Journal Research Publications

**Adeoyo, O.R., Pletschke, B.I. and Dames, J.F.**

**Adeoyo, O.R., Pletschke, B.I. and Dames, J.F.** (2019) Molecular identification and antibacterial properties of an ericoid associated mycorrhizal fungus. *BMC Microbiology*. 19 (178). p.1-8.

**Amusengeri, A. and Tastan Bishop, O.**

**Amusengeri, A. and Tastan Bishop, O.** (2019) Discorhabdin N, a South African Natural Compound, for Hsp72 and Hsc70 Allosteric Modulation: Combined Study of Molecular Modelling and Dynamic Residue Network Analysis. *Molecules*. 24 (188). p.1-29.

**Amusengeri, A., Astl, L., Lobb, K.A., Verkhivker, G.M. and Tastan Bishop, O.** (2019) Establishing Computational Approaches Towards Identifying Malarial Allosteric Modulators: A Case Study of Plasmodium falciparum Hsp70s. *International Journal of Molecular Sciences*. 20 (5574). p.1-26.

**Bamigboye, C.O. and Dames, J.F.**

**Bamigboye, C.O., Oloke, J.K., Burton, M., Dames, J.F. and Lateef, A.** (2019) Optimization of the Process for Producing Biomass and Exopolysaccharide from the King Tuber Oyster Mushroom, *Pleurotus tuber-regium* (Agaricomycetes), for Biotechnological Applications. *International Journal of Medicinal Mushrooms*. 21 (4). p.311-322.

**Bamigboye, C.O., Oloke, J.K. and Dames, J.F.** (2019) Development of high yielding strain of *Pleurotus tuber-regium*: fructification, nutritional and phylogenetic studies. *Journal of Food Science and Technology-Mysore*. 56 (8). p.3597-3608.

**Blatch, G.L.**

Youn Ko, S., Price, J.T., **Blatch, G.L.** and Nurgali, K. (2019) Netrin-1-like-immunoreactivity Coexpresses With DCC and Has a Differential Level in the Myenteric Cholinergic and Nitrergic Neurons of the Adult Mouse Colon. *Journal of Histochemistry & Cytochemistry*. 67 (5). p.335-349.

**Brooks, M.**

Gu, C., Zhang, S., Han, P., Hu, X., Xie, L., Li, Y., **Brooks, M.**, Liao, X. and Qin, L. (2019) Soil Enzyme Activity in Soils Subjected to Flooding and the Effect on Nitrogen and Phosphorus Uptake by Oilseed Rape. *Frontiers in Plant Science*. 10 (368). p.1-9.

**De La Mare, J.A. and Edkins, A.L.**

Odeyemi, S.W., **De La Mare, J.A., Edkins, A.L.** and Afolayan, A. (2019) *In vitro* and *in vivo* toxicity assessment of biologically synthesized silver nanoparticles from *Elaeodendron croceum*. *Journal of Complementary and Integrative Medicine*. 2019. p.1-14.

**Dingle, L.M.K., Cash, D., De La Mare, J.A., Laming, D., Hoppe, H.C. and Edkins, A.L.**

**Mbaba, M., Dingle, L.M.K., Cash, D., De La Mare, J.A., Laming, D., Taylor, D., Hoppe, H.C., Edkins, A.L. and Khanye, S.D.** (2019) Repurposing a polymer precursor: Synthesis and *in vitro* medicinal potential of ferrocenyl 1,3-benzoxazine derivatives. *European Journal of Medicinal Chemistry*. 2019. p.1-15.

**Dingle, L.M.K., Wilhelmi, B. and Edkins, A.L.**

**Weyers, C., Dingle, L.M.K., Wilhelmi, B., Edkins, A.L. and Veale, C.** (2019) Use of a non-hepatic cell line highlights limitations associated with cell-based assessment of metabolically induced toxicity. *Drug and Chemical Toxicology*. 2019. p.1-7.

**Dorrington, R.A.**

Lombard, A.T., **Dorrington, R.A.**, Reed, J.R., **Ortega-Cisneros, K.**, Penry, G.S., Pichegru, L., Smit, K.P., Vermeulen, E.A., Witteveen, M., Sink, K.J., McInnes, A.M. and Ginsberg, T. (2019) Key Challenges in Advancing an Ecosystem-Based Approach to Marine Spatial Planning Under Economic Growth Imperatives. *Frontiers in Marine Science*. 6 (146). p.1-11.

**Dorrington, R.A., Jiwaji, M., Awando, J.A. and De Bruyn, M.M.** **Dorrington, R.A., Jiwaji, M., Awando, J.A. and De Bruyn, M.M.** (2019) Advances in Tetravirus Research: New Insight into the Infectious Virus Lifecycle and an Expanding Host Range. *Current Issues in Molecular Biology*. 2019. p.1-17.

**Edkins, A.L.**

**Munedzimwe, T.C., van Zyl, R.L., Heslop, D.C., Edkins, A.L. and Beukes, D.R.** (2019) Semi-Synthesis and Evaluation of Sargahydroquinoid Acid

Derivatives as Potential Antimalarial Agents. *Medicines*. 6 (47). p.1-9.

**Hoppe, H.C.**

Okaiyeto, K., Ojemaye, M.O., **Hoppe, H.C.**, Mabinya, L.V. and Okoh, A.I. (2019) Phytofabrication of Silver/Silver Chloride Nanoparticles Using Aqueous Leaf Extract of *Oedera genistifolia*: Characterization and Antibacterial Potential. *Molecules*. 24 (4382). p.1-15.

**Manyeruke, M.H., Tshiwawa, T., Hoppe, H.C., Isaacs, M., Seldon, R., Warner, D.F., Krause, R.W.M. and Kaye, P.T.** (2019) Synthesis and biological evaluation of bis-N<sub>2</sub>,N<sub>2</sub>'-(4-hydroxycoumarin-3-yl)ethylidene]-2,3-dihydroxysuccinodihydrazides. *Bioorganics & Medicinal Chemistry Letters*. 2019. p.1-4.

Mathebula, B., Butsi, K.R., van Zyl, R.L., Jansen van Vuuren, N.C., **Hoppe, H.C.**, Michael, J.P., de Koning, C.B. and Rousseau, A.L. (2019) Preparation and antiplasmodial activity of 3',4'-dihydro-1'H-spiro[indoline-3,2'-quinolin]-2-ones. *Chemical Biology & Drug Design*. 94 (2019). p.1849-1858.

**Hoppe, H.C. and Isaacs, M.**

**Adeyemi, C.M., Hoppe, H.C., Isaacs, M., Klein, R., Lobb, K.A. and Kaye, P.T.** (2019) Synthesis of N-Substituted phosphoramidic acid esters as "reverse" fosmidomycin analogues. *Tetrahedron*. 75 (2019). p.2371-2378.

**Hoppe, H.C. and Laming, D.**

**Beteck, R.M., Seldon, R., Jordaan, A., Warner, D.T., Hoppe, H.C., Laming, D. and Khanye, S.D.** (2019) New Quinolone-Based Thiosemicarbazones Showing Activity Against *Plasmodium falciparum* and *Mycobacterium tuberculosis*. *Molecules*. 24 (1740). p.1-11.

**Beteck, R.M., Seldon, R., Jordaan, A., Warner, D.T., Hoppe, H.C., Laming, D., Legoabe, L.J. and Khanye, S.D.** (2019) Quinolone-isoniazid hybrids: synthesis and preliminary *in vitro* cytotoxicity and anti-tuberculosis evaluation. *MedChemComm*. 10 (2019). p.326-331.

**Isaacs, M. and Hoppe, H.C.**

**Beteck, R.M., Legoabe, L.J., Isaacs, M. and Hoppe, H.C.** (2019) *In vitro* Anti-Trypanosomal Activities of Indanone-Based Chalcones. *Drug Research*. 69 (2019). p.337-341.

**Olawode, E.O., Tandlich, R., Prinsloo, E., Isaacs, M., Hoppe, H.C., Seldon, R., Warner, D.F., Steenkamp, V. and Kaye, P.T.** (2019) Synthesis and biological evaluation of 2-chloro-3-[(thiazol-2-yl)amino]-1,4-naphthoquinones. *Bioorganic & Medicinal Chemistry Letters*. 29 (13). p.1572-1575.

**Fouokeng, Y., Feumo Feusso, H.M., Mbooso Teinkela, J.E., Siwe Noundou, X., Wintjens, R., Isaacs, M., Hoppe, H.C., Krause, R.W.M., Azebaze, A.G.B. and Vardamides, J.C.** (2019) *In vitro* antimalarial, antitrypanosomal and HIV-1 inhibitory integrase activities of two Cameroonian medicinal plants: *Antrocaryon klaineianum* (Anacardiaceae) and *Diospyros conocarpa* (Ebenaceae). *South African Journal of Botany*. 122 (2019). p.510-517.

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**Isaacs, M., Laming, D. and Hoppe, H.C.**

**Beteck, R.M., Legoabe, L.J., Isaacs, M., Khanye, S.D., Laming, D. and Hoppe, H.C.** (2019) Anti-Trypanosomal and Antimalarial Properties of Tetralone Derivatives and Structurally Related Benzocycloalkanes. *Medicina*. 55 (206). p.1-10.

**Jiwaji, M., Matcher, G.F., De Bruyn, M.M., Awando, J.A., Moodley, H., Waterworth, D., Jarvie, R.A. and Dorrington, R.A.** **Jiwaji, M., Matcher, G.F., De Bruyn, M.M., Awando, J.A., Moodley, H., Waterworth, D., Jarvie, R.A. and Dorrington, R.A.** (2019) Providence virus: An animal virus that replicates in plants or a plant virus that infects and replicates in animal cells? *PLoS One*. 14 (6). p.1-12.

**Jukes, M.D.**

Krejmer-Rabalska, M., Rabalski, L., **Jukes, M.D.**, Lobo de Souza, M., **Moore, S.D.** and Szweczyk, B. (2019) New Method for Differentiation of Granuloviruses (Betabaculoviruses) Based on Real-Time Polymerase Chain Reaction (Real-Time PCR). *Viruses*. 11 (115). p.1-16.

**Kalinski, J.J., Waterworth, S., Siwe Noundou, X., Jiwaji, M., McPhail, K.L. and Dorrington, R.A.**



Professor Brett Pletschke (second from left) after delivering his Award Lecture entitled: "Enzyme Biotechnology, Bioproducts and the Bioeconomy", flanked by the VC (Dr Sizwe Mabizela), and DVC: Academic & Student Affairs (Dr Mabokang Monnapula-Mapesela) and DVC: Research and Innovation (Dr Peter Clayton)  
Credit: Department of Biochemistry and Microbiology

Kalinski, J.J., Waterworth, S., Siwe Noundou, X., Jiwaji, M., Parker-Nance, S., Krause, R.W.M., McPhail, K.L. and Dorrington, R.A. (2019) Molecular Networking Reveals Two Distinct Chemotypes in Pyrroloiminoquinone-Producing *Tsitsikamma Favus* Sponges. *Marine Drugs*. 17 (1). p.60-76.

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Veale, C.G.L., Laming, D., Swart, T., Chibale, K. and Hoppe, H.C.

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Malgas, S., Mafa, M.S., Mkabayi, L. and Pletschke, B.I.

Malgas, S., Mafa, M.S., Mkabayi, L. and Pletschke, B.I. (2019) A mini review of xylanolytic enzymes with regards to their synergistic interactions during hetero-xylan degradation. *World Journal of Microbiology & Biotechnology*. 35 (187). p.1-13.

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Jesumoroti, O.J., Faridoun, H., Mnkandhla, D., Isaacs, M., Hoppe, H.C. and Klein, R. (2019) Evaluation of novel N'-(3-hydroxybenzyl)-2-oxo-2H-chromene-3-carbohydrazide derivatives as potential HIV-1 integrase inhibitors. *MedChemComm*. 10 (2019). p.80-88.

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Musyoka, T.M. and Tastan Bishop, O. (2019) South African Abietane Diterpenoids and Their Analogs as Potential Antimalarials: Novel Insights from Hybrid Computational Approaches. *Molecules*. 24 (4036). p.1-25.



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Siwe Noundou, X., Musyoka, T.M., Moses, V., Ndinteh, D.T., Mnkandhla, D., Hoppe, H.C., Tastan Bishop, O. and Krause, R.W.M. (2019) Anti-HIV-1 integrase potency of methylgallate from *Alchornea cordifolia* using *in vitro* and *in silico* approaches. *Scientific Reports*. 9 (4718). p.1-9.

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Sanyanga, T.A., Nizami, B. and Tastan Bishop, O. (2019) Mechanism of Action of Non-Synonymous Single Nucleotide Variations Associated with a-Carbonic Anhydrase II Deficiency. *Molecules*. 24 (3987). p.1-32.

Siwe Noundou, X. and Hoppe, H.C.  
Mbosso Teinkela, J.E., Siwe Noundou, X., Fannang, S., Mbem Song, A., Assob Nguedia, J.C., Hoppe, H.C. and Krause, R.W.M. (2019) Terminalamide, a new ceramide and other phytoconstituents from the roots of *Terminalia mantaly* H. Perrier and their biological activities. *Natural Product Research*. 2019. p.1-10.

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## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

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Chartier Fitzgerald, V., Dames, J.F. and Hawley-McMaster, G. Biological control potential of ectomycorrhizal fungi against *F.circinatum* on *Pinus patula* seedlings. *18th Congress of European Mycologists*. University of Warsaw, Old University Library, Warsaw. Poland. September 2019.

Dames, J.F.

Dames, J.F. Are some orchid mycorrhizal fungi more casual than others? *4th Wild Orchid South Africa Conference*. Gooderson's Drakensberg Gardens Hotel, Underberg. South Africa. January 2019.

Dames, J.F. How diverse are South African mycorrhizal fungi? *South African Association of Botany*. University of Johannesburg, Johannesburg. South Africa. January 2019.

Dames, J.F. Mycorrhiza - linking plant and soil. *Metson World Conference*. St Lucia Eco Lodge, St Lucia. South Africa. May 2019.

Edkins, A.L.

Mbaba, M., Edkins, A.L. and Khanye, S.D. Ferrocenyl alpha-aminocresols: Investigating 1,3-benzoxazine side products as bioactive agents. *Workshop of Metals in Medicine*. Friedel Auditorium of Chimie ParisTech, Paris. France. November 2019.

Mbaba, M., Edkins, A.L. and Khanye, S.D. Anticancer and anti-plasmodial effects of incorporating ferrocene into novobiocin scaffold. *Frank Warren Conference 2019*. Alpine Heath Resort, Drakensberg. South Africa. July 2019.

Jukes, M.D. and Knox, C.

Jukes, M.D., Knox, C., Hill, M.P. and Moore, S.D. The susceptibility of a novel cell line derived from Thaumetobia leucotreta eggs to various alpha and beta baculoviruses. *The 52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests"*. Valencia, Spain. July 2019.

Knox, C. and Jukes, M.D.

Knox, C., Jukes, M.D., Moore, S.D. and Hill, M.P. Characterisation of novel baculovirus isolates for potential development and application as biopesticides against agricultural pests in South Africa. *52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests"*. Valencia, Spain. July 2019.

Mafa, M.S., Malgas, S., Bhattacharya, A. and Pletschke, B.I.

Mafa, M.S., Malgas, S., Bhattacharya, A., Rashamuse, K. and Pletschke, B.I. Termite metagenome derived enzymes and their synergistic interactions for the hydrolysis of pretreated agricultural feedstocks. *Second Joint Workshop: South Africa-Germany Bilateral Program*. Tala Game Reserve, Pietermaritzburg. South Africa. February 2019.

Malgas, S. and Pletschke, B.I.

Malgas, S. and Pletschke, B.I. Acetylation of galactomannans affects their biodegradation by endo-mannanases. *41st Symposium on Biotechnology For Fuels And Chemicals (SBFC)*. Hyatt Regency, Seattle, Seattle. USA. April 2019.



Modern representatives of ancient microbial communities - stromatolite formations near Cape St Francis  
Credit: Department of Biochemistry and Microbiology



# 2019

## DEPARTMENT OF BIOTECHNOLOGY & THE BIOTECHNOLOGY INNOVATION CENTRE (RUBIC)



The Department of Biotechnology and the Biotechnology Innovation Centre (RUBIC) has taken a lead in transformative approaches to training and research in Biotechnology in Higher Education. The field of Biotechnology is well positioned to address some of the grand challenges of our time, in areas such as health, food, energy and water security.

At RUBIC, Postgraduate students receive a grounding in Biotechnology that integrates research and teaching, with innovation and community engagement. Through engagement with societal challenges, and research that occurs in tandem with technology transfer of new products and processes, Biotechnology at Rhodes University seeks to equip students with a multitude of skills necessary to meaningfully and responsibly address these grand challenges.

The highlight for 2019 was the opening of the new wing of RUBIC, a brand new facility housing new laboratories, facilities and offices to consolidate Biotechnology research at Rhodes University. As a part of this extensive remodelling to the first floor of the Biological Sciences Building, Rhodes University's partnership with the United Nations Children's Fund (UNICEF), led by Professor Janice Limson and Dr Ronen Fogel, culminated in the official launch of the UNICEF Diagnostics Laboratory. This laboratory serves as the home for truly innovative research in diagnostic tests that can lead to life-saving medical interventions for women and children.

### Postgraduates / Graduations

RUBIC hosted twelve (12) Honours, fifteen (15) Masters students and seven (7) PhD candidates, as well as three (3) Postdoctoral Research Fellows in 2019. The Centre graduated twelve (12) Honours students (including one (1) distinction), one (1) Masters student and two (2) Doctoral (Kelly-Ann Frith and Mokaba Shirley Malema) candidates.

### Distinguished Visitors / International Visits

Mathias Devi, of UNICEF Innovation in New York visited Rhodes University in December 2019 for a site visit to conclude the multi-year partnership between UNICEF Innovation and Rhodes University's BioSENs Research Group. Researchers, led by Professor Janice Limson and Dr Ronen Fogel unveiled the diagnostic products produced by the partnership at the launch of the UNICEF Diagnostics Laboratory. Describing the progress towards diagnostic tests for HIV CD4 monitoring, pregnancy as well as for malaria, Devi noted that these have real world value. Speaking to Grocott's Mail, he applauded the partnership, indicating that "it's a textbook example on how to move something from an early stage towards products."

*The Department of Biotechnology and the Biotechnology Innovation Centre staff, Postdoctoral Research Fellows and students.  
Credit: RUBIC*

Professor Janice Limson was invited to co-present a webinar on Science Entrepreneurship by the American Association of Science Advancement (AAAS). Moderated by Sean Sanders of Science Magazine, Xavier du Portet, Janice Limson and Bernhard Paetzold were recorded in discussion for the AAAS webinar, *Money Matters: Science entrepreneurship* in Paris, France in October 2019.

Dr Earl Prinsloo's laboratory hosted a research visit by Professor Sebastian Magobotha and Dr Maxwell Jingo from the Division of Orthopaedic Surgery, University of the Witwatersrand (Wits) Medical School, and Dr Makwese Maepa from the Department of Biomedical Sciences, Tshwane University of Technology.

## Significant Research Aligned Events

Professor Janice Limson served as the Co-Chair of the 70th Meeting of the International Society of Electrochemistry, held for the first time on the continent, in Durban, in August 2019. Just under nine hundred (900) delegates from fifty-eight (58) countries were welcomed to this conference which hosted twenty-two (22) parallel sessions.

Dr Ronen Fogel served as a coordinator of the Sensors and Biosensors for Biomedical and Environmental Applications Symposium at this meeting. Rhodes University was well represented at this conference with students and staff from both Biotechnology and Chemistry attending.

Seven (7) presentations from RUBIC's BioSens research group were accepted to the conference, four (4) of which were selected for oral presentations. A further three (3) presentations from the BioSens group were made at international conferences in 2019, Lauren Shaw at the Aptamers meeting in Oxford, United Kingdom, Dr Shane Flanagan at Aptamers in Bordeaux, France and Martin Ogunmolaseyi at the AIBBC Meeting in Mombasa, Kenya.

Dr Prinsloo attended the South African Medical Research Council (SAMRC) Advanced Cell Culture Models Collaborative Workshop in May 2019 held in Cape Town.

Dr Rose Kadye and Ms Mhlali Stoffels presented their research at the Wits Medical School/National Osteoporosis Foundation of South Africa (NOFSA) Osteoporosis Symposium in August 2019 in Johannesburg. Sidne Fanucci presented her work as a short oral presentation at the TERMIS-EU Workshop: 3D Bioprinting in Cancer Research (August 2019, Nantes, France).

## Science Communication

Staff and students were involved in several science engagement initiatives. At Scifest Africa, the Department of Science and Innovation (DSI)-National Research Foundation (NRF) Science Engagement Researcher, Lwazikazi Madikiza oversaw RUBIC's continued involvement in the popular Speed-Date-A-Scientist event. Ms Madikiza supported by Dr Ronen Fogel also managed a study aimed at better understanding the experience of science students involved in Scifest Africa.

Professor Janice Limson, who rejoined the Scifest Africa Advisory Board in 2019, led a first-of-its kind science engagement intervention at Scifest Africa 2019 aimed at giving the public a voice in research, entitled, *Science is Listening*. Professor Limson also presented on *"Truth and Trustworthiness in Science"* as part of the Academy of Science of South Africa (ASSAf)-Embassy Lecture Series.

## Staff

In recognition for his contribution to leadership, research, and teaching and learning at RU, Dr Earl Prinsloo was promoted to the academic level of Associate Professor, as of January 2020.

Professor Limson was recognised by the DSI/National Intellectual Property Management Office (NIPMO) as one of the top intellectual property creators in the country, being the Top Intellectual Property Creator, Rhodes University, for the period 2010-2019. Her DSI/NRF South African Research Chair in Biotechnology Innovation and Engagement was renewed for a further five (5) years.

Ms Alyssa Williams, Project Administrator to the DSI/NRF Chair in Biotechnology Innovation and Engagement was awarded a prestigious New Generation Academic Programme (nGAP) lectureship and joined the staff of the Department of Management as a lecturer at the end of 2019.

Mr Aphiwe Mfuku, through a successful Southern African Research & Innovation Management Association (SARIMA) Award advanced his prototype water treatment filtration unit at Savant, a technology incubator in Cape Town.

### Dr Earl Prinsloo

#### Head of Department

### Professor Janice Limson

#### Director

## Books/Chapters/Monographs

Limson, J.L.

Limson, J.L. (2019) Engaging the public in scientific research - models, prospects and challenges from the perspective of scientists. In: Weingart, P., Joubert, M. and Facade, B. (eds.). *Science Communication in South Africa: Reflections on Current Issues*. Cape Town: African Minds. p.19-44. ISBN: 9781928502036.

## Concerts, Exhibitions, Performances, Workshops, Events

Limson, J.L.

Limson, J.L. and Haworth, P. Coordinator. Science is listening. *Scifest Africa*. Grahamstown Foundation, Grahamstown. South Africa. 6 - 11 April 2019.

Madikiza, M., Fogel, R. and Limson, J.L.

Madikiza, M., Fogel, R. and Limson, J.L. Coordinator. Speed Date a Scientist. *Scifest Africa*. Grahamstown Foundation, Grahamstown. South Africa. 6 March - 12 January 2019.

## Patents

Ho, L.S.J., Fogel, R. and Limson, J.L.

Ho, L.S.J., Fogel, R. and Limson, J.L. (2019) *Histamine-targeting aptamers and applications thereof*. UK. 2019. GB 1901791.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Bentley, S.J. and Boshoff, A.

Bentley, S.J. and Boshoff, A. (2019) *Trypanosoma brucei* J-Protein 2 Functionally Co-Operates with the Cytosolic Hsp70 and Hsp70.4 Proteins. *International Journal of Molecular Sciences*. 20 (5843). p.1-15.

Collings, D.

Collings, D., Tandlich, R., Dube, C.S., Madikizela, P., Ngqwala, N. and Ahmed, M. (2019) Preliminary study on the potential use of fly ash as a ventilated improved pit latrine additive. *Journal of Solid Waste Technology and Management*. 45 (4). p.395-402.

Fanucci, S., Barwick, M.W. and Prinsloo, E.

Fanucci, S., Barwick, M.W. and Prinsloo, E. (2019) Bioprinting: Prospects, considerations and challenges for application in South African clinical environments. *SAMJ South African Medical Journal*. 109 (8). p.35-40.

Ho, L.S.J., Limson, J.L. and Fogel, R.

Ho, L.S.J., Limson, J.L. and Fogel, R. (2019) Certain Methods of Electrode Pretreatment Create Misleading Responses in Impedimetric Aptamer Biosensors. *ACS Omega*. 4 (2019). p.5839-5847.

Ho, L.S.J., Fogel, R. and Limson, J.L. (2019) Generation and screening of histamine-specific aptamers for application in a novel impedimetric aptamer-based sensor. *Talanta*. 2019. p.1-12.

Malema, M.S. and Zuma, B.M.

Malema, M.S., Mwenge Kahinda, J.M., Abia, A.L.K., Tandlich, R., Zuma, B.M. and Ubomba-Jaswa, E. (2019) The efficiency of a low-cost hydrogen sulphide (H<sub>2</sub>S) kit as an early warning test for assessing microbial rainwater quality and its correlation with standard indicators microorganisms. *Nova Biotechnologica et Chimica*. 18 (2). p.133-143.

Nondlazi, S. and Zuma, B.M.

Nondlazi, S., Ngqwala, N., Zuma, B.M., Mensah, P. and Tandlich, R. (2019) Effect of fly ash-lime treatment on the acute toxicity of greywater towards *Daphnia magna*. *Nova Biotechnologica et Chimica*. 18 (1). p.59-65.

Nyakundi, D.O., Bentley, S.J. and Boshoff, A.

Nyakundi, D.O., Bentley, S.J. and Boshoff, A. (2019) Hsp70 Escort Protein: More Than a Regulator of Mitochondrial Hsp70. *Current Proteomics*. 16 (1). p.64-73.

Prinsloo, E.

Beukes, N., Levendal, R.A., Prinsloo, E. and Frost, C. (2019) Comparative detection method of early onset cytokine-induced stress in *B*-cells (INS-1E). *Biotechnology and Applied Biochemistry*. 66 (3). p.328-339.

Olawode, E.O., Tandlich, R., Prinsloo, E., Isaacs, M., Hoppe, H.C., Seldon, R., Warner, D.F., Steenkamp, V. and Kaye, P.T. (2019) Synthesis and biological evaluation of 2-chloro-3-[(thiazol-2-yl)amino]-1,4-naphthoquinones. *Bioorganic & Medicinal Chemistry Letters*. 29 (13). p.1572-1575.





Molupe, N., Babu, B., Prinsloo, E., Kaassis, A.Y.A., Edkins, K., Mack, J. and Nyokong, T. (2019) Photodynamic activity of Sn(IV) meso-tetraaceneophthalocyanine and its methyl- $\beta$ -cyclodextrin inclusion complexes on MCF-7 breast cancer cells. *Journal of Porphyrins and Phthalocyanines*. 23 (2019). p.1486-1494.

Clark, S., Nagan, Y., Prinsloo, E. and Oosthuizen, V. (2019) An acidic loop within the human soluble CD23 protein may direct the interaction between sCD23 and the  $\alpha$ XB2 integrin. *Biochimica et Biophysica Acta - Proteins and Proteomics*. 1867 (2019). p.548-555.

Nwahara, N., Managa, M., Prinsloo, E. and Nyokong, T. (2019) Design of Phthalocyanine-Nanoparticle Hybrids for Photodynamic Therapy Applications in Oxygen-Deficient Tumour Environment. *ChemistrySelect*. 4 (2019). p.9084-9095.

Motloung, B.M., Sekhosana, K.E., Managa, M., Prinsloo, E. and Nyokong, T. (2019) The photophysical and photodynamic properties and photodynamic therapy activity of phenyldiazene phenoxy substituted phthalocyanines when incorporated into Pluronic® F127 micelles. *Polyhedron*. 174 (2019). p.1-8.

Dube, E., Oluwale, D.O., Nwaji, N., Prinsloo, E. and Nyokong, T. (2019) Photophysical and photodynamic therapy properties of metallophthalocyanines linked to gold speckled silica nanoparticles. *Photodiagnosis and Photodynamic Therapy*. 25 (2019). p.325-333.

Babu, B., Amuhaya, E., Oluwale, D.O., Prinsloo, E., Mack, J. and Nyokong, T. (2019) Preparation of NIR absorbing axial substituted tin(IV) porphyrins and their photocytotoxic properties. *MedChemComm*. 10 (2019). p.41-48.

Babu, B., Prinsloo, E., Mack, J. and Nyokong, T. (2019) Synthesis, characterization and photodynamic activity of Sn(IV) triarylcorroles with red-shifted Q bands. *New Journal of Chemistry*. 43 (2019). p.18805-18812.

Soy, R., Babu, B., Oluwale, D.O., Nwaji, N., Oyim, J., Amuhaya, E., Prinsloo, E., Mack, J. and Nyokong, T. (2019) Photophysical and photodynamic therapy activity of chloroindium(III) tetraarylporphyrins and their gold nanoparticle conjugates. *Journal of Porphyrins and Phthalocyanines*. 23 (2019). p.34-45.

## Peer-reviewed Proceedings

Angala, A.N. and Zuma, B.M.

Tandlich, R., Angala, A.N., Vhiriri, E.P., Ngqwala, N., Zuma, B.M. and Nnadozie, C.F. Scoping the WASH vulnerability of the population in Southern African Development Community: Angola and Namibia. *24th International Scientific Conference - Solutions for crisis situations in specific environments*. University of Zilina, Zilina. Slovakia. May 2019.

Angala, A.N., Tandlich, R., Ngqwala, N. and Zuma, B.M. Efficiency of a decentralised system in the treatment of rainwater in South Africa. *11th International Conference: Air and Water Components of the Environment*. University of Babes-Bolyai, Cluj-Napoca. Romania. March 2019.

Angala, A.N., Zuma, B.M. and Moyo, S.

Angala, A.N., Tandlich, R., Ngqwala, N., Zuma, B.M. and Moyo, S. Citizen science, treatment and compliance monitoring of microbial water quality in Namibia. *11th International Conference: Air and Water Components of the Environment*. University of Babes-Bolyai, Cluj-Napoca. Romania. March 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Bani, S., Fogel, R. and Limson, J.L.

Bani, S., Fogel, R. and Limson, J.L. Application of cathodic modifiers in Single-chambered Microbial Fuel Cells versus H-type Microbial Fuel Cells for wastewater treatment. *70th Annual Meeting of the International Society of Electrochemistry*. Durban ICC, Durban. South Africa. August 2019.

Fanucci, S. and Prinsloo, E.

Fanucci, S. and Prinsloo, E. The Development of a low cost bioprinter for the engineering of three dimensional human tumor models. *TERMIS-EU Workshop - 3D Bioprinting in Cancer Research*. Cite des Congres de Nantes, Nantes. France. August 2019.

Flanagan, S.P., Ho, L.S.J., Shaw, L., Fogel, R. and Limson, J.L. Flanagan, S.P., Ho, L.S.J., Shaw, L., Fogel, R. and Limson, J.L. Aptamer development against Plasmodium vivax lactate dehydrogenase for the selective detection of malaria subspecies. *Aptamers in Bordeaux*. La Cite du Vin Bordeaux, Bordeaux. France. June 2019.

Ho, L.S.J., Fogel, R. and Limson, J.L.

Ho, L.S.J., Fogel, R. and Limson, J.L. The Specific Detection of Histamine by an Impedimetric Aptasensor. *70th Annual Meeting of the International Society of Electrochemistry*. Durban ICC, Durban. South Africa. August 2019.

Lipali, M.J., Limson, J.L. and Fogel, R.

Lipali, M.J., Limson, J.L. and Fogel, R. Enhancing bioremediation efficiency and power generation in Microbial Fuel Cells through exogenous addition of biological and chemical surfactants. *70th Annual Meeting of the International Society of Electrochemistry*. Durban ICC, Durban. South Africa. August 2019.

Ogunmolasuyi, A.M., Fogel, R. and Limson, J.L.

Ogunmolasuyi, A.M., Fogel, R. and Limson, J.L. Paper-based ELONA for detection of Plasmodium falciparum lactate dehydrogenase in malaria. *4th African International Biotechnology and Biomedical Conference*. Pride Inn Paradise Beach Resort Convention Centre, Mombasa. Kenya. August 2019.

Ogunmolasuyi, A.M., Limson, J.L. and Fogel, R.

Ogunmolasuyi, A.M., Limson, J.L. and Fogel, R. A comparative study of the analytical performance of two aptamers for the detection of Plasmodium falciparum lactate dehydrogenase in malaria-parasitised blood. *70th Annual Meeting of the International Society of Electrochemistry*. Durban ICC, Durban. South Africa. August 2019.

Ojo, D.R., Fogel, R. and Limson, J.L.

Ojo, D.R., Fogel, R. and Limson, J.L. Optimization of Aptamer Immobilization Parameters to Improve Sensitivity of Histamine Aptasensor. *70th Annual Meeting of the International Society of Electrochemistry*. Durban, South Africa, 4th-9th August 2019. Durban ICC, Durban. South Africa. August 2019.

Shaw, L., Limson, J.L. and Fogel, R.

Shaw, L., Limson, J.L. and Fogel, R. Antibodies and aptamers in SELEX: selecting DNA aptamers against a particular hCG epitope using a targeted SELEX strategy. *6th Annual Aptamers Meeting*. Oxford, UK, 3rd - 4th April 2019. St Hilda's College, Oxford. United Kingdom. April 2019.

Smith, G.G., Fogel, R. and Limson, J.L.

Smith, G.G., Fogel, R. and Limson, J.L. Up-scaled, Single-Chambered, Photosynthetic Microbial Fuel Cells for *In Situ* Nutrient and Metal Remediation in Waste Water Streams. *70th Annual Meeting of the International Society of Electrochemistry*. Durban ICC, Durban. South Africa. August 2019.



Research at the flagship Rhodes University Elevated CO<sub>2</sub> Facility (RUECF) under the leadership of Professor Brad Ripley investigated the effects of elevated CO<sub>2</sub> on crop plants and indigenous vegetation, with several students completing the research components of their Postgraduate studies.

Professor Ripley continued this work with the support of Applied Centre for Climate and Earth Systems Science (ACCESS), Grain-SA and Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASCCAL) grants but also secured further funding of several millions of rands via a National Ecological Research Council (NERC) grant and a collaboration with researchers at the Universities of Sheffield and Edinburgh.

Professor Ripley also visited Marion Island in the sub-Antarctic as part of a South African National Antarctic Programme (SANAP) collaboration to establish both warming and large scale watering experiments that investigate the effects of climate change on the island.

Professor Susi Vetter's focused on her Applied Centre for Climate and Earth Systems Science (ACCESS)-funded research on the ecology of thicket pioneers, woody species that play a role in woody encroachment into savannas. A research workshop hosted in February 2019 brought together collaborators from Rhodes University, the University of Pretoria and Sol Plaatje University. Highlights of this research included a collaboration with Mark Olson and Julieta Rosell Garcia from the National University of Mexico, and Michelle Greve from the University of Pretoria to explore the bark and hydraulic traits of the species involved in this process at field sites in the Eastern Cape, Mpumalanga and Limpopo. Professor Vetter was invited to present a keynote address on her research on herbivore-vegetation dynamics at the annual meeting of the Grassland Society of Southern Africa in Upington in June 2019, and she presented a paper at the Association for Tropical Biology and Conservation in Antananarivo, Madagascar in July 2019. She was included in a successful grant application by Pablo Gregorini (Lincoln University, New Zealand) for Catalyst Seed Funding by the Royal Society of New Zealand for a workshop on "Grazing in Future Multi-scapes" in 2020 (deferred to 2021) and exchange visits to initiate collaboration on rangeland management with researchers from Lincoln University.

Professor Julie Coetzee was awarded funding by the Water Research Commission (WRC) to partake in an international study on the effects of macrophyte removal on freshwater ecosystems in Norway, Germany, France, South Africa and Brazil. In May 2019, Professor Coetzee and her collaborators from Norway, France and Germany on the MadMacs project (Mass development of aquatic macrophytes - causes and consequences of macrophyte removal for ecosystem structure, function, and services) met at the University of Rennes, France, for a week long workshop to plan sampling across five (5) countries and six (6) sites. In addition, Professor Coetzee was invited to Belgium, to the Vrije Universiteit

*Susi Vetter and collaborators during field work near Sudwala, Mpumalanga, to sample bark and hydrological traits of savanna, thicket pioneer and forest species. With Julieta Rosell Garcia and Mark Olson (Hugh Kelly Fellows visiting from the National University of Mexico), Michelle Greve and students (University of Pretoria) and Peta Hardy (SAPPI)*  
Credit: Susi Vetter



Susi Vetter processing wood and bark samples at Buffelskloof Nature reserve. Part of a collaboration on plant functional traits with Hugh Kelly Fellows Julieta Rosell Garcia and Mark Olson (National University of Mexico)  
Credit: Michelle Greve

Brussels, by Dr Iris Stiers, as part of a collaborative project investigating options for the biological control of *Iris pseudacorus* in South Africa. Professor Coetzee lectured to Masters students and presented a departmental seminar while there, as well as conducting field work, looking for potential control agents.

Tiffany Pillay joined the Department of Botany in 2019 and began establishing her research programme, focused on the spatial patterns and associations of savanna and thicket species in the Eastern Cape. Tiffany also developed collaborative links with the Rhodes University (RU) Chemistry department, working on the use of Gas chromatography-mass spectrometry (GC-MS) to quantify the rate of nitrogen fixation in encroaching savanna species grown under elevated CO<sub>2</sub>.

Tony Dold published the long-forgotten manuscript of Mary Pocock's expedition to Angola in 1925. Pocock was a lecturer in the Department of Botany and her manuscript, photographs and paintings have been in the department and the Schonland Herbarium for almost one hundred (100) years. Tony also published the book *Cultures, Cures and Curiosities* together with the botanical artist Susan Abraham. The book was sponsored by the South African Botanical Society. Together with his Spanish collaborators Tony described six (6) new species in the Hyacinthaceae.

Associate Professor Craig Peter's research on pollination saw him travel to six (6) of the nine (9) provinces for research on orchid pollination and flowering phenology of a suite of other species. The highlight of 2019, however was undoubtedly the month he spent in northern Botswana teaching on the Tropical Biology Association's field ecology course. This allowed research on wing-pollination by butterflies in an unusual species of mint, bird-pollination in a savanna mistletoe and wasp-pollination in a species of sour plum (*Ximenia americana*). In January 2019, he attended the Wild Orchids South Africa conference in Underberg. Craig and Ethan Newman started a collaboration



Mark Olson (National University of Mexico) taking bark samples as part of a study comparing functional traits between savanna, thicket pioneer and forest trees. Mark visited the Botany Department under the Hugh Kelly Fellowship  
Credit: Susi Vetter

along with Steve Johnson on stamen mimicry in the irid *Tritonia laxifolia* and travelled extensively in the Eastern Cape for field work.

## Postgraduates / Graduations

In 2019 the Department of Botany was home to three (3) Honours, eleven (11) MSc students and four (4) PhD candidates.

Prinavin Naidu (MSc student), Carin Swart and Yvette van Wijk (PhD candidates) graduated in 2019. Damian Lourens continued into the second year of his MSc on orchid-mycorrhiza interactions funded by the generous bequest from the family of the late Charles Louis Craib (1954 - 2012), a dedicated and passionate amateur botanist.

Nompumelelo Baso (MSc student), presented her work at the 15th Conference on Ecology and Management of Plant Invasions (EMAPI) in Prague, Czech Republic in September 2019. Alex De Gouveia received a grant from the Rhodes University Student Travel Award to attend international conferences and field excursions in plant ecology. He presented work from his PhD at the 33rd annual meeting of the Scandinavian Association of Pollination Ecology (SCAPE) in the city of Höör in southern Sweden. Finally, Tebadi Bopape attended the World Food Systems Summer School in Rheinau, Switzerland organized by the World Food Systems Center that is part of ETH Zurich.

## Distinguished Visitors / International Visits

The Department of Botany hosted Julieta Rosell Garcia and Mark Olson from the National University of Mexico under the Hugh Kelly Fellowship. They visited from October 2019 to February 2020 to collaborate with Professor Susi Vetter on research on functional traits of savanna and thicket species. A reciprocal visit by Susi Vetter to Mexico to continue the collaboration was planned for October 2020, but has been deferred to 2021.

**Associate Professor Craig Peter**

*Head of Department*



## Books/Chapters/Monographs

Coetzee, J.A.

Coetzee, J.A., Hill, M.P., Hussner, A., Nunes, A.L. and Weyl, O.L.F. (2019) Invasive Aquatic Species. In: Hughes, J. (ed.). *Freshwater Ecology and Conservation: Approaches and Techniques*. Oxford: Oxford University Press. p.338-355. ISBN: 9780198766421.

Dold, T. and Kelly, J. 2019. *Bushmen, Botany and Baking Bread. Mary Pocock's record of a journey with Dorothea Bleek across Angola in 1925*. NISC, Grahamstown.

Dold, T. and Abraham, S. 2019. *Cultures, Cures and Curiosities. Plant-lore and Legend of the Eastern Cape, South Africa*. South African Botanical Society & Struik Nature, Cape Town.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Adams, C.

Dunning, L.T., Moreno-Villena, J.J., Lundgren, M.R., Dionora, J., Salazar, P., Adams, C., Nyirenda, F., Olofsson, J.K., Mapaura, A., Grundy, I.M. and et al. (2019) Key changes in gene expression identified for different stages of C4 evolution in *Alloteropsis semialata*. *Journal of Experimental Botany*. 70 (12). p.3255-3268.

Coetzee, J.A.

Smith, R., Mangan, R. and Coetzee, J.A. (2019) Risk assessment to interpret the physiological host range of *Hydrellia egeriae*, a biocontrol agent for *Egeria densa*. *Biological Control*. 64 (2019). p.447-456.

Strange, E.F., Landi, P., Hill, J.M. and Coetzee, J.A. (2019) Modeling Top-Down and Bottom-Up Drivers of a Regime Shift in Invasive Aquatic Plant Stable States. *Frontiers in Plant Science*. 10 (889). p.1-9.

Hofstra, D., Schoelynck, J., Ferrell, J., Coetzee, J.A., De Winton, M., Bickel, T.O., Champion, P., Madsen, J., Bakker, E.S., Hilt, S. and et al. (2019) On the move: New insights on the ecology and management of native and alien macrophytes. *Aquatic Botany*. 2019. p.1-7.

Paterson, I.D., Coetzee, J.A., Weyl, P., Griffith, T.C., Voogt, N. and Hill, M.P. (2019) Cryptic species of a water hyacinth biological control agent revealed in South Africa: host specificity, impact, and thermal tolerance. *Entomologia Experimentalis et Applicata*. 167 (2019). p.682-691.

Kraus, E.C., Coetzee, J.A., van Noort, S. and Olmi, M. (2019) First record of an indigenous South African parasitoid wasp on an imported biological control agent, the water hyacinth hopper. *Biocontrol Science and Technology*. 29 (12). p.1234-1241.

Porter, J.D., Owen, C.A., Compton, S.G. and Coetzee, J.A. (2019) Testing the thermal limits of *Eccritotarsus catarinensis*: a case of thermal plasticity. *Biocontrol Science and Technology*. 29 (6). p.565-577.

Griffith, T.C., Paterson, I.D., Owen, C.A. and Coetzee, J.A. (2019) Thermal plasticity and microevolution enhance establishment success and persistence of a water hyacinth biological control agent. *Entomologia Experimentalis et Applicata*. 167 (2019). p.616-625.

Miller, B.E., Coetzee, J.A. and Hill, M.P. (2019) Chlorophyll fluorometry as a method of determining the effectiveness of a biological control agent in post-release evaluations. *Biocontrol Science and Technology*. 29 (11). p.1118-1122.

Ivey, P.J., Hill, M.P. and Coetzee, J.A., (2019). South Africa tackles invasive plants. *Nature*. 565 (7738), pp.161-161.

Cotiyan, P.

Cotiyan, P., Adams, J.B. and Rajkaran, A. (2019) Relating microalgal response to nutrient status in a mangrove-dominated estuary. *Hydrobiologia* 843 (2019). p.183-199.

Dold, A.P.

Martinez-Azorin, M., Dold, A.P. and Crespo, M.B. (2019) *Austronea patersoniae* (Asparagaceae, Scilloideae), a new species from the Eastern Cape Province in South Africa. *Phytotaxa*. 400 (2). p.76-80.

Martinez-Azorin, M., Dold, A.P., Crespo, M.B., Pinter, M., Alonso-Vargas, M.A. and Wetschnig, W. (2019) A taxonomic revision of *Geschoelia* (Asparagaceae, Urigineae) from a monotypic genus towards its diversification, including the description of five new species. *Phytotaxa*. 427 (2). p.85-114.

Martinez-Azorin, M., Crespo, M.B., Alonso-Vargas, M.A., Dold, A.P., Crouch, N.R., Pfosser, M., Mucina, L., Pinter, M. and Wetschnig, W. (2019) New combinations in the tribe Urigineae (Asparagaceae subfam. Scilloideae) with comments on contrasting taxonomic treatments. *Phytotaxa*. 397 (4). p.291-299.

Faltein, Z. and Ripley, B.S.

Faltein, Z., Esler, K.J., Midgley, G.F. and Ripley, B.S. (2019) Atmospheric CO<sub>2</sub> concentrations restrict the growth of *Oxalis pes-caprae* bulbs used by human inhabitants of the Paleo-Agulhas plain during the Pleistocene glacials. *Quaternary Science Reviews*. 2019. p.1-8.

Kelly, C.M.R. and Barker, N.P.

Taylor, P.J., Kearney, T., Dalton, D.L., Chakona, G., Kelly, C.M.R. and Barker, N.P. (2019) Biomes, geology and past climate drive speciation of laminate-toothed rats on South African mountains (Murinae: Otomys). *Zoological Journal of the Linnean Society*. 2019. p.1-21.

Leslie, T.D. and Rajkaran, A.

James, N.C., Leslie, T.D., Potts, W.M., Whitfield, A.K. and Rajkaran, A. (2019) The importance of different juvenile habitats as nursery areas for a ubiquitous estuarine-dependent marine fish species. *Estuarine Coastal and Shelf Science*. 226 (106270). p.1-10.

Lloyd, K.L. and Vetter, S.

Lloyd, K.L. and Vetter, S. (2019) Generalist trophic ecology in a changing habitat: The case of the four-striped mouse in a woody-encroached savannah. *African Journal of Ecology*. 57 (2019). p.371-381

Mckenzie, R.J.

Mckenzie, R.J. (2019) Typification and application of the name *Arctotis grandiflora* Aiton (Asteraceae: Arctotideae). *Bothalia*. 49 (1). p.1-6.

Peter, C.I.

Ollerton, J., Liede-Schumann, S., Endress, M.E., Meve, U., Rech, A.R., Shuttleworth, A., Keller, H.A., Fishbein, M., Alvarado-Cárdenas, A.O., Peter, C.I. and et al. (2019) The diversity and evolution of pollination systems in large plant clades: Apocynaceae as a case study. *Annals of Botany*. 123 (2019). p.311-325.

Prevec, R.

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Vetter, S.

Masterson, V.A., Vetter, S., Chaigneau, T., Daw, T.M., Selomane, O., Hamann, M., Wong, G.Y., Mellegard, V., Cocks, M. and Tengo, M. (2019) Revisiting the relationships between human well-being and ecosystems in dynamic social-ecological systems: Implications for stewardship and development. *Global Sustainability*. 2 (e8). p.1-14.

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Njwambe, A., Cocks, M. and Vetter, S. (2019) *Ekhayeni*: Rural-Urban Migration, Belonging and Landscapes of Home in South Africa. *Journal of Southern African Studies*. 45 (2). p.413-431.

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## Peer-reviewed Proceedings

Peter, C.I.

Peter, C.I., Hankey, A., Wodrich, K., Mincher, B. and Venter, N. Last Chance to See? The Race to Save the Spectacular Albertina Sisulu Orchid, *Brachycoruthis Conica subsp. Transvaalensis*, a Critically Endangered South African Terrestrial Orchid. *WOC 22*. Centro de Convenciones de Guayaquil, Guayaquil. Ecuador. November 2017.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Coetzee, J.A.

Maseko, Z., Coetzee, J.A. and Hill M.P. The seasonal population dynamics of biological control agents of water hyacinth at the coldest release site in South Africa. *46th Annual Research Symposium on the Management of Biological Invasions*. May 2019. Waterval Country Lodge, Tulbagh, Western Cape.

Sandenbergh, E. and Coetzee, J.A. The future of yellow-flag iris invasions in South Africa. *46th Annual Research Symposium on the Management of Biological Invasions*. May 2019. Waterval Country Lodge, Tulbagh, Western Cape.

Mostert, E., Weaver, K., Coetzee, J.A. and Hill, M.P. Strengthening the bridge - research and the public sphere. *46th Annual Research Symposium on the Management of Biological Invasions*. May 2019. Waterval Country Lodge, Tulbagh, Western Cape.

Motitsoe, S.N., Hill, M.P., Coetzee, J.A. and Hill, J.M. Trophic dynamics in alien invasive macrophytes dominated aquatic ecosystem with special emphasize to ecosystem structure and functioning. *Southern African Society of Aquatic Scientists*. Bela Bela, June/July 2019.

Reid, M., Coetzee, J.A., Hill, M.P., Gettys, L., Diaz, R., Cuda, J., Reid, C. Surveys for potential biological control agents for *Nymphaea mexicana* Zuccarini in the United States. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban, July 2019.

Mphaphu, T., Coetzee, J.A. and Hill, M.P. Parasitic alga, *Helicosporidium* sp. (Chlorophyta; Trebouxiophyceae) threatens effective biological control of the aquatic invasive, *Salvinia molesta* D.S. Mitchell (Salviniaceae) in South Africa. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban, July 2019.

Chari, L., Coetzee, J.A. and Hill, M.P. A potential biological control agent for the control of *Iris pseudacorus* L. (Iridaceae) in South Africa. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban, July 2019.

Mostert, E.A., Morgan, L.W., Martin, G.D., Coetzee, J.A. and Hill, M.P. Creating a more accessible database platform: introducing the new CBC Data Portal. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban, July 2019.

Kraus, E. and Coetzee J.A. Induced resistance in water hyacinth, *Eichhornia crassipes*, to the biological control agent *Megamelus scutellaris*. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban, July 2019.

Motitsoe, S.N., Hill, M.P., Coetzee, J.A. and Hill, J.M. Invasive alien aquatic plants species management: Ecosystem recovery and restoration. *8th World Ecological Restoration Conference*. Cape Town, South Africa, September 2019.

Coetzee, J.A and Ripley, B.

Baso, N.C., Coetzee, J.A., Hill, M.P. and Ripley, B. The impact of CO<sup>2</sup> on biological control of invasive macrophytes. *46th Annual Research Symposium on the Management of Biological Invasions*. May 2019. Waterval Country Lodge, Tulbagh, Western Cape.

Baso, N.C., Coetzee J.A., Hill, M. and Ripley, B. The future of biological control in South Africa: Effects of elevated CO<sup>2</sup>. *15th Conference on Ecology and Management of Plant Invasions (EMAPI)*. September 2019. Czech University of Life Sciences, Prague, Czech Republic.

Peter, C.I.

Peter, C.I. The importance of Pieridae and Papilionidae in the evolution of red flowers in South Africa. *Lepidopterists' Society of Africa's annual conference*. Knysna Hollow, Knysna. South Africa. November 2019.

Peter, C.I., Vetter, S. and Dold, A.P.

Peter, C.I., Vetter, S. and Dold, A.P. Analysis of conservation status reveals that South African orchids are most threatened by habitat transformation caused by invasion, urban development and agriculture. *Fourth Wild Orchids Southern Africa conference*. Goodesen Garden Castle, Garden Castle. South Africa. January 2019.

Ripley, B.S.

Baso, N.C., Coetzee, J.A., Hill, M.P. and Ripley, B.S. The future of biological control in South Africa: Effects of elevated CO<sup>2</sup>. *15th conference on Ecology and Management of Plant Invasions (EMAPI)*. Czech University of Life Sciences, Prague. Czech Republic. September 2019.

Ripley, B.S. CO<sup>2</sup> Fertilisation Increases Tolerance of Herbivory In Seedlings of The Bush Encroaching Savanna Tree Vachellia Karroo. *Kruger Networking Meeting*. Skukuza. South Africa. January 2019.

Ripley, B.S. and Bopape, T.M.

Ripley, B.S. and Bopape, T.M. The combined effects of drought and elevated CO<sup>2</sup> on selected Maize cultivars. *4th DST Global Change Symposium*. Polokwane. South Africa. January 2019.

Ripley, B.S. and Raubenheimer, S.L.

Ripley, B.S. and Raubenheimer, S.L. Elevated CO<sup>2</sup> induced enhancements to growth and water conservation are not exclusive to C3 trees. *4th DST Global Change Symposium*. Polokwane. South Africa. March 2019.

Ripley, B.S. and Raubenheimer, S.L. Elevated CO<sup>2</sup> Induced Enhancements To Growth And Water Conservation Are Not Exclusive To C3 Trees. *Kruger Network Meeting*. Skukuza. South Africa. January 2019.

Vetter, S.

Vetter, S. and Cocks, M.L. Culture inextricably entwined with nature: cultural ecosystem services and wellbeing in the Eastern Cape, South Africa. *56th meeting of the Association for Tropical Biology and Conservation*. Antananarivo. Madagascar. July 2019.

Vetter, S. and Trollope, W.S.W. No fire - fewer trees: Long-term effect of fire frequency on woody plant communities at the Fort Hare Fire Trials. *54th Congress of the Grassland Society of Southern Africa*. Upington. South Africa. June 2019.

Vetter, S. and Trollope, W.S.W. No fire - fewer trees: Long-term effect of fire frequency on woody plant communities at the Fort Hare Fire Trials. *Savanna Science Network Meeting*. Skukuza. South Africa. March 2019.

Vetter, S. and Konje, M.M.

Vetter, S., Hempson, G.P., Illius, A.W., Konje, M.M., Bond, W.J. and Hendricks, H.H. Plant-herbivore interactions in an arid, stochastic environment: insights from the Richtersveld. *54th Congress of the Grassland Society of Southern Africa*. Upington. South Africa. June 2019.



Julieta Rosell Garcia (National University of Mexico), visiting Hugh Kelly Fellow, taking bark and wood samples of savanna trees near Sudwala  
Credit: Michelle Greve





**"In order to succeed you have to do well and perform well. Don't do less and accept less. Put in the time and complete the task. You want to be a contributing member to every group you are part of." (Jeanette Epps, Astronaut and Aerospace engineer).**

Year after year the Department of Chemistry makes a strong contribution to the University and to the Chemical community in research (and in teaching). It is not enough to be part of a productive group, but each member of our collective makes a contribution to the productivity. A quick scan of the publication record reveals multiple collaborations across the department, between academics and students, across disciplines within the faculty, and across regional and national boundaries. In every one of these collaborations the members of our department have made a strong, considered, and valuable contribution. The standards are set high, and we have put in the time to finish what we start.

Research in the Department of Chemistry enjoys the backing of a large support staff contingent, including two (2) able storemen, two (2) instrument technicians, a glassblower, and a carpenter. In addition to maintenance of the impressive suite of instruments housed in the Institute for Nanotechnology Innovation (INI) and the Department of Chemistry (ranging from Mass Spectrometers all the way to hot plates), our technicians enable us to modify and develop small electronic devices for innovative analytical and synthetic applications. The availability of an expert scientific glassblower has similarly enabled our students to modify procedures and processes and gain access to techniques otherwise beyond reach. Creative collaborations like this are priceless, and make an invaluable, although often unrecognized, contribution to our research achievements.

During the course of 2019 the Department of Chemistry was pleased to welcome upgrades to two (2) instruments: Time of Flight -Secondary Ion Mass Spectrometer and an addition to our local file server for Computational Chemistry.

Dr Philani Mashazi (Deputy Director of INI) was awarded a National Research Foundation (NRF) National Equipment Programme (NEP) grant for R3.5 million to upgrade TOF-SIMS to allow for soft material analysis. The upgrade was for an additional Argon gas cluster gun. The Departmental grant for capital equipment was used to upgrade our bank of servers in the Computational Chemistry Laboratory, enhancing our computational capacity (allowing larger calculations and/or more simultaneous) and facilitating remote management of our Nuclear Magnetic Resonance (NMR) suite. These two (2) additions have already added to our research outputs in Nanotechnology and Computational Chemistry and Bioinformatics.

Dr Philani Mashazi, currently Senior Lecturer in the Chemistry Department, and Deputy Director, was selected by the Department of Higher Education (DHET) and Training to be part of the *Future Professors Programme* which is aimed at young academics with a "strong research trajectory."

In June 2019, Distinguished Professor Tebello Nyokong was awarded Degree Of Doctor Of Science, Honoris Causa from Western University, London, Ontario, Canada (11 - 15 June 2019). This is an outstanding achievement, and is added to a long list of accolades for the innovative scientist and accomplished mentor and leader.

*Staff and Postgraduate students of the Department of Chemistry  
Credit: Department of Chemistry*



## Postgraduates / Graduations

We were proud to see sixteen (16) Postgraduates graduate in 2019, including eight (8) PhD candidates, and eight (8) Masters students (five (5) of whom graduated with distinction). Graduation is an important milestone for our students (obviously) but also for their supervisors. We recognize and celebrate their achievements, and the contributions they have made to scientific community as a whole.

Some of our Postgraduate students have been singled out for particular achievements. Ms Lindokuhle Nene was recognized by the South African Women in Science Awards with a DST-Albertina Sisulu Fellowship; and Ms Sixolile Centane (also supervised by Distinguished Professor Nyokong) received First Prize in the Senior Section at the South African Chemical Institute (SACI), Eastern Cape Postgraduate Seminars, held at Nelson Mandela University, Port Elizabeth, on the 25 October 2019.

## Distinguished Visitors / International Visits

The INI enjoyed visitors from Canada (as part of the NRF South Africa/Canada Research Collaboration) and Mintek over the course of the year. Other distinguished visitors included several Postgraduates and Postdoctoral Research Fellows who have become collaborators.

In a similar vein, various members of the INI pursued collaborations abroad, notably visits by Professor John Mack and his students to the United States International University, Nairobi, Kenya as part of an NRF South Africa/Kenya Research

Collaboration. Students also travelled to University of Ottawa and Ecole Nationale Supérieure de Chimie de Paris on exchange.

Distinguished Professor Nyokong visited Paris in March 2019 for the L'Oreal UNESCO for Women in Science Week, and in June 2019 travelled to Canada where she was awarded an honorary doctorate from Western University.

## Significant Research Aligned Events

The annual Barker Lecturer was Professor Leonard Barbour. Professor Barbour delighted and inspired us with three (3) lectures on crystallographic investigations into novel materials. By the end of the lecture series both staff and students were considering applications of his methods in our own research.

**Dr Rosalyn Klein**

*Head of Department*



*Supercooling a reaction*  
Credit: Department of Chemistry

## Books/Chapters/Monographs

Nkanga, C.I., Bapolisi, A.M., Okafor, N.I. and Krause, R.W.M.  
Nkanga, C.I., Bapolisi, A.M., Okafor, N.I. and Krause, R.W.M. (2019) General Perception of Liposomes: Formation, Manufacturing and Applications. In: Nkanga, C.I., Bapolisi, A.M., Okafor, N.I. and Krause, R.W.M. (eds.). *Liposomes - Advances and Perspectives*. National University of La Plata : Angel Catala. p.10-15. ISBN: 9781789844955.

## Distinguished Visitors

Barbour, L.

Professor L Barbour. University of Stellenbosch, Stellenbosch, South Africa. *Lecture: Developing complementary in situ methods for characterising porous crystalline*. October 2019.

Professor L Barbour. University of Stellenbosch, Stellenbosch, South Africa. *Lecture: Molecular-scale engineering - the 'hole' story*. October 2019.

Professor L Barbour. University of Stellenbosch, Stellenbosch, South Africa. *Lecture: Structural flexibility in the solid state*. October 2019.

Dube, E.

Dr E Dube. Midlands State University, Gweru, Zimbabwe. *Research Collaboration: Former PhD Student*. July 2019.

Ngoy, B.P.

Dr BP Ngoy. University of Kinshasa, Kinshasa, Republic of the Congo. *Research Collaboration: Former Post-doctoral Fellow*. October 2019.

Nyembe, S.

Dr S Nyembe. Mintek, Johannesburg, South Africa. *Research Collaboration*. May 2019.

Regis Correa da Silva, D.

Ms D Regis Correa da Silva. University of Ottawa, Ottawa, Canada. *Exchange Student - NRF South Africa/Canada Research Collaboration*. May 2019.

Sekhosana, K.E.

Dr KE Sekhosana. UNISA, Pretoria, South Africa. *Research Collaboration: Former Postdoctoral Research Fellow*. July 2019.

Sikhwivhilu, L. and Papo, J.

Dr L Sikhwivhilu and Dr J Papo. Mintek, Johannesburg, South Africa. *Research Collaboration and Meeting with Professor Nyokong and funded students*. July 2019.

## International Visits

Dingiswayo, S.

Dingiswayo, S. United States International University, Nairobi, Kenya. *Exchange Student - NRF South Africa/Kenya Research Collaboration*. 29 July - 10 August 2019.

Mack, J.

Mack, J. United States International University, Nairobi, Kenya. *NRF South Africa/Kenya Research Collaboration*. 29 July - 1 August 2019.

Makola, L.C.

Makola, L.C. United States International University, Nairobi, Kenya. *Exchange Student - NRF South Africa/Kenya/Canada Research Collaboration*. 28 June - 10 August 2019.

Nwahara, N.

Nwahara, N. Ecole Nationale Supérieure de Chimie de Paris, Paris, France. *SA/France Research Collaboration (trip sponsored by French Embassy)*. 16 October - 21 December 2019.

Nyokong, T.

Nyokong, T. Western University, London, Ontario, Canada. *Awarded Degree of Doctor of Science, Honoris Causa from Western University*. 11 - 15 June 2019.

Nyokong, T. L'Oreal UNESCO, Paris, France. *L'Oreal UNESCO for Women in Science Week*. 10 - 15 March 2019.

Sindelo, A.

Sindelo, A. University of Ottawa, Ottawa, Canada. *Exchange Student - NRF South Africa/Canada Research Collaboration*. 8 May - 6 August 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Nkanga, C.I. and Krause, R.W.M.

Kabayo, S., Kindala, J., Nkanga, C.I., Krause, R.W.M. and Taba, K. (2019) Preparation and characterization of solid acid catalysts derived from coffee husks. *International Journal of Chemical Sciences*. 3 (6). p.1-9.

Nyokong, T.

Wang, J.H., Coa, N., Gao, Y.H., Li, M.Y., Gadoora, M.A., Yan, Y.J., Nyokong, T. and Chen, Z.L. (2019) Assessment of Porphyrin Derivative for Photodynamic Therapy. *Palgo Journal of Medicine and Medical Science*. 6 (5). p.63-65.

Shaibu, R.O. and Watkins, G.M.

Shaibu, R.O. and Watkins, G.M. (2019) Synthesis, spectral characterization, and biological activities of Cobalt(II) complexes of Schiff bases derived from o-vanillin and p-vanillin with 3-aminopyridine. *Ife Journal of Science*. 21 (1). p.1-12.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Adeniyi, O.K. and Mashazi, P.N.

Adeniyi, O.K. and Mashazi, P.N. (2019) Stable thin films of human P53 antigen on gold surface for the detection of tumour associated anti-P53 autoantibodies. *Electrochimica Acta*. 2019. p.1-10.

Adeniyi, O.K., Sicwetsha, S. and Mashazi, P.N.

Adeniyi, O.K., Sicwetsha, S. and Mashazi, P.N. (2019) Nanomagnet-Silica Nanoparticles Decorated with Au@Pd for Enhanced Peroxidase-Like Activity and Colorimetric Glucose Sensing. *ACS Applied Materials & Interfaces*. 2019. p.1-15.

Adeyemi, C.M., Klein, R., Lobb, K.A. and Kaye, P.T.

Adeyemi, C.M., Hoppe, H.C., Isaacs, M., Klein, R., Lobb, K.A. and Kaye, P.T. (2019) Synthesis of N-Substituted phosphoramidic acid esters as "reverse" fosmidomycin analogues. *Tetrahedron*. 75 (2019). p.2371-2378.

Ayeni, A.O. and Watkins, G.M.

Ayeni, A.O., Watkins, G.M. and Hosten, E.C. (2019) Synthesis, characterization and crystal structures of two new phenolic mannich bases. *Bulletin of the Chemical Society of Ethiopia*. 33 (2). p.341-348.

Babu, B., Mack, J. and Nyokong, T.

Babu, B., Prinsloo, E., Mack, J. and Nyokong, T. (2019) Synthesis, characterization and photodynamic activity of Sn(IV) triarylcorroles with red-shifted Q bands. *New Journal of Chemistry*. 43 (2019). p.18805-18812.

Babu, B., Oluwale, D.O., Mack, J. and Nyokong, T.

Babu, B., Amuhaya, E., Oluwale, D.O., Prinsloo, E., Mack, J. and Nyokong, T. (2019) Preparation of NIR absorbing axial substituted tin(IV) porphyrins and their photocytotoxic properties. *MedChemComm*. 10 (2019). p.41-48.

Baa, E., Watkins, G.M. and Krause, R.W.M.

Baa, E., Watkins, G.M., Krause, R.W.M. and Tantoh, N.D. (2019) Current Trend in Synthesis, Post-Synthetic Modifications and Biological Applications of Nanometal-Organic Frameworks (NMOFs). *Chinese Journal of Chemistry*. 37 (2019). p.378-404.

Beteck, R.M.

Beteck, R.M., Seldon, R., Jordaan, A., Warner, D.T., Hoppe, H.C., Laming, D., Legoabe, L.J. and Khanye, S.D. (2019) Quinolone-isoniazid hybrids: synthesis and preliminary *in vitro* cytotoxicity and anti-tuberculosis evaluation. *MedChemComm*. 10 (2019). p.326-331.

Dube, E. and Nyokong, T.

Dube, E. and Nyokong, T. (2019) Effect of gold nanoparticle shape on the photophysical/chemical properties of sulphur containing metallophthalocyanines. *Journal of Molecular Structure*. 1181 (2019). p.312-320.

Dube, E., Oluwale, D.O., Nwaji, N. and Nyokong, T.

Dube, E., Oluwale, D.O., Nwaji, N., Prinsloo, E. and Nyokong, T. (2019) Photophysical/chemical and photodynamic therapy properties of metallophthalocyanines linked to gold speckled silica nanoparticles. *Photodiagnosis and Photodynamic Therapy*. 25 (2019). p.325-333.

Eze, F.I. and Krause, R.W.M.

Eze, F.I., Siwe Noundou, X., Osadebe, P.O. and Krause, R.W.M. (2019) Phytochemical, anti-inflammatory and anti-trypanosomal properties of *Anthocheista vogelii* Planch (Loganiaceae) stem bark. *Journal of Ethnopharmacology*. 238 (2019). p.1-5.

Harris, J., May, A.K., Ngoy, B.P., Mack, J. and Nyokong, T.

Harris, J., May, A.K., Ngoy, B.P., Mack, J. and Nyokong, T. (2019) An analysis of the photophysical and optical limiting properties of a novel 1,3,5-tristyrylBODIPY dye. *Journal of Porphyrins and Phthalocyanines*. 23 (2019). p.63-75.

Hulushe, S.T., Manyeruke, M.H. and Kaye, P.T.

Hulushe, S.T., Manyeruke, M.H., Hosten, E.C. and Kaye, P.T. (2019) Crystal structure of 3-acetyl-6-bromo-4-hydroxy-2H-chromen-2-one, C11H7BrO4. *Zeitschrift Fur Kristallographie - New Crystal Structures*. 2019. p.1-2.

Hulushe, S.T., Manyeruke, M.H., Kaye, P.T., Watkins, G.M. and Krause, R.W.M.

Hulushe, S.T., Manyeruke, M.H., Hosten, E.C., Kaye, P.T., Watkins, G.M. and Krause, R.W.M. (2019) The crystal structure of 2-oxo-2H-chromen-4-yl acetate, C11H8O4. *Zeitschrift Fur Kristallographie - New Crystal Structures*. 2019. p.1-2.

Idahosa, K.C., Davies-Coleman, M.T. and Kaye, P.T.

Idahosa, K.C., Davies-Coleman, M.T. and Kaye, P.T. (2019) Exploratory applications of 2-nitrobenzaldehyde-derived Morita-Baylis-Hillman adducts as synthons in the construction of drug-like scaffolds. *Synthetic Communications*. 49 (3). p.417-430.

Jesumoroti, O.J., Faridoon, H. and Klein, R.

Jesumoroti, O.J., Faridoon, H., Mnkandhla, D., Isaacs, M., Hoppe, H.C. and Klein, R. (2019) Evaluation of novel N'-(3-hydroxybenzyl)-2-oxo-2H-chromene-3-carbohydrazide derivatives as potential HIV-1 integrase inhibitors. *MedChemComm*. 10 (2019). p.80-88.

Jones, B., Britton, J., Mafukidze, D.M. and Nyokong, T.

Jones, B., Britton, J., Mafukidze, D.M. and Nyokong, T. (2019) Photodegradation of 4-chlorophenol using Zn and in phthalocyanines substituted with pyrrole without hetero atoms linkers and supported on polyacrylonitrile electrospun fibres. *Polyhedron*. 2019. p.1-8.

Kabwe, P.K., Louzada, M.S., Britton, J., Olomola, T.O., Nyokong, T. and Khene, S.

Kabwe, P.K., Louzada, M.S., Britton, J., Olomola, T.O., Nyokong, T. and Khene, S. (2019) Nonlinear optical properties of metal free and nickel binuclear phthalocyanines. *Dyes and Pigments*. 168 (2019). p.347-356.

Kaye, P.T.

Olawode, E.O., Tandlich, R., Prinsloo, E., Isaacs, M., Hoppe, H.C., Seldon, R., Warner, D.F., Steenkamp, V. and Kaye, P.T. (2019) Synthesis and biological evaluation of 2-chloro-3-[(thiazol-2-yl)amino]-1,4-naphthoquinones. *Bioorganic & Medicinal Chemistry Letters*. 29 (13). p.1572-1575.

Kaye, P.T. (2019) Applications of the Morita-Baylis-Hillman Reaction in the Synthesis of Heterocyclic Systems. *Advances in Heterocyclic Chemistry*. 127 (2019). p.101-152.

Khan, F.I.

Furkan, M., Khursheed Siddiqi, M., Zakariya, S.M., Khan, F.I., Hassan, M.I. and Khan, R.H. (2019) An *In Vitro* elucidation of the antiaggregatory potential of Diosmin over thermally induced unfolding of hen egg white lysozyme: A preventive quest for lysozyme amyloidosis. *International Journal of Biological Macromolecules*. 129 (2019). p.1015-1023.

Gulzar, M., Ali, S., Khan, F.I., Khan, P., Taneja, P. and Hassan, M.I. (2019) Binding mechanism of caffeic acid and simvastatin to the integrin linked kinase for therapeutic implications: a comparative docking and MD simulation studies. *Journal of Biomolecular Structure & Dynamics*. 37 (16). p.4327-4337.

Krause, R.W.M.

Ezealisiji, K.M., Siwe Noundou, X., Maduelosi, B., Nwachukwu, N. and Krause, R.W.M. (2019) Green synthesis of zinc oxide nanoparticles using *Solanum torvum* (L) leaf extract and evaluation of the toxicological profile of the ZnO nanoparticles-hydrogel composite in Wistar albino rats. *International Nano Letters*. 2019. p.1-5.

Khanyile, N., Krause, R.W.M., Vilakazi, S. and Torto, N. (2019) Unfunctionalized Gold Nanoparticles as a Simple Colorimetric Probe for Sensitive and Selective Detection of Dopamine. *South African Journal of Chemistry - Suid-Afrikaanse Tydskrif Vir Chemie*. 72 (2019). p.207-214.

van Losenoord, W., Krause, J., Parker-Nance, S., Krause, R.W.M., Stoychev, S. and Frost, C.L. (2019) Purification and biochemical characterisation of a putative sodium channel agonist secreted from the South African Knobbly sea anemone *Bunodosoma capense*. *Toxicon*. 168 (2019). p.147-157.

Mbosso Teinkela, J.E., Siwe Noundou, X., Fannang, S., Mbem Song, A., Assob Nguedia, J.C., Hoppe, H.C. and Krause, R.W.M. (2019) Terminalamide, a new ceramide and other phytoconstituents from the roots of *Terminalia mantaly* H. Perrier and their biological activities. *Natural Product Research*. 2019. p.1-10.

Lebechi, A.K., Ngoy, B.P., Mack, J. and Nyokong, T.

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Credit: Department of Chemistry

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Credit: Department of Chemistry

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Lobb, K.A., Carlisle, T.L., Dendera, W., Joji, L.J., Sarron, A., Sigauke, L.T. and Tshiwawa, T. Design and Use of Chemical Libraries in Drug Discovery: inclusion of chemical and conformational diversity. *MRC conference*. University of Walter Sisulu, East London. South Africa. January 2019.

Louzada, M.S. and Khene, S.

Louzada, M.S. and Khene, S. Computational investigation of self-phase modulation in phthalocyanine isomers. *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson Pribaltiyskaya Hotel and in Saint Petersburg State University, Russia. September 2019.

Magadla, A., Oluwole, D.O., Managa, M. and Nyokong, T.

Magadla, A., Oluwole, D.O., Managa, M. and Nyokong, T. Photodynamic antimicrobial chemotherapy activity (against *E. coli*) of Zwitterionic indium phthalocyanines when conjugated to Ag based nanoparticles. *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson Pribaltiyskaya Hotel and in Saint Petersburg State University, Russia. September 2019.

Makinde, Z.O. and Mashazi, P.N.

Makinde, Z.O., Mashazi, P.N. and Khene, S. Electrocatalytic behavior of single walled carbon nanotubes with alkylthio-substituted cobalt binuclear phthalocyanines towards oxidation of 4-chlorophenols. *The 70th International Society of Electrochemistry (ISE)*. Durban. South Africa. August 2019.

Mashazi, P.N.

Mashazi, P.N. Nanomaterials as enzyme mimetics their preparation and colorimetric detection of disease biomarkers. *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson Pribaltiyskaya Hotel and in Saint Petersburg State University, Russia. September 2019.

Mashazi, P.N., Adeniyi, O.K. and Adesina, A.O.

Mashazi, P.N., Adeniyi, O.K. and Adesina, A.O. Biomolecular thin-films fabrication using electrografting for multiplexed detection of disease biomarkers. *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Mbaba, M.

Mbaba, M., Edkins, A.L. and Khanye, S.D. Ferrocenyl alpha-aminocresols: Investigating 1,3-benzoxazine side products as bioactive agents. *Workshop of Metals in Medicine*. Friedel Auditorium of Chimie ParisTech, Paris. France. November 2019.

Mbaba, M., Edkins, A.L. and Khanye, S.D. Anticancer and antiparasitic effects of incorporating ferrocene into novobiocin scaffold. *Frank Warren Conference 2019*. Alpine Heath Resort, Drakensberg. South Africa. July 2019.

Mbaba, M. Ferrocenyl alpha-amino cresols: Investigating 1,3-benzoxazine side products as bioactive agents. *First Workshop on Metals in Medicine, Paris*. Paris, France. November 2019.

Mgidlana, S., Oluwole, D.O. and Nyokong, T.

Mgidlana, S., Oluwole, D.O. and Nyokong, T. Fabrication of efficient nonlinear optical absorber using Zn(II) phthalocyanine-semiconductor quantum dots conjugates. *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson

Pribaltiyskaya Hotel and in Saint Petersburg State University, Russia. September 2019.

Mpeta, L.S., Fomo, G. and Nyokong, T.

Mpeta, L.S., Fomo, G. and Nyokong, T. Electrode modification with cobalt phthalocyanine via click chemistry, for application in electrocatalysis. *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Mwanza, D. and Mashazi, P.N.

Mwanza, D. and Mashazi, P.N. Electrochemically grafted stable-clicked-thin films of metallophthalocyanines onto gold electrode for hydrogen peroxide sensing. *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Nkaki, T.M., Khene, S. and Mashazi, P.N.

Nkaki, T.M., Khene, S. and Mashazi, P.N. Synthesis, Spectroscopic and Electrochemical Characterization of Benzyl Thio Substitute Phthalocyanines for Application in Electrocatalytic Detection of 4-Chlorophenol in Water. *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Nkhahle, R., Nwahara, N., Nyokong, T., Sekhosana, K.E. and Centane, S.

Nkhahle, R., Nwahara, N., Nyokong, T., Sekhosana, K.E. and Centane, S. Enhancing the electrocatalytic activity of cobalt phthalocyanines through coupling with nitrogen-doped graphene quantum dots. *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Novokoza, Y. and Lobb, K.A.

Novokoza, Y. and Lobb, K.A. Calculation of Mass Spectrometric Data from first principles. *Johnson Matthey JMTC Academic Day*. Johnson Matthey, Johannesburg. South Africa. January 2019.

Nyokong, T.

Nyokong, T. Design of phthalocyanines with improved electro- and photo-catalytic behaviour (Keynote Speaker). *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson Pribaltiyskaya Hotel and in Saint Petersburg State University, Saint Petersburg. Russia. September 2019.

Nyokong, T. Discovery without boundaries - Collaborating to translate fundamental research into treatments (Keynote Speaker). *NRF-South Africa/Swedish 2019 Nobel-inspired Lecture in Chemistry*. Nelson Mandela University, Port Elizabeth. South Africa. October 2019.

Nyokong, T. Methods of electrode surface modification using porphyrin-type molecules combined with nanomaterials (Plenary Speaker). *70th Annual Meeting of the International Society of Electrochemistry*. Durban International Convention Centre, Durban. South Africa. August 2019.

Sen, P. and Nyokong, T.

Sen, P. and Nyokong, T. Effect of the metals and the number and position of the substituents on the photo-physicochemical and photodynamic therapy activities of phthalocyanines. *21st Mendeleev Congress on General and Applied Chemistry*. Multifunctional complex Gornyi, Park Inn by Radisson Pribaltiyskaya Hotel and in Saint Petersburg State University, Russia. September 2019.

Sewry, J.D.

Sewry, J.D. Student' experiences of Community Engagement. *The Australian Conference on Science and Mathematics Education*. Sydney, Australia. October 2019.

Singh, A., Kaye, P.T. and Lobb, K.A.

Singh, A., Kaye, P.T. and Lobb, K.A. Isotopic labelling in the confirmation of carbocation rearrangement mechanisms. *Bruker Users Meeting*. University of the Free State, Bloemfontein. South Africa. February 2019.

Zulu, A.I.

Zulu, A.I. and Khanye, S.D. Synthesis of 2,5-diketopiperazine derivatives as antiparasitic agents. *Frank Warren Conference 2019*. Alpine Heath Resort, Drakensberg. South Africa. July 2019.



In 2019 the research activities in the Department of Computer Science were organized around the mutually supporting research groups listed below. With the exception of Bioinformatics, all groups are integrated in the Telkom Centre of Excellence in Distributed Multimedia, a *triple helix* initiative that brings together Industry, Government and Academia to foster innovation to every participant's gain. The longevity of the Centre, as an external funded initiative, has been remarkable, having started in 1997.

### Convergence

**Professor Alfredo Terzoli**

This group carries the core activity of the Telkom Centre of Excellence, focusing on the rich intersection of legacy tele-communication systems and organizations and the Internet. The theme for 2019 was *"Software Defined Networks, Network Function Virtualization, Cloud and Fog computing for 5G networks"*.

### Security and Networks

**Professor Barry Irwin, Professor Karen Bradshaw and Dr Alan Herbert**

The Security and Networks Research Group (SNRG) concentrates in the areas of Information Security and Computer Networks, both crucial in modern computing and telecommunications.

### ICT for Development

**Professor Alfredo Terzoli and Dr Nomusa Dlodlo**

This group focuses on a long-term, multidisciplinary effort to introduce meaningful and sustainable ICT in poor areas of South Africa, rural and peri-urban. The group is currently also active in the Internet of Things and Blockchain areas.

*Learners at Ntsika Senior Secondary School enjoying the computer lab just deployed by the Rhodes University Computer Science department, with hardware donated by Saab-Grintek. At the front of the classroom, from left: Mr Hilbert Muchatibaya, one of the MSc students that helped with the deployment, Ms Madeleine Schoeman, the school's Principal, and Professor Alfredo Terzoli, who received the donation on behalf of the Siyakhula Living Lab.*  
Credit: Department of Computer Science

## Distributed Audio Networks

### Professor Richard Foss

The Audio Networks group deals primarily with the management and control protocol of audio streams to be used in large sound installations such as stadiums, studios and convention centres.

## Parallel and Distributed Computing

### Professor Karen Bradshaw and Professor George Wells

This group focuses on the ever-present and important theme of parallel and distributed computations.

## Intelligent Robots

### Professor Karen Bradshaw

This group focuses on Artificial Intelligence applied to robots.

## Computer Vision

### Mr James Connan and Dr Dane Brown

Image Processing and Machine Learning are the focuses of this group.

## Bioinformatics

### Professor Philip Machanick

Rhodes University Bioinformatics (RUBI) Research Group is an interdisciplinary group housed in the Department of Biochemistry and Microbiology and focuses on collaborative research to produce computational outcomes of biological significance.

## Postgraduates / Graduations

During 2019 the following students were in training in the department:

- Eighteen (18) Honours.
- Thirteen (13) MSc by coursework and research.
- Nineteen (19) MSc by research.
- Seven (7) PhDs.

The following students completed and graduated:

- Seventeen (17) Honours.
- Two (2) MSc by coursework and research.
- Five (5) MSc by research.
- One (1) PhD.

The journal paper by Thomas Weilbach (MSc student), and Dr Yusuf Motara, his mentor, "*Applying distributed ledger technology to digital evidence integrity*", won the Best Paper award for ARJ (Africa Research Journal) for 2019 by the SAIEE (South Africa Institute of Electrical Engineers).

Ms Katherine James, (MSc student) mentored by Professor Karen Bradshaw, won the IITPSA (Institute of Information Technology Professional South Africa) Eastern Cape 2019 Student of the Year Award.

## Distinguished Visitors / International Visits

Representatives of the industry partners of the Department of Computer Science, within the Telkom Centre of Excellence and outside it, visited the department during 2019. Staff and students of the department routinely attend overseas conferences. The attendance is often complemented by a visit to an academic institution in the country where the conference takes place.

Professor Bradshaw spent five (5) weeks sabbatical at the Hamburg Applied University of Technology in May/June 2019, where she held several CUDA (Compute Unified Device Architecture) workshops for Computer Science and Data Analytics undergraduate and graduate classes. She was also involved in collaborative research work.

## Significant Research Aligned Events

As in previous years, the department received research grants from the partners of the Telkom Centre of Excellence in Distributed Multimedia, Telkom and Infinera as well as the National Research Foundation (NRF).

The Siyakhula Living Lab ([siyakhulaLL.org](http://siyakhulaLL.org)) received hardware for two (2) computer laboratories from Saab Grintek, to deploy in schools. The hardware and the subsequent deployment allow the continuation of the research on more efficient and robust ways to provide computing environments to schools.

### Professor Alfredo Terzoli

#### Head of Department



Ms Katherine James, a MSc student (left) won the IITPSA (Institute of Information Technology Professional South Africa) Eastern Cape 2019 Student of the Year Award  
Credit: Department of Computer Science



## Books / Chapters / Monographs

Irwin, B.

Swart, I., Irwin, B. and Grobler, M. (2019) Adaptation of the JDL model for multi-sensor national cyber security data fusion. In: Khosrow-Pour, M., Clarke, S., Jennex, M.E., Becker, A. and Anttiroiko, A.V. (eds.). *National Security: Breakthroughs in research and practice Volume 1*. USA: IGI Global. p.92-107. ISBN: 9781522579120.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Bradshaw, K.

Berger, C., Bleri, M., Bradshaw, K., Brummer, C., Clemen, T., Hickler, T., Kutsch, W.L., Lenfers, U.A., Midgley, G.F., Mukwashi, K., Odipo, V., Scheiter, S., Schmulius, C., Baade, J., Du Toit, J.C.O., Scholes, R.J., Smit, I.P.J., Stevens, N., Twine, W. and Martens, C.A. (2019) Linking scales and disciplines: an interdisciplinary cross-scale approach to supporting climate-relevant ecosystem management. *Climatic Change*. 156 (2019). p.139-150.

Duxbury, T.O., Bradshaw, K., Khamanga, S.M., Tandlich, R. and Srinivas, S. (2019) Environmental health promotion at a National Science Festival: An experiential-education based approach. *Applied Environmental Education and Communication*. 2019. p.1-16.

Motara, Y.M.

Motara, Y.M. and Van Der Schyff, K. (2019) A functional ontology for information systems. *South African Computer Journal*. 32 (1). p.57-76.

Motara, Y.M. and Weilbach, W.T.

Motara, Y.M. and Weilbach, W.T. (2019) Distributed Ledger Technology to Support Digital Evidence Integrity Verification Processes. *Communications in Computer and Information Science*. 973 (2019). p.1-15.

Pennefather, S., Bradshaw, K. and Irwin, B.

Pennefather, S., Bradshaw, K. and Irwin, B. (2019) Design and

evaluation of bulk data transfer extensions for the NFComms framework. *South African Computer Journal*. 32 (2). p.77-98.

Weilbach, W.T. and Motara, Y.M.

Weilbach, W.T. and Motara, Y.M. (2019) Applying distributed ledger technology to digital evidence integrity. *SAIEE Africa Research Journal*. 110 (2). p.77-93.

## Peer-reviewed Proceedings

Bailey, J.D. and Connan, J.

Bailey, J.D. and Connan, J. Utilizing image processing techniques to identify urine test strip results on a smartphone. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

Brown, D.L.

Brown, D.L. Multi-Angled Face Segmentation and Identification using Limited Data. *2019 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS)*. Hotel Tramontano, Sorrento. Italy. November 2019.

Brown, D.L. and Bradshaw, K.

Brown, D.L. and Bradshaw, K. Improved Palmprint Segmentation for Robust Identification and Verification. *2019 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS)*. Hotel Tramontano, Sorrento. Italy. November 2019.

Brown, D.L. and Ndleve, M.N.

Brown, D.L. and Ndleve, M.N. Virtual Gym Instructor. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

Brown, D.L. and Schormann, D.

Brown, D.L. and Schormann, D. Poacher Detection and Wildlife Counting System. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.



The Eastern Cape chapter of the Institute of Information Technology Professionals SA (IITPSA) honoured its Port Elizabeth branch winners at a dinner

Left to right: Belinda Samuels (Woman in IT of the Year), Sonny Fisher (IT Contributor to Society of the Year), Anton van Kampen (CAT Teacher of the Year), Lynne Thackray-Smith (CAT Teacher Lifetime Achievement Award), Katherine James (IT Student of the Year), Hannelie Nell (CAT Teacher of the Year - special commendation), Professor Jean Greyling (IT Personality of the Year), IITPSA National President Ulandi Exner, Leanda Oosthuizen (IT Teacher of the Year), Benjamin Roode (IT Scholar of the Year) and IITPSA National CEO Tony Parry.

Credit: Department of Computer Science

**Chindeka, T., Terzoli, A. and Tsietsi, M.**

**Chindeka, T., Terzoli, A. and Tsietsi, M.** An Investigation into the Readiness of Open Source Tools to build a Telco Cloud. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmount Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

**Chindipha, S.D., Herbert, A. and Irwin, B.**

**Chindipha, S.D., Herbert, A. and Irwin, B.** An Evaluation of Text Mining Techniques in Sampling of Network Ports from IBR Traffic. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

**Chindipha, S.D., Irwin, B. and Herbert, A.**

**Chindipha, S.D., Irwin, B. and Herbert, A.** Quantifying the Accuracy of Small Subnet-Equivalent Sampling of IPv4 Internet Background Radiation Datasets. *2019 SAICSIT Conference: Digital Eco-systems Gone Wild*. Skukuza Conference Centre, Skukuza. South Africa. September 2019.

**Dibley, J. and Bradshaw, K.**

**Dibley, J. and Bradshaw, K.** Deriving Reusable Go Components from Verified CSP Prototypes. *Proceedings of CPA 2018 (WoTUG-40)*. Technische Universitaet Dresden, Dresden. Germany. August 2018.

**Dlodlo, N.**

**Karon, R., Dlodlo, M. and Dlodlo, N.** A Proposed Impact Assessment Framework on TV Whitespaces Technologies in Rural Healthcare: A Namibian Case. *17th IADIS Conference on e-Society*. University of Applied Sciences, Utrecht. Netherlands. April 2019.

**Angula, N., Dlodlo, N. and Mtshali, P.Q.** Enabling Semantic Interoperability of Crowdsourced Disease Surveillance Data for Namibia through a Health-Standards-Based Approach. *IST Africa 2019*. Regency Hotel, Nairobi. Kenya. May 2019.

**James, K. and Bradshaw, K.**

**James, K. and Bradshaw, K.** Segmenting objects with indistinct edges, with application to aerial imagery of vegetation. *2019 SAICSIT Conference: Digital Eco-Systems Gone Wild*. Skukuza Conference Centre, Skukuza. South Africa. September 2019.

**Muofhe, M., Dlodlo, N. and Terzoli, A.**

**Muofhe, M., Dlodlo, N. and Terzoli, A.** An Internet of Things-Based System Integrated with Blockchain to Manage Patient Data in the Healthcare Sector. *2019 Open Innovations Conference: New Frontiers in the Fourth Industrial Revolution (4IR)*. Cape Peninsula University of Technology, Cape Town. South Africa. October 2019.

**Nyakonda, T.G., Tsietsi, M., Terzoli, A. and Dlodlo, N.**

**Nyakonda, T.G., Tsietsi, M., Terzoli, A. and Dlodlo, N.** An RFID Flock Management System for Rural Areas. *2019 Open Innovations Conference: New Frontiers in the Fourth Industrial Revolution (4IR)*. Cape Peninsula University of Technology, Cape Town. South Africa. October 2019.

**Pipile, Y.Y., Tsietsi, M., Terzoli, A. and Dlodlo, N.**

**Pipile, Y.Y., Tsietsi, M., Terzoli, A. and Dlodlo, N.** Towards a Low-Cost System to Control Irrigation for Efficient Water Usage: The Field Components. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

**Poole, L.C. and Brown, D.L.**

**Poole, L.C. and Brown, D.L.** Plant Disease Detection and Classification for Farmers and Everyday Gardeners. *SATNAC 2019: The Changing Face of Telcos in a Digital World*. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal. South Africa. September 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Bradshaw, K.**

**Clemen, T., Bradshaw, K., Dybulla, J., Ferreira, S.M., Kiker, G.A., Lenfers, U.A., Martens, C.A. and Scheiter, S.** Cross-scale decision support for elephant management. *17th Savanna Science Network Meeting*. Skukuza Conference Centre, Skukuza. South Africa. March 2019.

**Clemen, T., Bradshaw, K. and Lenfers, U.D.** Agent-Based Modeling and Simulation -- What's in it for Ornithologists? *American Ornithological Society Annual Meeting*. Anchorage Conference Centre, Anchorage. USA. June 2019.

**James, K. and Bradshaw, K.**

**James, K. and Bradshaw, K.** Machine Learning and Drone Technology: Towards an Environmental Management Tool. *17th Savanna Science Network Meeting*. Skukuza Conference Centre, Skukuza. South Africa. March 2019.

**Morgan, L.W.**

**Mostert, E.A., Morgan, L.W., Martin, G.D., Coetzee, J.A. and Hill, M.P.** Creating a more accessible database platform: introducing the new CBC Data Portal. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

**Terzoli, A.**

**Terzoli, A.** Building blocks and support for remote communities to participate in the digital economy (Invited Presentation). *GovTech 2019*. Durban International Convention Centre, Durban. South Africa. October 2019.



In 2019 the Department of Drama continued to encourage a dialogical connection between practice and research, giving a central place to the question of how theatre and performance relates to audiences and the broader society. To this end research was conducted *for, through and into* theatre through performing arts creative practice and the presentation and publication of articles and book chapters. This approach consolidated and extended the theatre knowledge-base within the academic programme.

The department regards content and form as equally important, thus requiring that theatrical form is investigated with the same intensity as theatrical content. In 2019 the research approach allowed space for performers, choreographers, writers, designers and directors to familiarise themselves with a range of theatrical forms and then to experiment with form in their own productions.

The department's synergistic amalgamation of research and practice has led to participation in international conferences, events and workshops. The department was represented nationally and internationally (Brazil, Malta, Japan, Shanghai and the Czech Republic).

Mr Gavin Krastin and Ms Illka Louw exhibited work at the 2019 Prague Quadrennial of Performance Design and Space (PQ), while Dr Heike Gehring delivered conference papers in Malta and Shanghai. Ms Lalu Mokuku participated in a theatre workshop on Augusto Boal in Rio de Janeiro, Brazil, and the department's Research Associate, Ms Athina Vahla, made works in Italy, Japan and the United Kingdom.

The department also made strong local contributions - both at the National Arts Festival (NAF) and in the Makhanda and Rhodes communities. In Makhanda, the department staged several theatre-based performances as vehicles for social intervention and change. Topics varied from addressing local government corruption, to tackling alcohol and drug abuse on campus, to increasing public awareness about the ongoing drought in the Eastern Cape, to the plight of gender-variant students on campus. These interactive performances provoked audiences and advocated social and behavioural change.

Some highlights from the 2019 programme were:

- **Open House**, an interdisciplinary, interdepartmental performance event;
- the annual Orientation Show;
- the MEQOQO Collective - initiating a dialogue about the use and abuse of alcohol and drugs on campus;
- social activist performances by Honours Applied Theatre students on a range of topics, including the impact of divorce on young people, prejudice towards lecturers with non-standard English accent, and the plight of gender-variant students on campus.

*Flash mob in High Street, Grahamstown*  
Credit: Department of Drama



## Postgraduates / Graduations

Postgraduate students made a strong contribution to Creative Outputs, in particular two (2) Postgraduate students, who represented the department at NAF. Mmatumisang Motsisi's performance work, *Dumela Mosadi*, formed part of Gavin Krastin's *Arcade* project presented on the Main Programme of NAF, and was showcased at the 2019 African Feminisms conference at the University of the Witwatersrand (Wits) and at the Rhodes Theatre Complex. This work also formed part of Motsisi's final year examination for which she received a distinction.

The other notable Postgraduate production was *Salt*, written and directed by Noluthando Sibisi in collaboration with her cast. It received the award for "Best Student Production" at the NAF. Furthermore, Tamarisk Glogauer, a Postgraduate Drama student, was a finalist in the Distell National Playwright Competition.

## Distinguished Visitors / International Visits

**Mr Jefferson Tshabalala**, winner of the Standard Bank Young Artist Award for Theatre, visited the department to do workshops with our Postgraduate students and to do a production. He is a writer, director, performer, and the founder and owner of the live arts production house, Kiri Pink Nob Arts (Pty) Ltd. Tshabalala merges poetry, hip-hop, comedy, and traditional dramatic arts to communicate nuanced and far-reaching stories.

**Ms Mammatli Thakhuli-Nzuza** conducted workshops in playback theatre. She is a lecturer at Wits where she teaches Theatre for Human Rights in the School of Arts, Drama for Life division. She holds a Bachelor of Arts in Dramatic Arts with an Honours degree in Drama in Education and Theatre as Activism. She is the founder of the Mankokosana Playback Theatre Collective and is an accredited Community Capacity Enhancement facilitator.

**Professor Chris Weare** conducted workshops in film acting. He used to be a Professor in Theatre Studies at the University of Cape Town (UCT) and is the founder member of the Intimate Theatre and the Mechanicals Collective. Professor Weare won the Fleur Du Cap Lifetime achievement award in 2011.

**Ms Athina Vahla** visited the department to choreograph a production and to offer Postgraduate workshops. She is a multidisciplinary artist and lecturer producing work internationally, across the United Kingdom, Europe, South Africa, Mexico and Japan. Athina has created large scale site-specific works on an international scale. Some of her commissioned works include works at the Tate Modern, the Liverpool Tate, Institution for Contemporary Arts, London, the London Science Museum and the London 2012 Olympics. She has taught extensively for various international institutions.

## Significant Research Aligned Events

**First Physical** - an associate project of the department - offered extensive interaction with the larger Grahamstown community. The BodyForms programme offered somatic training in dance and movement forms and produced two (2) productions: *Arcade* (conceptualised and curated by Gavin Krastin for the NAF Main Programme) and *Ayatshisa Amateki* by Ayanda Nondlwana.

**Ubom!** - another associated project of the Drama department - built the capacity of local unemployed practitioners, scholars, prisoners and others through theatre skills courses. The *Vuka Drama Workshop Programme* offered drama-focused activities for schools and Performing Change Workshops were run at the Grahamstown Correctional Facility for juvenile offenders. Their children's theatre production, *Fundisa's Fabulous Adventure*, was performed at the National Arts Festival.

**Dr Heike Gehring**

*Head of Department*



Physical theatre  
Credit: Department of Drama



Physical theatre  
Credit: Department of Drama

## Peer Reviewed Subsidy-Earning Journal Research Publications

Krueger, A.

Krueger, A. (2019) Betty, Zorg & Me - Sex, Freedom, Art. *English Studies in Africa*. 62 (1). p.81-89.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Gehring, H.

Gehring, H. The De-urbanisation of Theatre in South Africa by means of Arts Festivals. *International Federation for Theatre Research Conference: Theatre, Performance and Urbanism*. Shanghai Theatre Academy. Shanghai, China. July 2019.

Gehring, H. Third Space as Meeting Point: Beyond First Space/Second Space Dualisms. *Hybrid Practices: Methodologies, Histories and Performance Conference*. University of Malta School of Performing Arts. Malta. April 2019.

Parker, A.C. and Krastin, G.J.

Parker, A.C. and Krastin, G.J. Opening through ecology: conceptualising the role of open-platform, immersive performance experiences within the closed spaces of the university. *Confluences 10 - Dance, (e)merge, Theatre*. Hiddingh Hall, Cape Town. South Africa. August 2019.

Praeg, J.

Praeg, J. (e)merging through Wreckage: activating, agitating and archiving a performative proxemics through/as ruin. *Confluences 10: Dance, (e)merge, Theatre*. Hiddingh Hall Campus, Cape Town. South Africa. August 2019.

## Books/Chapters/Monographs

Krueger, A.

Krueger, A. (2019) Revolutionary trends at the South African National Arts Festival. In: Eckersall, P. and Grehan, H. (eds.). *The Routledge Companion to Theatre and Politics*. New York: Routledge: Taylor and Francis. p.100-104. ISBN: 9780203731055.

Parker, A.C.

Parker, A.C. (2019) Effigy in the archive: Ritualising performance and the dead in contemporary South African live art practice. In: Pather, J. and Boulle, C. (eds.). *Acts of Transgression: Contemporary Live Art in South Africa*. Johannesburg: Wits University Press. p.243-264. ISBN: 9781776142798.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Hellemann, P.C.

Hellemann, P.C. (2019) Negotiating Public Participation through Dance and Drama Techniques: A Roundtable Discussion on the Challenges of Public History Work by the Isikhumbuzo Applied History Unit in South Africa. *International Public History*. 2 (1). p.1-9.

# 2019

## DEPARTMENT OF ECONOMICS AND ECONOMIC HISTORY



The Department of Economics and Economic History remained actively focused on promoting and developing research at various levels, including both staff and students. The research culture is an integral part of teaching at the Postgraduate level, rising from the Honours year with students doing their research structured as an academic article.

Researchers in the Department of Economics and Economic History were productive in 2019. Staff co-authored books, contributed chapters to books, presented their research at local and international conferences, published in peer reviewed subsidy-earning journals, and research workshops and events. Research outputs materialised mainly from the Department's dual research focus on Environmental and Cultural Economics, together with Money and Banking and Financial Markets.

Rhodes University is a partner in the South African Cultural Observatory (SACO), which is a national research institute hosted at Nelson Mandela University (NMU), and funded by the Department of Sport, Arts and Culture. At Rhodes, SACO is based in the Department of Economics and Economic History under the leadership of Professor Jen Snowball. The aim of SACO is to provide evidence based, policy-relevant research on the Cultural and Creative Industries (CCIs) in South Africa. A number of the department staff members have contributed to SACO reports, many of which have subsequently been published in academic journals.

Postgraduate supervision is also increasing in the areas of cultural labour markets, creative cities, and cultural trade. SACO-related research work has also been presented internationally, most notably by Professor Jen Snowball at an United Nations Conference on Trade and Development (UNCTAD) Creative Economy Expert Meeting.

### Postgraduates / Graduations

A total of thirteen (13) students obtained their Masters degrees, five (5) with distinction.

### Distinguished Visitors / International Visits

The Hobart Houghton Fellowship was awarded to Dr Abel Ezeoha (hosted by Professor Hugo Nel), while Dr Olugbenga Egbetokun was the recipient of a Rhodes University Postdoctoral Research Fellowship, hosted by Professor Gavin Fraser.

**Professor Hugo Nel**  
*Head of Department*

*The research team visiting Cowie Trading, who distribute Shweshwe produced in the Da Gama factory in Zwelitsha*

*From the left: Prof Nwauche (UFH) and his student: Aviwe Mapuma (RU Economics Student) and Mr Chippy Bruce, (Director of Cowie Trading)*

*Credit: Department of Economics and Economic History*



## Books/Chapters/Monographs

Snowball, J.D.

Snowball, J.D. (2019) Government Policy. In: *A Research Agenda for Cultural Economics*. UK: Edward Elgar Publishing Limited. p.116-140. ISBN: 9781788112307.

## Concerts, Exhibitions, Performances, Workshops, Events

Fryer, D.

Van Der Walt, L., Fryer, D., Maisiri, L.J. and Hagemeyer, L. Design, facilitation, presentation. Political Economy, and Economic and Social Policy programme. *South African Political Economy and the Global Crisis (Neil Aggett Labour Studies Unit (NALSU) and Sociology Department)*. Rhodes University, Grahamstown/Makhanda. South Africa. 25 - 30 August 2019.

Van Der Walt, L., Naidoo, L., Reynolds, J., Ulrich, N., Ntikanca, K.L., Allan, C.T., Klerck, G., Alfors, L., Fryer, D., McGregor, W., Jara, M. and Kota, A. Design, facilitation, presentation. Vuyisile Mini Winter School 2019. *Politics Within and at a Distance from the State (Neil Aggett Labour Studies Unit (NALSU))*, Rhodes University, Grahamstown/Makhanda. South Africa. 9 - 12 July 2019.

## International Visits

Snowball, J.D.

Snowball, J.D. Newcastle University Business School, Newcastle, UK. *Research work on Creative Industries with Professor Giorgio Fazio, Professor of Macroeconomics and Professor Jonathan Sapsed, Professor of Innovation and Entrepreneurship*. 24 - 30 November 2019.

Snowball, J.D. United Nations, Geneva, Switzerland. *Invited Speaker at UNCTAD ad hoc expert meeting on Creative Economy*. 28 - 29 October 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Cattaneo, N. and Snowball, J.D.

Cattaneo, N. and Snowball, J.D. (2019) South Africa's trade in cultural goods and services with a focus on cultural trade with BRICS partners. *International Journal of Cultural Policy*. 25 (5). p.582-601.

Drummond, F.J. and Snowball, J.D.

Drummond, F.J. and Snowball, J.D. (2019) Cultural Clusters as a Local Economic Development Strategy in Rural, Small Town Areas: The Sarah Baartman District in South Africa. *Bulletin of Geography. Socio-economic Series*. 43 (2019). p.107-119.

Humphrey, L. and Fraser, G.

Humphrey, L., Fraser, G. and Martin, G.D. (2019) The Economic Implications of *Robinia pseudoacacia* L. (black locust) on Agricultural Production in South Africa. *Agrekon*. 58 (2). p.216-228.

Khumalo, S.A.

Mishi, S. and Khumalo, S.A. (2019) Bank stability in South Africa: what matters? *Banks and Bank Systems*. 14 (1). p.122-136.

Ndawona, T.M., Keeton, G.R., Cattaneo, N. and Mann, L.F.

Ndawona, T.M., Keeton, G.R., Cattaneo, N. and Mann, L.F. (2019) An analysis of the impact of the financialization of commodity markets. *Journal for Studies in Economics and Econometrics*. 43 (1). p.63-95.

Pitot, A.

Botha, F. and Pitot, A. (2019) Suicide and the South African business cycle. *Journal for Studies in Economics and Econometrics*. 43 (2). p.1-8.

Polak, J.S. and Snowball, J.D.

Polak, J.S. and Snowball, J.D. (2019) Linking sustainable local economic development to a market-based carbon control regime: Carbon restoration projects in the Eastern Cape province of South Africa using *Portulacaria afra*. *Journal of Economic and Financial Sciences*. 12 (1). p.1-10.



Professor Jen Snowball presented research at a workshop in London, hosted by Coventry University, on copyright and the micro-creative industries

*Job Creation and Income Generation in the Cultural and Creative Industries: A Case Study of the Shweshwe Sewing Industry.*  
Credit: Department of Economics and Economic History

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Cattaneo, N.

Andangnui, Q., Louw, L. and Cattaneo, N. Macro-locational determinants of Chinese foreign direct investment in Cameroon. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.

Drummond, F.J. and Snowball, J.D.

Drummond, F.J. and Snowball, J.D. Cultural and Creative Clustering in Rural South Africa. *Royal Geographic Society Annual International Conference*. Royal Geographic Society, London. UK. September 2019.

Earle, S. and Fraser, G.C.G.

Earle, S. and Fraser, G.C.G. Analysing the Anthropogenic Allee Effect in cycad (*Encephalartos* species) populations in South Africa. *Economics Society of South Africa Conference*. Johannesburg, September 2019.

Egbetokun, O.A. and Fraser, G.C.G.

Egbetokun, O.A. and Fraser, G.C.G. Factors Influencing Food Consumption Diversity among Farming Households in Nigeria. *Annual Conference of the Agricultural Economics Association of South Africa*. Bloemfontein, October 2019.

Fraser, G.C.G.

Fraser, G.C.G. Agricultural Water Footprint of South Africa: An Overview. *Potato SA Research Symposium*. Klein Kariba, Bela Bela, July 2019.

Snowball, J.D.

Hadisi, S. and Snowball, J.D. Do the South African Creative Industries offer viable opportunities for youth employment? Evidence from the Labour Market Dynamics Survey. *Annual International Conference of the Royal Geographic Society in London*. Royal Geographic Society, London. UK. August 2019.

Snowball, J.D. and Antrobus, G.G.

Snowball, J.D. and Antrobus, G.G. Festival value in multicultural contexts: City Festivals in South Africa. *15th International Conference on Arts and Cultural Management*. Ca'Foscari University of Venice, Venice. Italy. June 2019.



2019 saw a change in the leadership with Professor Emmanuel Mgwashu's term of office ending in June 2019. On 01 July 2019 a distributed model of department leadership was introduced with Professor Callie Grant, Dr Lise Westaway and Dr Zintle Songqwaru sharing the Head of Department (HoD) load.

## Postgraduates / Graduations

We are proud of our 2019 graduates. A total of sixty-one (61) Honours students, twenty-three (23) Masters students and eleven (11) PhD candidates graduated in Makhanda, South Africa and Okahandja, Namibia.

2019 was a unique year for the Education Department as we celebrated twenty (20) years of Rhodes University's presence in Namibia. Since our partnership with the Namibian Ministry of Education and the National Institute of Education Development (NIED) began, four hundred and thirty-five (435) Namibians have received Honours degrees; one hundred and seventy-eight (178) have received Masters degrees and six (6) have received Doctor of Philosophy degrees from Rhodes University. This is a significant number of graduates, each of whom is shaping education policy, teacher education and schooling in Namibia today. The milestone was celebrated at the Rhodes University 2019 Graduation Ceremony in Okahandja, Namibia.

In March 2019, the Education Department, together with CHERTL, hosted a team of twenty-three (23) Swedish PhD candidates and their professors from Umea University for a combined PhD week. Accompanying them were Professor Karin Sporre, Professor Carina Rönqvist, Professor Kirk Sullivan and Dr Björn Norlin, all of whom made presentations in the PhD week. This international exchange significantly enriched the week.

As Rhodes University lead researcher, Professor Emmanuel Mgwashu, with support from Dr Clement Simuja, received Department of Higher Education and Training (DHET)/British Council funding for the scoping phase of the University Staff Doctoral Programme (Education and Social Work). The programme aims to support university academics to obtain doctorates and brings together scholars from the Education Department at Rhodes University with academics from Fort Hare University, University of South Africa (Dr Patricia Muhuro and Professor Simon Kang'ethe) and Queens University, Belfast, United Kingdom (UK) (Dr Dina Belluigi and Professor Danielle Turney). Following exchange visits between the UK and South Africa (SA), a full funding proposal was submitted to the DHET to support ten (10) academics to do a PhD in either Education or Social Work. The application was successful and the programme will run from 2020 - 2024. Following Professor Mgwashu's departure from Rhodes University, Professor Callie Grant was appointed as his replacement.

*From left to right: Professor Callie Grant, Professor Emmanuel Mgwashu and Dr Dina Belluigi  
Credit: Department of Education*

Professor Di Wilmot gave a keynote lecture entitled *'Recontextualizing geography education for environment and sustainability: southern African perspectives'* at the International Geography Union (IGU) Commission on Geographical Education Symposium, Institute of Education, London, 15-17 April, 2019. She was also an invited participant in an international geography curriculum research project entitled *'Developing a framework to describe school Geography Curricula around the world'* funded by a Transformative Research in Geography Education grant from the National Centre for Research in Geography Education (NCRGE) in the USA. The project, led by Professor Chang Chew-Hung (Singapore) and supported by Associate Professors Gillian Kidman (Australia) and Jerry Mitchell (US), compares different curricula around the world with a view of developing a framework that can allow researchers and teachers to exchange ideas on how to improve the teaching of Geography. The participants met for a two (2)-day research workshop at the National Institute of Education, Singapore, 7-8 May 2019. In addition, Professor Wilmot gave the Matthew Goniwe Memorial Lecture at the Eastern Cape Department of Education World Teachers' Day event in East London on 4 October 2019. Her lecture was entitled *'The world has moved, have our teachers moved?'* She has also been appointed as a series editor for the Springer book series International Perspectives on Geographical Education, a five (5)-year project.

Professor Callie Grant was invited as a guest speaker for the Cross-Fire Debate at the 20th annual Education Management Association of South Africa (EMASA) conference, Sun City, North West Province, September 2019.

Ms Bev Moore was afforded the opportunity to lead a British Council funded capacity building project in Inclusive Education called *'Teaching for All'* together with Ms Nomzamo Jack. Rhodes University was one (1) of ten (10) universities selected to participate and pilot materials that may develop responsive, quality programmes in Inclusive Education for both pre-service and in-service teachers.

The Education Department launched the final three (3) of four (4) *'My Best Teacher'* booklets at a function on 18 October 2019. These booklets containing stories written by Bachelor of Education (Foundation Phase Teaching) students about their best teachers. The department team involved in the project included Professor Callie Grant, Dr Zukiswa Nhase, Ms Sarah Murray, Dr Anna Nkomo, Mr Ntsika Kitsili and Ms Nomzamo Jack.



Professor Mellony Graven (right) with Professor Einat Heyd-Metzuyanin with the two special editions they edited together. Credit: Department of Education

A research programme is now being devised, drawing on the one hundred and eight-seven (187) stories captured in the four (4) booklets, guided by the following questions:

- i) What categories of best teachers can be found in the booklet series?
- ii) What are the main characteristics of best teachers in each of these categories?
- iii) What can we learn about best teachers in the current South African context from across these categories and how might this guide teacher education curriculum development?

## South African Research Chairs Initiative (SARChI) - Mathematics Education Report

2019 has again been a busy and productive year. The Chair's Postgraduate scholar cohort, under the leadership of Professor Marc Schäfer, grew to fourteen (14) MEds, eight (8) PhDs and one (1) Postdoctoral Research Fellow.

The visualisation research agenda is gaining international traction and recognition, with six (6) papers being accepted for the ICME-14 International Congress in China. This Congress was to be held in 2020, but has been postponed to 2021. Professor Schäfer is the co-chair for the *Visualisation in mathematics working group* for that conference. He was invited as a guest lecturer to the University of Torino to talk about the SARChI research work in this field. His particular focus was on how visualisation processes in the teaching and learning of mathematics has contributed positively to creating opportunities for epistemological access in an education environment of gross inequity and lack of quality.

Other national and regional conferences that colleagues participated in included conferences in South Africa, Namibia, Zambia and Kenya. The Chair's collaboration with the Goethe University in Germany led to an invitation in 2019 to host the Southern African hub of the award-winning MCM project. Dr Clemence Chikiwa will be driving this initiative having already established a strong interest base in Namibia. This work is an offshoot of the Chair's strong research focus in harnessing ICT resources in under-resourced schools for facilitating a visual teaching and learning approach in Mathematics.

The *GeoGebra* research projects are spread all over the region ranging in focus from mathematical modelling in Namibia, to teacher trainers teaching calculus in Zambia, to developing applets in the Eastern Cape. The twenty-two (22) teacher and learner intervention programmes spread across the region provide the glue for the work, and make for a very coherent narrative about how using visualisation processes in the mathematics classrooms can address issues of inequality and mathematics transformation. Through this network of interventions, in excess of three hundred (300) teachers and three thousand (3000) learners are benefitting directly from the work of the Chair's scholars who all buy into the notion that research should be a process of reciprocity i.e. be of mutual benefit to the researcher and his/her participants.

## South African Research Chairs Initiative (SARChI) - South African Numeracy Report

Professor Mellony Graven was awarded the *'Exceptional Service to the Southern African Association for Research in Mathematics, Science and Technology Education (SARRMSTE)'* Award on 17 January 2019 at the gala dinner of the annual SAARMSTE Conference in Durban.



Professor Graven (along with colleague Einat Heyd-Metzuyanim) served as guest editors for two (2) special issues of leading international journals in mathematics education, namely:

- *Educational Studies in Mathematics - Rituals and explorations in mathematical teaching and learning;*
- and *ZDM The International Journal of Mathematics Education - Identity in Mathematics Education.*

Professor Graven co-chaired the International Programme Committee for PME43 (the annual conference of the International Group for the Psychology of Mathematics Education), with fellow numeracy Chair, Professor Hamsa Venkat. The conference was held in Pretoria in July 2019 and was a great success. Former Postdoctoral Research Fellow, now project manager, Dr Pamela Vale was also a member of this committee. Professor Graven and Dr Vale (with Professors Hamsa Venkat and Anthony Essien) both served as editors of the accredited four (4)-Volume PME43 Proceedings.

Professor Graven has been invited to Chair the International Congress on Mathematical Education (ICME) plenary panel for the ICME congress to be held in Shanghai 2020 on: *Math in global education reform - Conversations that need to happen.* ICME is the largest gathering of mathematics educators in the world and attracts more than four thousand (4000) delegates. It is held only every four (4) years.

There was extensive engagement of the South African Numeracy Chair Project (SANCP) team at international and local conferences in 2019. In total, there were fifteen (15) international conference presentations, four (4) regional (Southern Africa) conference presentations, and two (2) local/national conference presentations made in 2019. The full team: Professor Graven, Dr Vale, Dr Robertson (Postdoctoral Research Fellow), and PhD candidates Wellington Hokonya, Roxanne Long and Samukeliso Chikiwa, participated in the MERGA conference held in Perth, Australia in June/July 2019. This team, with past students Noluntu Baart and Dr Lise Westaway, then all participated in PME43, held in Pretoria in July 2019. All members of the team presented their research at this conference. Dr Sally-Ann Robertson and Professor Graven were members of a team of researchers who presented a Research Forum at PME43. Noluntu Baart was invited as the plenary speaker for the Association for Mathematics Education in South Africa conference held in Durban in June/July 2019.

Professor Ronnie Karsenty (Weizmann Institute of Science, Israel), Professor Robyn Jorgensen (University of Canberra) and Danny O'Brien all visited SANCP in Makhanda in the week following PME43. They worked with the Postgraduate students from the Education Department in a series of seminars.

In March 2019 Professor Graven visited Dr Kerry Mackay-Smith at Flinders University where she presented a seminar, to the Faculty of Education, on the SA Numeracy Research and Development work. In May 2019, Dr Mackay-Smith visited schools in Makhanda and presented a seminar and a research workshop with Postgraduate researchers and colleagues in the Education Faculty.

The collaboration between Professor Graven, Dr Jana Višňovská (University of Queensland), Dr Pamela Vale and Professor José Cortina (Mexico) on '*fraction as measure*' design research is ongoing and has led to several international presentations and peer-reviewed publications in the PME, MERGA and SAARMSTE proceedings. In addition, Dr Vale joined Dr Višňovská and Professor Cortina at Charles University in Prague at the Symposium for Early Mathematics Teaching (SEMT) in August 2019 to present a series of workshops at this conference. Dr Višňovská and Dr Vale presented a workshop at the MERGA Teachers' Day in Perth, Australia on 29 June 2019. Dr Višňovská and Professor Graven presented at the Queensland Association of Mathematics Teachers Early Years Conference in February 2019 on this work. Dr Višňovská and Professor José Cortina travelled to Makhanda to the SAARMSTE conference in January 2019. They presented research workshops to Postgraduate students and workshops with primary school teachers from Makhanda.

Continued collaboration and joint research with Professor Jorgensen (Australia) on family mathematics story time took place in Australia and South Africa in 2019. Professor Graven presented a workshop in the Coober Pedy region in South Australia in March 2019 about using mathematical stories and related activities to engage children and communities in mathematical discussion.

In 2018 preparations were made for trials of a research-informed teaching sequence led by the Department of Basic Education (with Chair-supported training) across three (3) provinces. These took place in May 2019. This work has been developed through the diagnostic assessment research project led by Professor



The Nambian Sustainability Starts with Teachers Colleagues meeting at the ELRC with Dr Sirkka Tshininganyamwe, an alumni of the DSI/NRF SARCHI Chair in Global Change and Social Learning Systems serving as their Regional Reference Group member and ESD co-ordinator  
Credit: Department of Education



*Alumni of the DSI/NRF SARCHI Chair in Global Change and Social Learning Systems, Dr Charles Chikunda, supports Sustainability Starts with Teachers participants to undertake water quality testing during the programme. Dr Chikunda has been appointed to the UNESCO Regional Office for Southern Africa to co-ordinate this programme which operates across 11 southern African countries  
Credit: Department of Education*

Graven in partnership with fellow numeracy Chair, Professor Hamsa Venkat. Preparations are now underway for national DBE-led rollout across all provinces with required language translations. In 2019, this research was presented at the SAARMSTE 2019 conference and a paper has been published by Professor Graven and Professor Venkat in the leading mathematics education journal, *Mathematics Education Research Journal*.

## The Environmental Learning Research Centre (ELRC)

The year got off to a good start with visitors from the South African Sector Education and Training Authorities. Dr Tsiliso Tamasane (Research and Strategic Planning Manager at Services Seta), Mr Tumelo Ngwako (Manager: Accreditation at Services SETA) and Mr Vuyani Ntanjana (Head of Research at BankSETA) attended the SETA Monitoring and Evaluation Meeting at Rhodes University in January 2019, co-ordinated by Professor Eureka Rosenberg.

In March 2019, the ELRC hosted an international Education for Sustainable Development (ESD) Expertnet consultation which combined with a United Nations Educational, Scientific and Cultural Organisation (UNESCO) Sustainability Starts with Teachers consultative process. This brought international award winning and globally recognised Director of the Centre for Environmental Education in India - Mr Kartekeya Sarabhai to Rhodes University where he offered a public lecture. Dr Christa Henze from Germany, Professor Lupita Mendoza-Zuany and Dr Juan Carlos Sandoval Rivera from Mexico, Professor Kensuki Chikamori from Japan and Professor Chong Shimray from India also joined this meeting.

Southern African Development Community (SADC) visitors involved in the Sustainability Starts with Teachers programme who visited Rhodes University included Ms Carolyn Medel-Anoneuevo, Head of Education at the UNESCO Regional Office for Southern Africa who also offered a public lecture. Others included; Dr Charles Chikunda (UNESCO ROSA), Dr Sirkka Tshiningaymwe (University of Namibia), Dr Iris Chimbodza (Belvedere Teachers College), Dr Sheperd Urenje (SWEDES, Uppsala University, Sweden), Dr Sibongile Masuku (Sol Plaatje University), Dr Caleb Mandikonza (University of the Witwaters-

rand), all of whom contributed to the research and teaching activities of this programme.

In July 2019 the ELRC hosted a special programme at the National Arts Festival, and invited speaker Dr Karim-Yassin Goessinger, Founder and Programme Director of Cairo Institute of Liberal Arts and Sciences in Egypt contributed to the Re-Imagining Creative Practice in Sustainability Festival programme, along with Ms Kyla Davis from the Well Worn Theatre Company.

Ms Amanda Blue (filmmaker) visited the ELRC in August 2019 to capture some of the research done in the Cycles programme, led by Associate Professor Ingrid Schudel.

In October 2019, Professor Claudia Pahl-Wostl brought an international team from Osnabrück University to Rhodes University. Working with Professor Heila Lotz-Sisitka, they led a seminar on transformative processes in natural resources management research. Colleagues accompanying Professor Pahl-Wostl included Ms Larissa Koch, Dr Caroline van Bers, Dr Geeske Scholz, and Dr Nicolas Jager from Osnabrück University in Germany. They were joined at Rhodes University by Professor Sabine Stuart-Hill, Ntombi Nxumalo, Kate Pringle and Rashieda Davids (University of KwaZulu-Natal), and Professor Sheona Shackleton, Dr Nadine Methner, Penelope Price and Leigh Cobban (University of Cape Town).

Other visitors to the ELRC in 2019 included Professor Sharon Pollard and Derick du Toit from the Association of Water and Rural Development, Dr Åsa Westermark and Associate Professor Mikael Gustafson part of the Linneaus Palmer exchange programme being co-ordinated by Associate Professor Schudel and Dr Songqwaru. A group of PhD candidates from Leuphania University, Germany, also visited the ELRC with one of their research leaders, Dr Lydia Kater-Wettstadt.

The SARCHI Chair in Global Change and Social Learning Systems, and the Rhodes University Chair of Environmental Education and Sustainability contributed to a number of national and international research programmes over the year. Most exciting was the award of the co-directorship and two (2) work packages in the Global Challenges Research Fund (20 million Pounds) One Ocean Hub programme. This project is led by Senior Researcher Dr Dylan McGarry. It seeks out a transdisciplinary, decolonial approach for co-engaged ocean governance and social learning,





*The USDP South Africa team visit to Queens University Belfast in June 2019  
Credit: Department of Education*

and works with a group of fifty (50) international partners. The transformative learning methodology of Empatheatre, developed by Dr McGarry in his Postdoctoral study period is at the centre of this massive international programme.

Other major projects that the ELRC were involved in were the Ecological Infrastructure for Water Security programme which involved developing a social learning and knowledge management strategy for this large Global Environmental Facility programme with the Water Research Commission. This programme was led by Postdoctoral Research Fellow, Dr Jessica Cockburn in an integrative team. This developed further some of the social learning and evaluation research taking place in the Tsitsa Catchment led by Professor Eureka Rosenberg.

Professor Rosenberg's Chair in Evaluation in a SETA environment continued with its work with several interactions with the national SETA system around evaluation methodology and practice development for the Sector Education and Training skills development system.

The SARChI Chair in Global Change and Social Learning System continued working across the SADC Region, launching the SADC Sustainability Starts with Teachers Research and

Development programme which will be developing indicators for Sustainable Development Goal 4.7.

Additionally, the Chair was successful in an international bid for funding on Transforming Education for Sustainable Futures which has raised funding of ten (10) million Rand for Rhodes University and an additional twenty-four (24) million Rand for Education for Sustainable Development research in South Africa.

Highlights of the Chair's work was the invitation to offer a keynote at the European Conference on Education Research, which is the second largest education conference in the world. The Chair was also asked to present a plenary paper at the Belmont Forum's 10th Anniversary meeting in Taipei. Another major highlight was the concluding of the International Science Council T-learning research programme, which brought together the research and outputs of nine countries across four continents.

**Professor Callie Grant, Dr Lise Westaway and Dr Zintle Songqwaru**

*Education Department Leadership Team*





Members of the PME43 International Programme Committee: Peter Liljedahl (IGPME President), Hamsa Venkat, Mellony Graven, Markku Hannula and Johann Engelbrecht  
Credit: Department of Education

## Books/Chapters/Monographs

Cockburn, J. and Rosenberg, E.

Holden, P., Cockburn, J., Shackleton, S.E. and Rosenberg, E. (2019) Supporting and Developing Competencies for Transdisciplinary Postgraduate Research: A PhD Scholar Perspective. In: *Developing Change Agents: Innovative Practices for Sustainability Leadership*. Minnesota: University of Minnesota Libraries. p.1-10. ISBN: 9781946135575.

Grant, C. and Kajee, F.A.

Grant, C. and Kajee, F.A. (2019) The development of learner voice and leadership in Namibian schools: a case study of two formative interventionist research projects. In: *Africa Handbook for school leadership*. New York: Nova science publishers. p.87-105. ISBN: 9781536153415.

Haywood, T., Matlala, S.J. and Penlington, T.H.

Hendricks, M., Haywood, T., Matlala, S.J. and Penlington, T.H. (ed.) (2019) *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle on Thynne: Cambridge Scholars Publishing. ISBN: 9781527531710.

Johanson Botha, L.

Hendricks, M. and Johanson Botha, L. (2019) What are the dominant sites of teachers' early literacy acquisition? *Insights from Northern Cape teachers' narratives*. In: Newcastle on Thynne: Cambridge Scholars Publishing. p.49-74.

Hendricks, M. and Johanson Botha, L. (2019) What are the dominant sites of teachers' early literacy acquisition? Insights from Northern Cape teachers narratives. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle on Thynne: Cambridge Scholars Publishing. p.49-74. ISBN: 9781527531710.

Moodly, A.L.

Moodly, A.L., Sotuku, N., Phatudi, N. and Schmidt, K. (ed.) (2019) *Early Childhood Care and Education (0-4): A transdisciplinary approach*, South Africa: Oxford University Press. ISBN: 9780190443788.

Olvitt, L.L. and Ward-Smith, C.

Akhurst, J., Olvitt, L.L. and Ward-Smith, C. (2019) Decolonising nature-based pedagogy: the importance of history, socio-cultural and socio-material context in mediating connectedness-with-nature. In: Cutter-Mackenzie, A., Malone, K. and Barratt Hacking, E. (eds.). *Research Handbook of Childhood nature*. New York: Springer. p.1-27. ISBN: 9783319672878.

Ramsarup, P., Rosenberg, E., Lotz-Sisitka, H. and Jenkin, N. Ramsarup, P., Rosenberg, E., Lotz-Sisitka, H. and Jenkin, N. (2019) Green Skills: Transformative Niches for Greening Work. In: Mohamed, N. (ed.). *Routledge Studies in Sustainability: Sustainability Transitions in South Africa*. London: Routledge. p.145-165. ISBN: 9781315190617.

Schudel, I. and Lotz-Sisitka, H.

Schudel, I. and Lotz-Sisitka, H. (2019) Environmental learning in the South African curriculum: Informing curriculum engagement through an historical review of policy, research and practice. In: Reddy, C. (ed.).

*Environmental Education: Guidelines and principles for teachers*. Cape Town: Juta & Co. p.57-84. ISBN: 9781485124870.

Ward-Smith, C.

Ward-Smith, C., Olvitt, L.L. and Akhurst, J. (2019) Toward Decolonizing Nature-Based Pedagogies: The Importance of Sociocultural History and Socio-materiality in Mediating Children's Connectedness-with-Nature. In: Cutter-Mackenzie-Knowles, A., Malone, K. and Barratt Hacking, E. (eds.). *Research Handbook on Childhood nature*. Switzerland: Springer International Publishing. p.1-27. ISBN: 9783319672854.

## Concerts, Exhibitions, Performances, Workshops, Events

Chikiwa, C.

Chikiwa, C. Facilitator. Problem solving in school mathematics: How visualisation can assist? *25th Annual National Congress of the Association for Mathematics Education of South Africa (AMESA)*. University of KwaZulu-Natal, Pine Town. South Africa. 1 - 5 July 2019.

Dongwi, B.L.

Dongwi, B.L. Workshop Facilitator. Research Methods. *National Mathematics Congress, Namibia*. Namib High School, Swakopmund. Namibia. 6 - 9 May 2019.

## International Visits

Schafer, M.

Schafer, M. University of Turin, Turin, Italy. *Invited lecture-Consolidating a visualisation research agenda into a coherent narrative: our story in Grahamstown*. 6 - 13 November 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Mgqwashu, E.M.

Leibowitz, B., Mgqwashu, E.M., Kasanda, C., Lefoka, P., Lunga, V. and Shalyefu, R.K. (2019) Decolonising research: The use of drawings to facilitate place-based biographic research in southern Africa. *Journal of Decolonising Disciplines*. 1 (1). p.28-46.

Mgqwashu, E.M. (2019) Education for public good in the age of coloniality: Implications for pedagogy. *Journal of Decolonising Disciplines*. 1 (1). p.64-81.

Wilmot, D.

Wilmot, D. and Manik, S. (2019) Geography Education: Southern Africa Staking a Claim. *Journal of Geography Education for Southern Africa*. 4 (2). p.8-10.

Wilmot, D. and Naxweka, J.N. (2019) Namibian teachers' perceptions and experiences of teaching mapwork. *Journal of Geography Education for Southern Africa*. 4 (2). p.39-55.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Brown, B.

Albin, S. and Brown, B. (2019) Developing Namibian Grade 8 Learners' Conceptions of Fractions Using Visual Models. *African Journal of Research in Mathematics, Science and Technology Education*. 23 (2). p.206-218.

Brown, B. (2019) Rational number understanding: The big picture, not the essence. *South African Journal of Childhood Education (SAJCE)*. 9 (1). p.1-8.

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Chikiwa, C. and Schafer, M.

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Chikiwa, S., Westaway, L. and Graven, M.

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knowledge for teaching is used by a Grade 2 teacher when teaching counting. *South African Journal of Childhood Education (SAJCE)*. 9 (1). p.1-9.

**Cockburn, J.**

**Cockburn, J., Cundill, G., Shackleton, S.E., Rouget, M., Zwinkels, M., Cornelius, S.F.A., Metcalfe, L. and van den Broeck, D.** (2019) Collaborative stewardship in multifunctional landscapes: toward relational, pluralistic approaches. *Ecology and Society*. 24 (4). p.1-17.

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**Wolff, M.G., Cockburn, J., De Wet, C., Carlos Bezerra, J., Weaver, M.J.T., Finca, A., De Vos, A., Ralekhetla, M.M., Libala, N., Mkabile, Q., Odume, N.O. and Palmer, C.G.** (2019) Exploring and expanding transdisciplinary research for sustainable and just natural resource management. *Ecology and Society*. 24 (4). p.1-10.

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**Graven, M.**

**Graven, M. and Venkat, H.** (2019) Piloting national diagnostic assessment for strategic calculation. *Mathematics Education Research Journal*. 2019. p.1-20.

**Graven, M. and Heyd-Metzuyanim, E.** (2019) Mathematics identity research: the state of the art and future directions. *ZDM: Mathematics Education*. 51 (2019). p.361-377.

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**James, A.**

**James, A.** (2019) Making (Non) Sense of Urban Water Flows: Qualities and Processes for Transformative and Transgressive Learning Moments. *Sustainability*. 11 (6817). p.1-21.

**Johanson Botha, L.**

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South Africa. *Critical studies in Teaching and Learning*. 7 (2019). p.76-101.

**Moodly, A.L.**

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## Peer-reviewed Proceedings

**Baart, N.**

Baart, N. Investigating the Nature of Grade Six After School Mathematics Club Learners' Shifts in Mathematical Number Sense and Procedural Fluency. *AMESA - Developing Deep Mathematical Thinking through Mathematics Teaching*. University of KwaZulu-Natal, Edgewood Campus, Pinetown, KwaZulu-Natal. South Africa. July 2019.

**Brown, B.**

Brown, B., Goos, M., Jojo, Z., Lampen, E., Mc Auliffe, S. and Runesson Kempe, U. Working Group: Mathematical Thinking. *43rd Annual Conference of the International Group for the Psychology of Mathematics Education (PME43)*. University of Pretoria, Pretoria. South Africa. July 2019.

Brown, B. Student Teachers' Use of Measurable Properties. *Psychology in Mathematics Education (PME) Conference*. University of Pretoria, Pretoria. South Africa. July 2019.

**Chikiwa, C.**

Chikiwa, C. Multilingual class teaching of Geometry and Trigonometry: What is lost in translation? *Annual National Congress of the Association for Mathematics Education of South Africa (AMESA)*. University of KwaZulu-Natal, Durban. South Africa. July 2019.

**Chikiwa, C. and Schafer, M.**

Chikiwa, C. and Schafer, M. Visualisation Processes in Selected Namibian Mathematics Classrooms. *ISTE International Conference: Towards Effective Teaching and Meaningful Learning in Mathematics, Science and Technology Education*. Mopani Camp, Kruger National Park, Mpumalanga. South Africa. October 2019.

Chikiwa, C. and Schafer, M. Visualisation processes in mathematics classrooms - The case of gestures. *PME 43 Conference of International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. South Africa. July 2019.

**Chikiwa, S. and Graven, M.**

Chikiwa, S. and Graven, M. Using video-based Mathematics Lesson Analysis to Develop Pre-service Teachers' Reflective Practice. *42nd Annual Conference of the Mathematics Education Research Group of Australasia (MERGA): Mathematics Education Research - Impacting Practice*. Curtin University, Perth. Australia. July 2019.

**Dongwi, B.L. and Schafer, M.**

Dongwi, B.L. and Schafer, M. The Co-Emergence of Visualisation and Reasoning Processes in Mathematical Problem Solving: An Enactivist Interpretation. *Psychology in Mathematics Education (PME) Conference*. University of Pretoria, Pretoria. South Africa. July 2019.

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**Durr, S.J. and Lotz-Sisitka, H.**

Durr, S.J. and Lotz-Sisitka, H. Exploring the Social Learning Value Enabled by Affordances of the Food For Us Mobile Application: The Story of a South African Food Redistribution App. *15th International Conference on Mobile Learning 2019*. University of Applied Sciences, Utrecht. The Netherlands. April 2019.

**Graven, M. and Vale, P.**

Cortina, J.L., Višňovská, J., Graven, M. and Vale, P. Instructional Design in Pursuing Equity: The Case of the 'Fraction as Measure' Sequence. *SAARMSTE Durban 2019 - Research for inclusive, relevant and equitable quality Mathematics, Science and Technology Education: Promoting research-based opportunity for all*. Southern Sun Elangeni Maharani Hotel, Durban, KwaZulu-Natal. South Africa. January 2019.

**Machaka, R.E. and Chikiwa, C.**

Machaka, R.E. and Chikiwa, C. Visualisation processes for teaching patterns in intermediate phase: A case of Grade 6 teachers. *Annual National Congress of the Association for Mathematics Education of South Africa*. University of KwaZulu-Natal, Durban. South Africa. July 2019.

**Moodly, A.L.**

Moodly, A.L. and Toni, N. Intrinsic and Extrinsic Factors in Empowerment of Women towards Leadership: A Study in Higher Education (South Africa). *2nd International Conference on Gender Research (ICGR 2019)*. Roma Tre University, Rome. Italy. April 2019.

**Napier, A. and Moodly, A.L.**

Napier, A. and Moodly, A.L. Aesthetic Elements Enhancing Healthy and Safe Environments: With Reference to Eastern-Cape Province Based Schools in South Africa. *Academics World 131st International Conference*. Singapore. June 2019.

**Robertson, S.A. and Graven, M.**

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Robertson, S.A. and Graven, M. Yes, it is "Immersion" of a Sort, But Not One That Conduces to Mathematical Sense-making. *42nd Annual Conference of the Mathematics Education Research Group of Australasia (MERGA): Mathematics Education Research - Impacting Practice*. Curtin University, Perth. Australia. July 2019.

**Schafer, M.**

Schafer, M. The role of gestures in the teaching of mathematics. *53th Annual Meeting of the Society for Didactics of Mathematics (GDM)*. University of Regensburg, Regensburg. Germany. March 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Baart, N. and Graven, M.**

Baart, N. After-school mathematics club learners' shifts in number sense and procedural fluency. *The 43rd Annual Meeting of the International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. South Africa. July 2019.

**Bell, C.**

Bell, C. How up-skilling opportunities and practices enable learning in, through and for workplaces in the marine sector of South Africa: exploring the material aspects within a critical realist framework. *Researching Work and Learning 11, Configuring Enterprises as Spaces for Learning: Possibilities, Risks and Limits*. Giessen. Germany. July 2019.

**Bhurekeni, J.**

Bhurekeni, J. Finding the Logic of Connectivity between Sociocultural Learning Theory and Community of Inquiry in Philosophy for Children. *Rhodes University/ Umea University PHD International Exchange Week*. Rhodes University, Makhanda. South Africa. March 2019.

**Bhurekeni, J.** A Sociocultural Philosophy for Children Intervention:

Case of Sebakwe Primary Schools. Joining the academic conversation. *Centre for Postgraduate Studies*. Rhodes University, Makhanda. South Africa. August 2019.

**Chikiwa, C. and Ssenyomo, B.J.**

Chikiwa, C. and Ssenyomo, B.J. Visualization processes in conceptual teaching of word problems in grade 9 mathematics classes. *Conference on Mathematics, Science and Technology Education in Africa (COMSTEDA)*. CEMASTE, Nairobi. Kenya. December 2019.

**Chikiwa, C., Katenda, A.K. and Schafer, M.**

Chikiwa, C., Katenda, A.K. and Schafer, M. investigating how the use of visual models can enhance the teaching of common fractions for conceptual understanding in grade 8 learners: A Namibian case study. *27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education*. University of KwaZulu-Natal, Durban. South Africa. January 2019.

**Chikiwa, C., Matengu, G.K. and Schafer, M.**

Chikiwa, C., Matengu, G.K. and Schafer, M. An analysis of how the use of geoboards as visualisation tools can be utilized in the teaching



of quadrilaterals: A Namibian case study. *27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education*. University of KwaZulu-Natal, Durban. South Africa. January 2019.

**Chikiwa, S.**

**Chikiwa, S.** Pre-service teachers' reflective practice and mathematical knowledge for teaching. *Rhodes University/Umea University International Exchange Week: Education, the public good and transformative practices - Understanding our research as a contribution nationally and globally*. Rhodes University, Makhanda. South Africa. March 2019.

**Chikiwa, S.** Developing pre-service teachers' reflective practice and the knowledge required to teach mathematics. *The 27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education*. Elangeni, Durban. South Africa. January 2019.

**Chikiwa, S., Westaway, L. and Graven, M.**

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**Chikunda, C.**

**Chikunda, C.** Backcasting from ED Principles: Towards (re)energizing transformative agency in teacher and TVET Education in Southern Africa. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Cockburn, J.**

**Cockburn, J. and Cornelius, S.F.A.** Co-hosted workshop session: A relational approach to landscape sustainabilities: from concept to practice through a "Fruit Salad Exchange". *SUSPLACE Conference*. Tampere. Finland. May 2019.

**Cockburn, J.** Exploring competencies for scholars learning the 'transdisciplinary triple jump': Learning-by-Relating. *Leverage Points Conference*. Luneburg. Germany. February 2019.

**Cockburn, J. and Graf, J.** Shifting the role of science in community-based landscape restoration: from science FOR science WITH society. *8th World Conference on Ecological Restoration*. Cape Town. South Africa. September 2019.

**Graf, J. and Cockburn, J.** Towards a praxis of systems thinking, learning, and collective action for resilient and equitable restoration: synthesis and examples from two southern African catchments. *8th World Conference on Ecological Restoration*. Cape Town. South Africa. September 2019.

**Cockburn, J. and Rosenberg, E.**

**Cockburn, J., Cundill, G., Shackleton, S.E. and Rosenberg, E.** Is this for real? An application of critical realism to enable the practice of strong transdisciplinarity. *Leverage Points Conference*. Luneburg. Germany. February 2019.

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**Da Silva, J.S.**

**Da Silva, J.S.** É Corrego ou Valao? Competencias para a sustentabilidade em uma intervenção em ensino médio. *VI National Congress of Environmental Education & VIII Northeast Meeting of Biogeography*. Federal University of Paraíba, Paraíba. Brazil. November 2019.

**Durr, S.J. and Lotz-Sisitka, H.**

**Durr, S.J. and Lotz-Sisitka, H.** Exploring the social learning value enabled by affordances of the Food for Us mobile application: A South African Food redistribution case study. *15th International Conference on Mobile Learning 2019*. Utrecht. Netherlands. April 2019.

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**Durr, S.J., Tantsi, T. and Lotz-Sisitka, H.**

**Durr, S.J., Tantsi, T. and Lotz-Sisitka, H.** Social learning and innovation, findings, a food surplus and market transformation mobile application initiative (Food for Us). *Agroecology for the 21st century Conference*. Cape Town. South Africa. January 2019.

**Glen, N.**

**Glen, N.** Rural Tourism Development: Exit opportunities for expanded public works programme. *3rd International Conference on Sustainable Tourism Management*. ICSTM 2019, Budapest. Hungary. August 2019.

**Graven, M.**

**Graven, M. and Heyd-Metzuyanim, E.** Mathematics Identity Research - Where have we got to and where to from here. *The 42nd Annual Conference of the Mathematics Education Research Group of Australasia*. Curtin University, Perth. Australia. July 2019.

**Višňovská, J. and Graven, M.** Fractions: Stories of learning to measure. *Queensland Association of Mathematics Teachers Early Years Conference*. Moorooka. Australia. February 2019.

**Graven, M. and Venkat, H.** Diagnostic Assessments for supporting moves towards strategic calculating and reasoning. *The 27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education*. Elangeni, Durban. South Africa. January 2019.

**Graven, M.** Merging research and development for equity: Building mathematics learning communities. *Presentation to the Faculty of Education, Flinders University, Adelaide, Australia*. March 2019.

**Heath, G.E.C.**

**Heath, G.E.C.** Catchment and river management in graduate teacher education: a case study of student teacher learning and teaching in the Upper uThukela valley, KwaZulu-Natal. *International Mountain Conference*. Innsbruck. Austria. September 2019.

**Hokonya, W.M., Vale, P. and Graven, M.**

**Hokonya, W.M., Vale, P. and Graven, M.** Mathematical learner identities of learners who participated in after-school mathematics clubs. *The 43rd Annual Meeting of the International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. Australia. July 2019.

**Hokonya, W.M., Vale, P. and Graven, M.** Narrative mathematical learner identities of high school learners. *The 42nd Annual Conference*



Professor Graven and Dr Pam Vale facilitated training of subject advisors as part of the Diagnostic Assessment research trial in the Eastern Cape, Gauteng and North West Province  
Credit: Department of Education

of the Mathematics Education Research Group of Australasia. Curtin University, Perth. Australia. July 2019.

**Human, J.S.**

**Human, J.S.** Reflecting beneficiaries' voices through development of social indicators for monitoring change. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Human, J.S.** Reflection and Well-being teas as a method for researching Education for Sustainable Development. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Ijabadeniyi, A. and Lotz-Sisitka, H.**

**Ijabadeniyi, A. and Lotz-Sisitka, H.** Social responsibility and corporate heritage identity at the crossroads: Implications for social learning. *18th International Conference on Corporate Social Responsibility*. Barcelos. Portugal. September 2019.

**Ijabadeniyi, A. and Lotz-Sisitka, H.** Conference Proceeding: Social responsibility and corporate heritage identity at the crossroads: Implications for social learning. *18th International Conference on Corporate Social Responsibility*. Barcelos. Portugal. September 2019.

**Jalasi, E.**

**Jalasi, E.** An integrated analytical framework for rural women's agency pathways in Improved Cook Stove programme. *37th Annual Conference for the Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**James, A.**

**James, A.** A space to voice and a time for listening: Arts-based inquiry as transformative learning from an educator's perspective. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Kangwa, L. and Schafer, M.**

**Kangwa, L. and Schafer, M.** Student teachers' use of short video clips as a visualisation medium in the teaching of Mathematics. *27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*. University of KwaZulu-Natal, Durban. South Africa. January 2019.

**Kangwa, L. and Schafer, M.** The Incorporation of GeoGebra as a Visualisation tool to teach Calculus in Teacher Education Institutions: The Zambian case. *Conference on Mathematics, Science and Technology Education in Africa (COMSTEDA)*. Nairobi. Kenya. December 2019.

**Long, R.**

**Long, R.** Analysing institutional identities authorised for South African foundation year teachers. *The 42nd Annual Conference of the Mathematics Education Research Group of Australasia*. Curtin University, Perth. Australia. July 2019.

**Long, R. and Graven, M.**

**Long, R. and Graven, M.** Merging analytical frameworks for grade R teacher identity stories. *The 43rd Annual Meeting of the International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. South Africa. July 2019.

**Lotz-Sisitka, H.**

**Lotz-Sisitka, H.** T-learning in Times of Climate Change: Implications for Educational Research. *South Africa - Sweden Invitational Research Seminar*. Stellenbosch. South Africa. May 2019.

**Lotz-Sisitka, H.** Plenary Presentation: Global Change Social Science in South Africa. What thematic areas should we tease out from our current realities for a more sustainable, just future? A discussion starter. *Global Change Social Science Research Programme Workshop*. University of Witwatersrand, Johannesburg. South Africa. July 2019.

**Lotz-Sisitka, H.** Plenary Address: Sustainability Starts with Teachers. Johannesburg. *UNESCO Global Citizenship Education through Teachers GCED networking meeting*. Johannesburg. South Africa. October 2019.

**Lotz-Sisitka, H.** Engaging Teachers in Sustainability: Plenary keynote address: An overview of the Sustainability Starts with Teachers Programme. *UNESCO CAP-ESD Sustainability Starts with Teachers Programme Workshop*. Gaborone. Botswana. July 2019.

**Lotz-Sisitka, H.** Keynote Paper: Sustainability Starts with Teachers - Towards design of an ESD Teacher Education Capacity Building Programme. *UNESCO Sustainability Starts with Teachers Inception Meeting*. UNESCO, Harare. Zimbabwe. January 2019.

**Lotz-Sisitka, H.** Keynote Paper: Re-thinking Curriculum and 'Knowledge Flow'. Exploring five interconnected mediation processes in the Amanzi [Water] for Food project in the Eastern Cape, South Africa. *Colloquium on Rurality in South African Higher Education*. University of Johannesburg, Johannesburg. South Africa. May 2019.

**Lotz-Sisitka, H.** Plenary Panel Contribution: T-learning Research in Times of Climate Change: Lessons for Research Policy. *Belmont Forum 10th Anniversary*. Taipei. Taiwan. October 2019.

**Lotz-Sisitka, H.** Keynote Paper: The [changing] roles of universities in new forms of development. *UNESCO/SADC Conference of VCs and Deans of Higher Education, Science, Engineering and Technology*. Harare. Zimbabwe. February 2019.

**Lotz-Sisitka, H.** Keynote Paper: Education for Sustainable Development - a field of Practice in Transition. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Lotz-Sisitka, H.** Keynote Paper: Education and research in times of ongoing and amplifying dehumanizing tendencies, failures, risk and uncertainty. Towards Transgression. *European Educational Research Association ECER2019*. University of Hamburg, Hamburg. Germany. September 2019.

**Lotz-Sisitka, H.** The Child and the Curriculum: Some Perspectives from the global South. *Advisory research meeting on the Child and Curriculum Research Programme*. Umea University, Umea. Sweden. December 2019.

**Lotz-Sisitka, H. and Metelerkamp, L.**

McGrath, S., Lotz-Sisitka, H., Metelerkamp, L., Monk, D., Omario, D., Openjuru, D., Ramsarup, P., Russon, J., Wedekind, V. and Zeelen, J. The Limits of VET Inclusion in Africa: Critical Reflections from South Africa and Uganda. *UKFIET Education and Development Forum, Inclusive Education Systems*. The University of Oxford Examination Schools, Oxford. United Kingdom. September 2019.

**Lotz-Sisitka, H., Jalasi, E., Thifhulufhelwi, R., Weaver, M.J.T., Chikunda, C., Mukwambo, R. and Olvitt, L.L.**

**Lotz-Sisitka, H., Jalasi, E., Thifhulufhelwi, R., Weaver, M.J.T., Chikunda, C., Mukwambo, R. and Olvitt, L.L.** Expansive Learning, Sustainability and the Common Good: Cultural Historical Activity Theory Double Symposium. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Maqwelane, L., Matiwan, L.M. and Lotz-Sisitka, H.**

**Pesanayi, T., Maqwelane, L., Matiwan, L.M. and Lotz-Sisitka, H.** Generative grassroots learning in reconfiguring the agrarian landscape through local learning networks in changing times. *Agroecology for the 21st century Conference*. Cape Town. South Africa. January 2019.

**McGarry, D.**

**McGarry, D.** and Erwin, K. Social and Cultural responses required to reversing 2050 - the Global Overfishing Crisis. *Wild Oceans Ocean Stewards Marine Science Session Programme*. University of KwaZulu-Natal, Durban. South Africa. September 2019.

**Metelerkamp, L.**

**Metelerkamp, L.** Learning as change: Youth and niche environments in food system transitions. *Agroecology for the 21st century Conference*. Cape Town. South Africa. January 2019.

**Mtati, N.**

**Mtati, N.** Engaging local citizens in scientific monitoring for catchment restoration: Benefits and Recommendations for Optimising Benefits. *Tsitsa Project Colloquium*. Rhodes University, Makhanda. South Africa. October 2019.

**Mtati, N.** Engaging local citizens in scientific monitoring for catchment restoration: Benefits and Recommendations for Optimising Benefits. *Society of Ecological Restoration*. Cape Town. South Africa. September 2019.

**Mukwambo, R.**

**Mukwambo, R.** Mediate and Examine Expansive Learning in the Context of Multidimensional Complexities Affecting Household Food Security Activity Systems in Nyanyadzi Irrigation Scheme in The Manicaland Province of Zimbabwe. *Joining the academic conversation, Centre for Postgraduate Studies*. Rhodes University, Makhanda. South Africa. August 2019.



**Mukwambo, R.** Understanding the intergenerational historicity of a complex object to surface contradictions in an irrigation scheme. *37th Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Nakakuwa, T.**

**Nakakuwa, T.** Using GeoGebra as a dynamic mathematics software tool for mathematical modelling in school mathematics. *Research School Southern African Association for Research in Mathematics, Science and Technology Education (SAARMSTE)*. University of Pretoria, Pretoria. South Africa. July 2019.

**Olvitt, L.L.**

**Olvitt, L.L.** Amanzi for Food: learning for sustainability in preschool, school and society, an open lecture to student teachers. *Umeå University Exchange Programme*. Umea University, Umea. Sweden. January 2019.

**Olvitt, L.L.** The Environmental Learning Research Centre, its profile and challenges lecture to student teachers. *Umeå University Exchange Programme*. Umea University, Umea. Sweden. January 2019.

**Olvitt, L.L.** Counter-hegemonic concept formation - a cross cutting leverage point in sustainability transformations? *Leverage Points Conference*. University Leverage Points, Luneburg. Germany. February 2019.

**Olvitt, L.L.** Pedagogies to help make environmental ethics an everyday activity: Reflections on a sourcebook for educators. *IAEE International Association of Ethics Education Conference*. Porto. Portugal. July 2019.

**Olvitt, L.L. and Royle, C.**

**Olvitt, L.L. and Royle, C.** The EEASA Journal and EEASA Bulletin: Giving voice to Southern African EE/ESD research. *37th Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Price, L.**

**Price, L. and Zotman, K.** Discourse studies, social constructionism and 'post-truth': What critical realists can learn from Angermüller Or Why one ought not to be a pragmatist. *22th IACR Annual Conference*. University of Southampton, Southampton. United Kingdom. July 2019.

**Ramsarup, P., Rosenberg, E. and Lotz-Sisitka, H.**

**Ojo, E., Ramsarup, P., Rosenberg, E. and Lotz-Sisitka, H.** Integrating Sustainability into Economics Curricula: The green economy within EMS and Business Studies Curricula. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Raven, G. and Rosenberg, E.**

**Raven, G. and Rosenberg, E.** A realistic(ic) evaluation of costs and benefits of work-based learning: the intangible becoming tangible. *4th International Professional Practice, Education and Learning Conference 2019*. University of Technology, Sydney. Australia. December 2019.

**Robertson, S.A. and Graven, M.**

**Robertson, S.A. and Graven, M.** Home language as a resource for accessing the power of mathematics. *The 43rd Annual Meeting of the International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. South Africa. July 2019.

**Rosenberg, E.**

**Rosenberg, E.** How to identify green skills and training needs - What we learnt in South Africa: A remote panel presentation. *TVET and Skills for Sustainability and a Green Economy in Zimbabwe and the Region*. UNESCO Regional Office Southern Africa, Harare. Zimbabwe. February 2019.

**Rosenberg, E.** The skills we need for monitoring and evaluation: A deep dive. *South African Monitoring and Evaluation Association 7th Biennial SAMEA Conference*. Emperors Conference Centre, Johannesburg. South Africa. October 2019.

**Rosenberg, E.** Keynote address: Making Light of a Heavy Topic: Monitoring, Evaluation, Reporting and Learning. *Garden Route Interface Meeting*. Pinelake Conference Centre, Sedgfield. South Africa. September 2019.

**Rosenberg, E.** Surprising social causes of land degradation and research priorities in Mining and Expanded Public Works Programmes. *Biodiversity Research and Evidence Indaba with Department of Environment Affairs*. Diep-in-die-Berg, Pretoria. South Africa. September 2019.

**Rosenberg, E.** Considering green skills and occupations in achieving the National Development Plan and future skills sets required. Commission 3. Building a demand-led skills development system that focuses on inclusive economic growth. *2019 National Skills Conference and Awards*. Boksburg. South Africa. March 2019.

**Rosenberg, E.** Development of a SETA Monitoring and Evaluation Framework. Commission 5. Building a demand-led skills development system that focuses on inclusive economic growth. *2019 National Skills Conference and Awards*. Boksburg. South Africa. March 2019.

**Rosenberg, E. and Biggs, H.C.** Is changing the way goals are assessed a key leverage point? *Leverage Points: International Conference on Sustainability Research and Transformation*. Leuphana University, Luneburg. Germany. February 2019.

**Rosenberg, E.** Commodity value chain analysis as a sustainability education process: Case studies from South Africa and Sweden. *Comparative International Education Society*. San Francisco. USA. April 2019.

**Rosenberg, E. and Ramsarup, P.**

**Ojo, E., Rosenberg, E. and Ramsarup, P.** Fundisa for Change Green Economy Materials and Teacher Educator Training. Workshop presentation. *37th Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Rosenberg, E. and Royle, C.**

**Rosenberg, E., Naude, R. and Royle, C.** Value Chain Analysis as a Creative Methodology for Environment & Sustainability Education. Workshop presentation. *37th Environmental Education Association of Southern Africa Conference*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Rosenberg, E. and Ward, M.**

**Rosenberg, E. and Ward, M.** Learning from evaluation: climate change as a complex Issue requiring comprehensive, realist evaluations to distil implementation lessons and build theory. *South African Monitoring and Evaluation Association 7th Biennial SAMEA Conference*. Emperors Conference Centre, Johannesburg. South Africa. October 2019.

**Rosenberg, E., Ramsarup, P. and Lotz-Sisitka, H.**

**Rosenberg, E., Ramsarup, P. and Lotz-Sisitka, H.** The Green Skills Project. Lessons for Skills Planning. *Mini Environmental Skills Summit with Environmental Education Association of Southern Africa Conference 2019 and Department of Environment Affairs*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Schudel, I.**

**Schudel, I.** Action-orientated and transformative pedagogy in foundation phase classrooms. *37th Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Schudel, I.** Transformative environmental learning in teacher education research programme. Mini Fundisa for Change Summit at *37th Environmental Education Association of Southern Africa Conference with Department of Environment Affairs*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Thifhulufhelwi, R.**

**Thifhulufhelwi, R.** Deep-rooted power dynamics contradictions in Natural Resource Management Practices can be transformed via boundary crossing formative interventions. *37th Environmental Education Association of Southern Africa*. Kaponong Conference Center, Benoni. South Africa. October 2019.

**Thifhulufhelwi, R., Graf, J. and Mithali, S.** Creating collective socioecological learning spaces for transformative learning and custodianship building in natural resource management practices. *Society of Ecological Restoration 2019 Meeting*. Cape Town. South Africa. September 2019.

**Thifhulufhelwi, R.** Collaboratively planning for the implementation of Sand-CPAs Restoration Project and to explore a vision for the current and future NRM restoration work. *Visioning workshops for building partnerships for Restoration NRM practices*. AWARD, Hoedspruit. South Africa. August 2019.



**Thifhulufhelwi, R. and Chikunda, C.**

**Thifhulufhelwi, R. and Chikunda, C.** Decolonization and democratization of livelihoods: Restoring humanland relations through co-management of natural resources. *Society of Ecological Restoration 2019 Meeting*. Cape Town. South Africa. September 2019.

**Vale, P.**

Višňovská, J., Cortina, J.L. and **Vale, P.** Building learning opportunities in classrooms of disadvantage: Rethinking the learning trajectories (workshop presentation). *International Symposium Elementary Mathematics Teaching*. Charles University, Prague. Czech Republic. August 2019.

Višňovská, J. and **Vale, P.** On supporting students' mathematical conversations: The case of fractions as measures. *Mathematics Education Research Group of Australasia Teachers' Day*. Curtin University, Perth. Australia. June 2019.

**Vale, P. and Graven, M.**

**Vale, P. and Graven, M.** South African teachers' enactment of a new approach to the teaching of fractions. *The 43rd Annual Meeting of the International Group for the Psychology of Mathematics Education*. University of Pretoria, Pretoria. South Africa. July 2019.

**Vale, P., Graven, M., Višňovská, J. and Cortina, J.L.** Communicating mathematical concepts in diverse languages - lessons from a cross-continental collaboration. *The Mathematics Education Research Group of Australasia*. Curtin University, Perth. Australia. July 2019.

**Van Borek, S.**

**Van Borek, S.** "The Praxis Process of Building Towards a Relational Model of Curriculum Oriented Towards Reconciliation". *The Decolonial Turn and the Humanities Curriculum: Prospects, Practice and Interventions Conference*. University of South Africa, Pretoria. South Africa. July 2019.

**Van Borek, S.** An Arts-Based Praxis Process of Building Towards a Relational Model of Curriculum Oriented Towards Reconciliation. *The Decolonial Turn and the Humanities Curriculum: Prospects, Practice and Interventions*. University of Pretoria, Pretoria. South Africa. July 2019.

**Van Borek, S.** Conference Proceedings: The Praxis Process of Building Towards a Relational Model of Curriculum Oriented Towards Reconciliation. *The Decolonial Turn and the Humanities Curriculum: Prospects, Practice and Interventions*. University of South Africa, Pretoria. South Africa. July 2019.

**Van Staden, W.**

**Van Staden, W.** The integration of sustainable and climate responsive practices into the agricultural curricula of South Africa. *Sustainable Agriculture and Food Systems Summit*. Berlin. Germany. September 2019.

**Ward, M.**

**Ward, M.** Panel member: Framing the Climate Change and Building Resilience stream. *South African Monitoring and Evaluation Association 7th Biennial SAMEA Conference*. Emperors Conference Centre, Johannesburg. South Africa. October 2019.

**Ward, M.** Joint presentation with Professor Mervyn King on Integrated Reporting. *Institute of Directors South Africa*. Durban. South Africa. October 2019.

**Ward, M.** Revealing mechanisms in a transdisciplinary community reforestation research programme. *South African Monitoring and Evaluation Association 7th Biennial SAMEA Conference*. Emperors Conference Centre, Johannesburg. South Africa. October 2019.

**Westaway, L., Chikiwa, S. and Vale, P.**

**Westaway, L., Chikiwa, S. and Vale, P.** The role of video in the development of preservice teachers' mathematics lesson planning. *The 27th Annual Meeting of the Southern African Association for Research in Mathematics, Science and Technology Education*. Elangeni, Durban. South Africa. January 2019.

**Wilmot, D.**

**Wilmot, D.** Recontextualizing geography education for environment and sustainability: southern African perspectives. *International Geography Union (IGU) Commission on Geographical Education Symposium*. Institute of Education, London. United Kingdom. April 2019.

# 2019

## DEPARTMENT OF ENGLISH LANGUAGE AND LINGUISTICS



Staff remained active in their research endeavours during 2019, and presented their work at international and local conferences and symposia, as well as publishing papers.

Professor de Vos, with his collaborators did a presentation at the 8th Southern African Microlinguistics Workshop at the University of KwaZulu-Natal. In addition, Professor de Vos served as a panellist at the Volkswagen Community Trust Literacy Conference in Uitenhage.

Dr Siebörger presented his work at the Legitimation Code Theory Conference held at the University of the Witwatersrand, while Ms Probert presented her work at the annual conference of the Literacy Association of South Africa held at the University of Cape Town as well as at the annual conference of the Southern African Linguistics and Applied Linguistics Society held at the University of the Witwatersrand.

Dr Bennett, a Senior Research Associate, presented his work at the 8th World Conference on Phonology held at the University of Verona in Italy.

Professor Adendorff continued serving on the Board of the Dictionary of South African English and on the national (PANSALB-affiliated) English Language Board. He and Professor Simango continued to serve as members of the Academy of Science of South Africa. Professor de Vos continued serving as President of the Southern African Linguistics and Applied Linguistics Society. Professor Simango continued serving as a non-executive director of the Molteno Institute for Language and Literacy.

### Postgraduates / Graduations

Three (3) Postgraduate candidates graduated with PhD degrees and a further three (3) students graduated with MA degrees. In addition, nine (9) Postgraduates continued with their PhD studies and a further ten (10) continued with their MA studies. A number of these Postgraduate students presented their work at the mini-linguistics conference which was held at the beginning of September 2019.

#### *Grade 5 learners with their personal library boxes*

*Rhodes University English Language and Linguistics students handed over personal libraries to Samuel Ntsiko Primary School learners after their Linguistics and Community Service-Learning module recently came to an end. The 'personal libraries' consisted of one box per learner, each filled with the Nal'ibali books which the learners and students had been reading together for the past 12 weeks, a book specifically chosen according to each learners' grade level (donated to the department by the DG Murray Trust) and a storybook written by the students specifically tailored to their learner. Tracy Probert, who lectures the Linguistics and Community Service-Learning module, described the handover as a bitter-sweet moment. "Although learners were excited about being presented with their very own personalised library boxes, they were sorry that the module had come to an end," she explained.*

*Credit: Department of English Language and Linguistics*

## Distinguished Visitors / International Visits

The department hosted two (2) African Humanities Program Postdoctoral Research Fellows - both from Ghana - for a period of eight (8) weeks. The scholars presented some of their works at research seminars and also interacted with staff and Postgraduate students.

## Significant Research Aligned Events

At the beginning of July 2019 the department hosted the 5th African Linguistics School. This was the first time that the School was held in South Africa. The school was attended by fifty (50) Postgraduate students and Postdoctoral Research Fellows from around the African continent and Europe and was taught by eminent linguists currently working at universities in Europe and North America. Professor Simango was among the staff who taught at this two (2)-week intensive programme.

**Professor Silvester Ron Simango**

*Head of Department*

## Books/Chapters/Monographs

**De Vos, M.**

**De Vos, M.** (2019) Indigenous Literacy in South Africa: an Argument for Psycholinguistically Responsive Teaching. In: Kirk, P. and Cocq, C. (eds.). *Perspectives on Indigenous Writing and Literacies*. Leiden: Brill. p.186-202. ISBN: 9789004298514.

## Concerts, Exhibitions, Performances, Workshops, Events

**De Vos, M.**

**De Vos, M.** Panelist. Volkswagen Community Trust 4th Literacy Conference: Read to Succeed. *How can we bring together decoding and reading comprehension skills to nurture successful readers?* VW People's Pavillion, Uitenhage. South Africa. 14 November 2019.

**Sieborger, I.**

**Sieborger, I.** Presenter. Introduction to Specialization. *Legitimation Code Theory Conference 3*. University of the Witwatersrand Education Campus, Johannesburg. South Africa. 1 July 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Bennett, W.G.**

DelBusso, N. and **Bennett, W.G.** (2019) ABP and ABC: Agreement with/out correspondence. *Phonological Data & Analysis*. 1 (3). p.1-25.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Hunt, S.**

**Hunt, S.** and Jaworska, S. (2019) Intersections of nationality, gender, race and crime in news reporting: The case of Oscar Pistorius - Olympian and murderer. *Discourse Context & Media*. 30 (2019). p.1-11.

**Probert, T.**

**Probert, T.** (2019) A comparison of the early reading strategies of isiXhosa and Setswana first language learners. *South African Journal of Childhood Education (SAJCE)*. 9 (1). p.1-12.

## Peer-reviewed Proceedings

**Bennett, W.G.**

**Bennett, W.G.**, Kimper, W., Green, C.R. and Yu, K. Acoustic correlates of harmony classes in Somali. *47th Annual Conference on African Linguistics*. UC Berkeley, Berkeley, California. USA. April 2018.

**Bennett, W.G.** 'Backwards' sibilant palatalization in a variety of Setswana. *47th Annual Conference on African Linguistics*. UC Berkeley, Berkeley, California. USA. April 2018.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Bennett, W.G.**

**Bennett, W.G.** When "better coverage" isn't enough: comparing theories of agreement & correspondence. *16th Old World Conference on Phonology*. University of Verona, Verona. Italy. January 2019.

**De Vos, M. and Mitchley, H.J.**

**De Vos, M.**, Riedel, K., Nevins, A., Willer Gold, J., Zeller, J., **Mitchley, H.J.**, Mokoaleli, M. and Didi, M. From Micro to Macro: Testing theoretical syntactic models of Bantu conjunct agreement through experimental approaches on a larger scale. *Southern African Microlinguistics Workshop 8*. UKZN, Durban. South Africa. November 2019.

**Probert, T.**

**Probert, T.** "Switch brain switch": Exploring the impact of translanguaging pedagogy on literacy development in pre-Grade R learners. *Literacy Association of South African Annual Conference*. University of Cape Town, Cape Town. South Africa. July 2019.

**Probert, T.** The roles of phonological awareness, rapid automatized naming and morphological awareness in isiXhosa. *SAALT and SALALS Joint Annual Linguistics Conference*. University of the Witwatersrand, Johannesburg. South Africa. July 2019.

**Sieborger, I.**

**Sieborger, I.** A translation device for axiological-semantic density in Daily Sun articles. *Legitimation Code Theory Conference 3*. University of the Witwatersrand Education Campus, Johannesburg. South Africa. July 2019.





The Department continues to punch above its weight. We excelled in all the three (3) pillars of Rhodes University; namely *Teaching, Research and Community Engagement*.

Three (3) of our PhD candidates (Menelisi Falayi, Monde Duma and Buhle Francis) received the Vice-Chancellor's (VCs) Distinguished Student Community Engagement Award. Dr Gladman Thondhlana received the VC's Distinguished Research Award.

The Department produced a record number of publications. These consisted of forty-seven (47) papers in peer-reviewed subsidy earning journals, twelve (12) book chapters and seven (7) peer-reviewed conference proceedings. The Department also produced twenty-nine (29) conference publications. Three (3) articles were published in the popular press.

Staff participated in numerous research conferences and workshops both locally and internationally. Staff also served on several national and international organizations.

## Postgraduates / Graduations

We graduated fourteen (14) Honours students, seven (7) MSc students and one (1) PhD candidate. Several PhD candidates submitted their theses for examination. We expect a record number of PhD graduands in 2020.

## Distinguished Visitors / International Visits

Dr Aletta de Vos attended international conferences in Germany (6-8 February 2019), Brazil (21-31 May 2019), Malaysia (21-25 July 2019), USA (16-19 September 2019) and Spain (October 2019).

Dr Gladman Thondhlana visited the Norwegian University of Life Sciences and University of Aberdeen (4 February to 15 March 2019) during his sabbatical. He also attended a conference in the USA (2-7 June 2019).

Dr Sheunesu Ruwanza presented at international conferences in South Africa SASUF (6-7 May 2019) Nelson Mandela University and (8-10 May 2019) Stellenbosch University. He also presented at the Society for Ecological Restoration World Congress held in Cape Town (22-27 September 2019).

Professor Charlie Shackleton was guest speaker at Wageningen University (Wageningen, Holland) seminar in celebration of the works of Professor Paul Hebinck on his retirement. Professor Shackleton also hosted a three day international workshop in Potchefstroom on urban green infrastructure and sustainability, with participants from Germany, Malawi, South Africa and Tanzania. He attended the IPBES specialist group international workshop in Nairobi, Kenya, as a reviewer editor for the specialist report on Sustainable use of Wild Species.

*Local residents and the Rhodes research team on site at Machubeni*  
Credit: Department of Environmental Science

Professor James Gambiza attended a research workshop at Bayreuth University in Germany (13 - 23 June 2019) where he presented a paper on global change challenges for rural sustainability in South Africa. He also presented at an international United Nations Convention to Combat Desertification training workshop (2 - 18 December 2019) in China. He also presented a paper at the Society for Ecological Restoration World Congress held in Cape Town (22 - 27 September 2019).

## Significant Research Aligned Events

Dr de Vos attended the Earth Engine South Africa Workshop at Stellenbosch (June 2019), transitions in social-ecological systems workshop in Brazil (May/June 2019) and a SAPECS working group meeting in Malmesbury (May 2019) and first-author workshop for the Methods for Social-Ecological Systems Handbook in Leuphana University in Germany (February 2019).

Dr Gladman Thondhlana was awarded an International Science Council grant (€90 000) on household energy use practices in Makhanda, South Africa. He was also awarded an EU grant (€950 000) for a project on creating collaborations between universities in South Africa, Kenya, Turkey, Belgium and the Netherlands. He joined the IUCN Species Survival Commission Human-Wildlife Conflict Task Force. He was elected Council member for the International Association for Society and Natural Resources (IASNAR).

Dr Sheunesu Ruwanza attended the Centre for Invasion Biology research forum in Stellenbosch (November 2019) to discuss research on invasive species.

Professor James Gambiza presented a keynote address on *"The current status and thinking regarding land degradation neutrality in South Africa"* to the South African Association of Geomorphologists (SAAG) in East London, South Africa (September 2019). He also presented a poster at the conclusion of the two year Teaching Advancement at University (TAU) Fellowship programme funded by the Higher Education Learning and Teaching Association of Southern Africa (HELTASA). The poster was judged the best presentation among other presentations by academics who had received the distinguished teaching awards from each of the twenty-six (26) South African universities.

Several of our Honours and Postgraduate students (MSc and PhD) presented their research at the Society for Ecological Restoration World Congress held in Cape Town (22 - 27 September 2019).

The Department held its annual Research Symposium 14 - 15 October 2019. The Director of the Office of the Premier, Eastern Cape was the guest speaker.

**Professor James Gambiza**

*Head of Department*



*Rangeland Management Participatory Training, Machubeni*  
Credit: Department of Environmental Science





Simple rehabilitation methods using stone lines in Machubeni, Eastern Cape  
Credit: Department of Environmental Science



## Books/Chapters/Monographs

### Enokenwa, O.

**Enokenwa, O.** (2019) Honey production in urban Cameroon. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.45-48. ISBN: 9783319755793.

**Enokenwa, O.** (2019) Cameroon's elixir: Palm wine. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.49-52. ISBN: 9783319755793.

**Enokenwa, O.** (2019) Cameroons' elixir: Palm wine. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.49-52. ISBN: 9783319755793.

**Enokenwa, O.** (2019) Honey production in urban Cameroon. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.45-48. ISBN: 9783319755793.

### Pullanikkatil, D.

**Pullanikkatil, D.** (2019) Three generations of healers. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.1-158. ISBN: 9783319755793.

**Pullanikkatil, D.** (2019) The hidden master. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.135-142. ISBN: 9783319755793.

**Pullanikkatil, D.** (2019) Busy as a bee: Breeding industrious bees in Malawi. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.91-98. ISBN: 9783319755793.

**Pullanikkatil, D.** (2019) Ugandan bark: from coffins to handbags. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.143-146. ISBN: 9783319755793.

### Pullanikkatil, D. and Shackleton, C.M.

**Pullanikkatil, D. and Shackleton, C.M.** (2019) Listening to the stories. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.153-160. ISBN: 9783319755793.

**Pullanikkatil, D. and Shackleton, C.M.** (ed.) (2019) *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. ISBN: 9783319755793.

### Shackleton, C.M. and Pullanikkatil, D.

**Shackleton, C.M. and Pullanikkatil, D.** (2019) Considering the links between non-timber forest products and poverty alleviation. In: Pullanikkatil, D. and Shackleton, C.M. (eds.). *Poverty reduction through non-timber forest products: Personal stories*. Switzerland: Springer Nature Switzerland. p.15-28. ISBN: 9783319755793.

### Shackleton, S.E.

**Holden, P., Cockburn, J., Shackleton, S.E. and Rosenberg, E.** (2019) Supporting and Developing Competencies for Transdisciplinary Postgraduate Research: A PhD Scholar Perspective. In: *Developing Change Agents: Innovative Practices for Sustainability Leadership*. Minnesota: University of Minnesota Libraries. p.1-10. ISBN: 9781946135575.



## Other Publications

**Shackleton, C.M.**

**Shackleton, C.M.** (2019) Smallholder crop farming is on the decline in South Africa: Why it matters. In: *The South African*. South Africa.

**Shackleton, C.M.** (2019) Smallholder crop farming is on the decline in South Africa: Why it matters. In: *The Conversation*. South Africa.

**Shackleton, C.M.** (2019) Plant-smart street names, please! In: *Veld & Flora*. Johannesburg.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**De Vos, A.**

**De Vos, A.** and Cumming, G.S. (2019) The contribution of land tenure diversity to the spatial resilience of protected area networks. *People and Nature*. 2019. p.1-16.

**Manchichi Mahonya, S. and Shackleton, C.M.**

**Manchichi Mahonya, S., Shackleton, C.M.** and Schreckenberger, K. (2019) Non-timber forest product use and market chains along a deforestation gradient in southwest Malawi. *Frontiers in Forests and Global Change*. 2 (71). p.1-12.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Amoako, E.A. and Gambiza, J.**

**Amoako, E.A. and Gambiza, J.** (2019) Effects of anthropogenic fires on soil properties and the implications of fire frequency for the Guinea savanna ecological zone, Ghana. *Scientific African*. 6 (2019). p.1-11.

**Chakona, G.**

Taylor, P.J., Kearney, T., Dalton, D.L., **Chakona, G., Kelly, C.M.R.** and **Barker, N.P.** (2019) Biomes, geology and past climate drive speciation of laminate-toothed rats on South African mountains (Murinae: *Otomys*). *Zoological Journal of the Linnean Society*. 2019. p.1-21.

**Chakona, G. and Shackleton, C.M.**

**Chakona, G. and Shackleton, C.M.** (2019) Food Taboos and Cultural Beliefs Influence Food Choice and Dietary Preferences among Pregnant Women in the Eastern Cape, South Africa. *Nutrients*. 11 (2668). p.1-18.

**Chakona, G. and Shackleton, C.M.** (2019) Food insecurity in South Africa: To what extent can social grants and consumption of wild foods eradicate hunger? *World Development Perspectives*. 13 (2019). p.87-94.

**Coetzer, K.**

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**Cundill, G.**

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Home gardening in Machubeni, Eastern Cape  
Credit: Department of Environmental Science



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*Professor James Gambiza on a research visit to China  
Credit: Department of Environmental Science*

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Geo For Good Summit 2019

Credit: Department of Environmental Science

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**Duma, M.F. and Gambiza, J.** Socio-economic considerations for land rehabilitation: Exploring the use of low-cost land rehabilitation structures in communal areas. *SAAG Conference on Erosion, Land Degradation and Rehabilitation*. East London. South Africa. September 2019.

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**Goosen, E.D., Gambiza, J., Nakhooda, M., Joynt, C.M., Chuene, K.J. and Paxton, M.** Nurturing Student Capital. *7th Annual Research and Innovation in Teaching and Learning Conference (RITAL) Cape Peninsula University of Technology*. SARETEC, Bellville. South Africa. December 2019.

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**Hardisty, S.E.**

**Hardisty, S.E.** Understanding how spatial resilience thinking can help address scale mismatches in marine protected areas: Case studies of South Africa marine policies. *West Indian Ocean Marine Science Association (WIOMSA), 11th Scientific Symposium*. Kuala Lumpur. Malaysia. July 2019.

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**Lunderstedt, K.E.**

**Lunderstedt, K.E.** Vegetation cover change and loss in the Alexandria district, Eastern Cape. *Thicket Forum*. Addo Elephant Park, Addo. South Africa. June 2019.

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**Norman, Y.M.**

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**Powell, M. and Smart, K.G.**

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**Powell, M. and Smart, K.G.** Manipulating soil moisture release from heavy clay soils for improved restoration. *Thicket Forum*. Addo Elephant Park, Addo. South Africa. June 2019.

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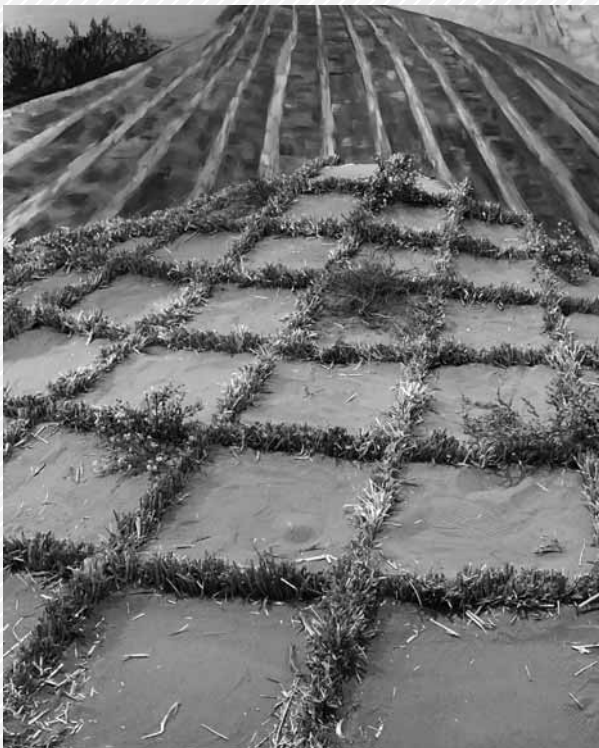
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**Trafford, B.K.**

**Trafford, B.K.** The use of remote sensing and field data to analyze the effects of land transformation on thicket. *Thicket Forum*. Addo Elephant Park, Addo. South Africa. June 2019.

**Zenani, K.T.S.**

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Checkerboard Rehabilitation Method, China December 2019  
Credit: Department of Environmental Science



The Department of Fine Art had a productive research year. Outputs generated by our staff, Postgraduates, and SARChI Research Associates and Fellows, comprised numerous publications (several of them subsidy-earning) and conference presentations. We curated and created a number of notable exhibitions, performances and creative works. In addition, the Department hosted various high-profile visitors and facilitated important workshops, both locally and abroad.

### Postgraduates / Graduations

Research achievements by our Postgraduates included three (3) very successful MFA exhibitions, by Natasha Bezuidenhout *Bittersoet*, Aaron Mulenga *Icilengwa Lesa: Transcendence Through Flight* and Sary Mwaba *Black Mountain*. In addition, both Wallen Mapondera and Sary Mwaba exhibited their work internationally, in prestigious solo exhibitions held in Switzerland and Zambia respectively.

Our Postgraduates enjoyed several opportunities to showcase their work locally. Viwe Madinda's performance, *Kwathi Kaloku Ngantsomi* (created for the South African Research Chairs Initiative (SARChI) Arts Lounge programme), formed part of the National Arts Festival in Makhanda; and several students contributed work to group exhibitions across the country. Our Postgraduates also participated in talks and interviews (some of them published); and presented research papers at various national and international conferences.

Sary Mwaba and Lifang Zhang (MA student) presented their work at the College Art Association (CAA) conference in New York City (together with staff member and SARChI Chair, Professor Ruth Simbao).

### Distinguished Visitors / International Visits

Textile artist, curator, gallery owner and cultural activist, Dr Chief Nike Okundaye, received an Honorary Doctorate from Rhodes University in April 2019.

In November 2019, participants of the Publishing and Research of the South: Positioning Africa (PROSPA) Publishing Workshop visited the Nike Art Centre in Lagos, Nigeria. The Publishing Workshop was organised by the SARChI research programme in *Geopolitics and the Arts of Africa* and was co-hosted by the Department of Creative Arts at the University of Lagos (UNILAG). Internationally renowned artist, Jelili Atiku, performed '*Enitere Ejitere*' at the UNILAG Institute for African and Diaspora Studies (IADS) as part of this programme.

*Luke Kaplan's solo exhibition at the National Arts Festival, Hinterland*  
Credit: Department of Fine Art



*Luke Kaplan's National Arts Festival exhibition, Hinterland*  
Credit: Department of Fine Art

## Significant Research Aligned Events

In the area of practice-based research, a highlight for the Department of Fine Art was Head of Department (HoD) Professor Maureen de Jager's PhD exhibition, which was hosted by the United Kingdom's National Archives in June 2019. Comprising an installation of eleven (11) hand-bound artist's books and a series of three (3) solo performances, the exhibition - titled *'History [TBC]: Refocusing the South African War through praxis'* - reflects on the war 1899-1902, its subsequent political mythologising, and its residues and traces in a present-day decolonising South Africa. The exhibition was submitted in partial fulfilment of De Jager's practice-based PhD through Kingston University, London.

Two (2) staff members featured creative outputs on the Main Programme of the National Arts Festival (NAF). Mr Luke Kaplan's solo exhibition, *'Hinterland'*, comprised a number of photographic series, both hand-printed black and white images and one-off kallitype prints, as well as video work, sculptural pieces, and documented performances. It addressed issues of land, history and spirituality; and included a number of artist walkabouts conducted through the course of the festival.

Professor Simbao curated Thania Peterse's *'Between land and a raised foot'*, on the NAF Main Programme. This included the outdoor installation, *Ziyarat*, created during her Residencies for

Artists and Writers (RAW) Fellowship and inspired by her visit to Xinjiang Province in China. In addition, several staff members participated in group exhibitions locally and abroad.

Research Associates and Fellows of the SARCHI research programme contributed to the Fine Art Department's research profile via a number of publications, exhibitions and performances. Fellows Gillian Stacey Abe (Uganda), Immy Mali (Uganda), Dr Ganiyu Jimoh (UNILAG), Dr Rose Kirumira (Makerere University), and Dorah Kasozi (Makerere University) published in an issue of the *African Arts* journal that was co-edited by Professor Ruth Simbao and Dr Stephen Folaranmi. Research Associates Professor Sonjah Stanley-Niaah (University of West Indies, Jamaica) and Dr Nadine Siegert (Bayreuth University) published significant work on Jamaican music and contemporary Angolan art respectively. During the National Arts Festival, RAW Fellow, Kresiah Mukwazhi, drew from the life of the Ugandan academic and activist Dr Stella Nyanzi in her performance *'Summoned from Luzari'* created for the SARCHI Arts Lounge programme.

**Professor Maureen de Jager**  
*Head of Department*



## Books/Chapters/Monographs

**Siebert, N.I.**

**Siebert, N.I.** (2019) Intervening into the Future Script: A Conversation with Kiluanji Kia Henda about Fiction, Magic, and Speculative Power of Images (Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Gunkel, and Lynch, K. (eds.). *We travel the SpaceWay-Black Imagination, Fragments and Diffractions*. Bielefeld: Reihe Post-Koloniale Medienwissenschaft. p.278-302. ISBN: 9783837646016.

**Siebert, N.I.** (2019) Another World is Possible: The Socialist Mural in Luanda as Visual Anticipation of a New Socialist Society (Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Fendler, U., Fink, K., Siebert, N. and Vierke, U. (eds.). *Revolution 3.0. Iconographies of Radical Change*. Munich: AVM Edition. p.74-103. ISBN: 9783954770908.

**Siebert, N.I.** (2019) Utopia, Dystopia, Neo-Utopia - three Generations of Contemporary Artists in Angola (Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Miranda, M. (ed.). *Contemporary Art in Angola and its Diaspora today*. Lisbon: Hangar Editions. p.222-230. ISBN: 9789892088105.

**Siebert, N.I.** (2019) (Re) activated Heritage. Negotiating Socialist History in the Urban Space of Luanda (Research Associate, NRF/DST SARCHI programme Geopolitics and the Arts of Africa). In Oevermann, Heike & Gantner, Eszter (eds.), *Securing Urban Heritage: Agents, Access, and Securitization*. London and New York, Routledge, pp. 188-205.

**Stanley-Niaah, S.**

**Stanley-Niaah, S.** (2019) 'Call the Contractor!': Humour, Innovation and Competition in Jamaican Music (Senior Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Kitts, T. and Baxter, N. (eds.). *Routledge Companion to Popular Music and Humour*. London: Routledge. p.116-123. ISBN: 9781351266642.

**Tello, V.**

**Tello, V.** (2019) Is Contemporary Art Postdevelopmental? A Study of Art as NGO (Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Morreo Boada, C. (ed.). *Post development in Practice*. London: Routledge. p.306-320. ISBN: 9781138588677.

**Tello, V.** (2019) The Speculative Collectivity of the Global Transnational, or, Social Practice and the International Division of Labour (Research Associate, NRF/DSI SARCHI programme Geopolitics and the Arts of Africa). In: Eckersall, P. and Grehan, H. (eds.). *The Routledge Companion to Theatre and Politics*. New York: Routledge: Taylor and Francis. p.151-156. ISBN: 9780203731055.

## Concerts, Exhibitions, Performances, Workshops, Events

**Atiku, J.**

**Atiku, J.** Solo performance. *'Enitere Èjitere'*. Institute of African and Diaspora Studies (IADS), University of Lagos. Organised by the Arts of Africa and Global Souths research programme as part of the Publishing and Research of the South: Positioning Africa (PROSPA) Publishing Workshop in Lagos, Nigeria.

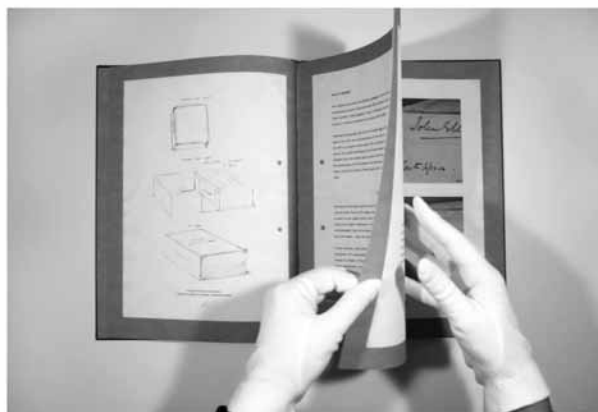
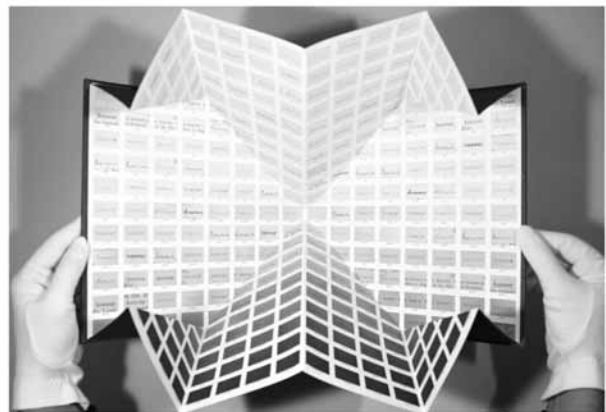
**Bezuidenhout, N.B.**

**Bezuidenhout, N.B.** Solo exhibition. Bittersoet. *MFA Exhibition*. Rhodes University School of Art building, Makhanda. South Africa. 1 February 2019.

**Chachage, R.**

**Chachage, R.** Solo exhibition. Scents of Identity. *LIVE WORKS Performance Act Award 2019*. Drodesea, Italy 19-21 July 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Chachage, R.** Group exhibition. *Amani: In the footsteps of a colonial research station*. MARKK Museum am Rothenbaum, Hamburg, Germany. 20 September 2019 - 19 April 2020. RAW Fellow, Arts of Africa and Global Souths research programme.



Maureen de Jager PhD exhibition books  
Credit: Department of Fine Art

**De Jager, M.S.**

**De Jager, M.S.** Solo performance. *PROOF* (soliloquy). *PhD Exhibition*. The National Archives UK, London. United Kingdom. 11 June 2019.

**De Jager, M.S.** Solo performance. Proposal for THE BOOK OF HOLES (performance-lecture). *PhD Exhibition*. The National Archives UK, London. United Kingdom. 11 January 2019.

**De Jager, M.S.** Solo exhibition. History [TBC]: Refocusing the South African War through praxis. *PhD exhibition*. The National Archives UK, London. United Kingdom. 11 June 2019.

**De Jager, M.S.** Solo performance. IN PARENTHESIS (performance-recital). *PhD Exhibition*. The National Archives UK, London. United Kingdom. 11 June 2019.

**Dixie, C.**

**Dixie, C.** Group exhibition. The Matrice/Bind. *The Ampersand Foundation Exhibition*. The University of Johannesburg Art Gallery, Johannesburg. South Africa. 11 September - 9 October 2019.

**Dixie, C.** Group exhibition. Iterations/The Binding. *Page Turners*. OED Gallery, Kochin. India. 17 January - 28 February 2019.

**Dixie, C.** Group exhibition. Bloodspoor. *Conversing the Land*. University of Johannesburg Art Gallery, Johannesburg. South Africa. 22 October - 27 November 2019.

**Dixie, C.** Workshop. *Book Binding Workshop*. Rhodes Fine Art Department, Grahamstown. South Africa. 5 - 6 September 2019.

**Ijisakin, E.**

**Ijisakin, E.** Seminar presentation. Printmaking in Nigeria: its evolution and developmental history (ACLS African Humanities Program Postdoctoral Fellow hosted by the SARCHI programme Geopolitics and the Arts of Africa). *Arts Lounge seminar series*. Makhanda. South Africa. 24 April 2019.

**Jimoh, G.A.**

**Jimoh, G.A.** Seminar presentation. This is not funny: Comicality and the depiction of terror in Nigeria. SARCHI Postdoctoral Fellow. *Arts Lounge seminar series*. Makhanda. South Africa. 21 October 2019.

**Kalichini, G.M. and Grobbelaar, B.J.**

**Kalichini, G.M. and Grobbelaar, B.J.** Co-Chairs. In Conversation with Gabrielle Goliath and Thania Petersen 'Spirituality, Healing and Movement'. *Arts Lounge seminar series for the National Arts Festival*. Arts Lounge (Arts of Africa and Global Souths), Makhanda. South Africa. 29 June 2019.

**Kalichini, G.M., Mulenga, A.S. and Mwaba, S.M.**

**Kalichini, G.M., Mulenga, A.S. and Mwaba, S.M.** Group exhibition. *And counting*. Curated by Tshagofatso and Julia Kaonga. Johannesburg Art Gallery, Johannesburg. South Africa. 23 May 2019.

**Kaplan, L.J.**

**Kaplan, L.J.** Solo exhibition. Hinterland. *National Arts Festival*. School of Art building, Somerset Street, Makhanda. South Africa. 27 June - 7 July 2019.

**Kramer, B.D.**

**Kramer, B.D.** Group exhibition. *Far and In-between*. Galerie Noko, Port Elizabeth. South Africa. 13 August 2019.

**Kramer, B.D.** Group exhibition. *RMB Turbine Art Fair*. Johannesburg. South Africa. 11 July 2019.

**Kramer, B.D.** Group exhibition. *Interrupting tradition- perceptions, notions and convictions*. Galerie Noko, Port Elizabeth. South Africa. 30 April 2019.

**Layiwola, A.A.**

**Layiwola, A.A.** Solo exhibition. *Indigo Reimagined*. Main Auditorium Gallery, University of Lagos, Nigeria, Lagos. Nigeria. 20 June - 20 August 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Layiwola, A.A.** Solo exhibition. *Indigo Reimagined*. Alara, VI, Lagos, Lagos. Nigeria. 30 October - 30 November 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Layiwola, A.A.** Workshop. RAW Fellow participation in Working Group Meeting on African Women Artist. *Aware*. Paris, Paris. France. 8-9 November 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Layiwola, A.A.** Workshop. *RAW Fellow participation in Making Meaning from a Fragmented Past: 1897 and the Creative Process*. Rhodes Island School of Design, Rhode Island. USA. 6 March 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Layiwola, A.A.** Workshop. *RAW Fellow participation in Undoing*

*Postcolonial Knowledges*. Iwalewaha, Bayreuth. Germany. 18 - 21 July 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Layiwola, A.A.** Group Exhibition. *On and On*. Curated by Peju Layiwola. Lagoon Gallery, Department of Creative Arts, Lagos. Nigeria. 1 January 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Lila, P**

**Lila, P.** Group exhibition. *Sulptx*. The Melrose Gallery, Johannesburg. 28 August - 29 September 2019.

**Lila, P.** Group exhibition. *Speculative Inquiry*. Michaelis Gallery, University of Cape Town, Cape Town. 8 August - 24 September 2019.

**Madinda, V.**

**Madinda, V.** Solo performance. Kwathi Kaloku Ngantsomi. *National Arts Festival, Arts of Africa and Global Souths research programme*. Makhanda. South Africa. 29 June 2019.

**Mali, I**

**Mali, I.** Solo exhibition. *Rijksakademie Open studios*. Rijksakademie van beeldende kunsten, Amsterdam, Netherlands. RAW Fellow, Arts of Africa and Global Souths research programme.

**Mali, I.** Group exhibition. *Womanism*. Ostrale Bienniel 019, Dresden, Germany. RAW Fellow, Arts of Africa and Global Souths research programme.

**Mapondera, W.**

**Mapondera, W.** Solo exhibition. Shungu Madanha. *Prohelvetia Studio Residency*. Atelier Mondial, Basel. Switzerland. 23 - 27 January 2019.

**Mukwazhi, K.V.**

**Mukwazhi, K.V.** Events. Resident artist (RAW Programme). *RAW Resident Artist, Arts of Africa and Global Souths research programme*. Rhodes University, Makhanda. South Africa. 17 June - 17 August 2019.

**Mukwazhi, K.V.** Solo performance. Summoned from Luzari. *National Arts Festival, Arts of Africa and Global Souths research programme*. SARCHI RAW Spot Gallery, Makhanda. South Africa. 30 June 2019.

**Mukwazhi, K.V.** Solo exhibition. Although I am young, I am the mother of this house. *Arts of Africa and Global Souths*. SARCHI RAW Spot Gallery, Makhanda. South Africa. 15 August 2019.

**Mukwazhi, K.V.** Performance. 'Mujubhegi'. *Chale Wote Festival*. Accra, Ghana. Supported in part by the RAW Residency Program. 24 August 2019.

**Mulenga, A.S.**

**Mulenga, A.S.** Group Exhibition. *And counting*. Curated by Tshagofatso and Julia Kaonga. Johannesburg Art Gallery, Johannesburg. South Africa. 22 - 23 May 2019.

**Mulenga, A.S.** Solo exhibition. Icilengwa Lesa: Transcendence Through Flight. *MFA exhibition*. Nun's Chapel, Rhodes University, Makhanda. South Africa. 10 August 2019.

**Mulenga, A.S. and Jimoh, G.A.**

**Mulenga, A.S. and Jimoh, G.A.** Co-Chairs. In conversation with JAMES WEBB, on Séances, Signals and Citation. *Arts Lounge talks series for the National Arts Festival*. Arts Lounge (Arts of Africa and Global Souths), Makhanda. South Africa. 1 July 2019.

**Muvhuti, T.B.**

**Muvhuti, T.B.** Interview. In conversation with South African artist Viwe Madinda (based her performance 'Kwathi Kaloku Ngantsomi' during the National Arts Festival. <https://africanah.org/viwe-madinda/>. South Africa. 1 July 2019.

**Muvhuti, T.B. and Zhang, Z.L.F.**

**Muvhuti, T.B. and Zhang, Z.L.F.** Exhibition Review. Site of memory: Berni Searle's-a-place-in-the-sun. *ARTTHROB* : <https://artthrob.co.za/2019/07/31/site-of-memory-berni-searles-a-place-in-the-sun/>. South Africa. 1 January 2019.

**Mwaba, S.M.**

**Mwaba, S.M.** Solo exhibition. *Petits récits*. Gallery 3D, Lusaka. Zambia. 1 January 2019.

**Mwaba, S.M.** Group exhibition. *And counting*. Curated by Tshagofatso and Julia Kaonga. Johannesburg Art Gallery, Johannesburg. South Africa. 23 May 2019.

**Mwaba, S.M.** Solo exhibition. Black Mountain. *MFA exhibition*. Gallery in the Round, 1820 Settlers National Monument, Makhanda. South Africa. 7 February 2019.

**Simbao, R.**

**Simbao, R.** Workshop. Organised and ran the 2019 Publishing and

Research of the South: Positioning Africa (PROSPA) Publishing Workshop at the University of Lagos, Nigeria. This workshop was supported by the Arts of Africa and Global Souths Research Program and was a collaboration between Rhodes University and the Department of Creative Arts at the University of Lagos. Selected participants were Dr Abiodun Akande, University of Lagos, Dr Akinwale Onipede, University of Lagos, Dr Lekan Balogun, University of Lagos and University of Cape Town, Dr Kim Gurney, University of the Western Cape and the University of Cape Town, Dr Tosin Tume, Federal University, Oye-Ekiti, Dr Olusegun Titus, Obafemi Awolowo University and Kehinde Adepegba. *PROSPA Publishing Workshop*. University of Lagos, Lagos, Nigeria. 1 - 8 November 2019.

**Simbao, R.** Five Bhoobh Conversations with guest speakers Thandazani Dhlakama (Curator at Zeitz Mokka) and Richard Mudariki (artist based in Cape Town). Arts of Africa and Global Souths collaboration with the *Southern Epistemologies Mellon Seminar series*. The seminar was based on the exhibition "Five Bhoobh: Painting at the end of an era" by Zimbabwean artists held at Zeitz MOCAA Museum in Cape Town. Arts Lounge, Makhanda. South Africa. 23 May 2019.

**Simbao, R.** Curator of the solo exhibition, Thania Petersen: Between land and a raised foot. *National Arts Festival (Main Program)*. RAW Spot Gallery; Monument Basement; outdoor public space, Makhanda. South Africa. 28 June - 7 July 2019.

**Takadiwa, M.**

**Takadiwa, M.** Solo exhibition. *Son of the Soil*. Nicodim Gallery, Los Angeles, CA. USA. 7 September - 19 October 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Takadiwa, M.** Group exhibition. *KUBATANA*. Vestfossen Kunstlaboratorium, Oslo, Norway. 1 January 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Takadiwa, M.** Group exhibition. *Second Hand: Selected Works from the Jameel Art Collection*. Jameel Arts Centre, Dubai. United Arab Emirates. 3 July - 23 November 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Takadiwa, M.** Group exhibition. *Stormy Weather*. Museum Arnhem, Arnhem, Netherlands. 12 - 13 October 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Takadiwa, M.** Group exhibition. *Thread*. Long Beach Museum of Art, Long Beach, CA. USA. 4 October - 31 December 2019. RAW Fellow, Arts of Africa and Global Souths research programme.

**Thorburn, D.**

**Thorburn, D.** Group exhibition. Huldeblyk/Tribute. *Klein Karoo National Arts Festival (KKNK)*. Kobus Spies Gallery, Oudtshoorn. South Africa. 21 - 27 March 2019.

## Distinguished Visitors

**Dhlakama, T.**

**Ms T Dhlakama.** Zeitz Mokka Museum, Cape Town, Cape Town, South Africa. *Invited Guest Speaker (Mellon Southern Epistemologies Seminar series)*. May 2019.

**Monson, J.**

**Professor J Monson.** Michigan State University, Michigan, USA. Presented a draft of her documentary film on the *Tazara*, and discussed *Africa-China research with the Arts of Africa and Global Souths research team and the SARCHI Chair in Geopolitics and the Arts of Africa, Fine Art*. February 2019.

**Mudariki, R.**

**Mr R Mudariki.** Independent Artist, Cape Town, South Africa. *Invited Guest speaker (Mellon Southern Epistemologies Seminar series)*. May 2019.

**Nike, O.**

**Dr O Nike.** Nike Art Centre, Lagos, Nigeria. Visited Rhodes to receive Honorary Doctorate and presented a seminar on her work at the *SARCHI Arts Lounge*. April 2019.

## International Visits

**Simbao, R.**

**Simbao, R.** University of Lagos, Lagos, Nigeria. *Visit to the University of Lagos Department of Creative Arts and the Institute of African and Diaspora Studies*. 2 - 9 November 2019.

## Other Publications

**Muvhuti, T.B.**

**Muvhuti, T.B.** (2019) In conversation with South African artist Viwe Madinda (based on her performance "Kwathi Kaloku Ngatsomi" during the National Arts Festival.) <https://africanah.org/viwe-madinda/>. South Africa.

**Muvhuti, T.B.** (2019) In conversation with Zimbabwean artist Kresiah Mukwazhi. *Arts Lounge Talk Series for the National Arts Festival*. South Africa: <https://africanah.org/in-conversation-with-kresiah-mukwazhi/>.

**Simbao, R.**

**Simbao, R.** (2019) Article "Pushing against 'China-Africa' slowly, and with small stories". *Something We Africans Got* #7. p. 228-232. France.

**Simbao, R.** (2019) A rebours de la « Chine-Afrique », à pas lents, et avec de petits récits. French version of Pushing against 'China-Africa' slowly, and with small stories. Translated by Myriam Dao. *Vernaculaire and Adventice* (<http://vernaculaire-adventice.com/a-rebours-de-la-chine-afrique-a-pas-lents-et-avec-de-petits-recits/>). France.

**Simbao, R.** (2019) David Kolaone fought for the right to define himself and his art. *Conversation Africa* <https://theconversation.com/david-kolaone-fought-for-the-right-to-define-himself-and-his-art-120687>. South Africa.

**Zhang, Z.L.F. and Muvhuti, T.B.**

**Zhang, Z.L.F. and Muvhuti, T.B.** (2019) Site of memory: Berni Searle's-a-place-in-the-sun. *ARTTHROB*: <https://artthrob.co.za/2019/07/31/site-of-memory-berni-searles-a-place-in-the-sun/>. South Africa.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Dixie, C.**

**Dixie, C.** (2019) Sedimented Significations: Framing To Be King through Foucault's Frontispiece, Lacan's Borrowed slide and the Fanonian Inspired film The Battle of Algiers. *The International Journal of the Image*. 10 (1). p.1-16.

**Siebert, N.I.**

**Siebert, N.I., Ugochukwu-Smooth, N. and Siegenthaler, F.** (2019) Rethinking the Dialects of Rural and Urban in African Art and Scholarship. *Critical interventions*. 12 (3). p.241-250. NRF/DSI SARCHI Research Associate.

**Simbao, R.**

**Simbao, R.** (2019) Cosmolocal Orientations: Trickster Spatialization and the Politics of Cultural Bargaining in Zambia. *Critical interventions*. 12 (3). p.251-274.

**Simbao, R.** (2019) Reaching Sideways Beyond Bandung: Audacious Solidarities and Contingent 'China-Africa' Scripts in Contemporary Visual Art (Article published in Mandarin and based on the English Keynote Address delivered at the China Academy of Art in Hangzhou, China). *Renjian Thought Review journal*. Taiwan.

**Stanley-Niaah, S.**

**Stanley-Niaah, S.** (2019) Introduction: Of Sacred Crossroads: Cultural Studies and the Sacred. *Open Cultural Studies*. 3 (2019). p.539-540. NRF/DSI SARCHI Senior Research Associate.

**Stanley-Niaah, S.** (ed). (2019) Of Sacred Crossroads: Cultural Studies and the Sacred. Special Issue of *Open Cultural Studies*, 3(1). NRF/DSI SARCHI Senior Research Associate.

**Stanley-Niaah, S.** (2019) 'Prime Time' Geographies. Dancehall Performance, Visual Communication and the Philosophy of 'Boundary-lessness'. *Caribbean Quarterly*. 65 (2019). p.5-26. NRF/DSI SARCHI Senior Research Associate.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Abe, G.S.**

**Abe, G.S. and Mali, I.A.** (2019) Conjuring Our Beings: Stacey Gillian Abe and Immy Mali in Conversational Partnership. *African Arts*. 52 (2). p.18-31. (RAW Fellows, Arts of Africa and Global Souths Research programme).

**De Jager, M.S.**

**De Jager, M.S.** (2019) In Parenthesis. *Critical Arts-South-North Cultural and Media Studies*. 2019. p.1-15.



**Folaranmi, S.A.**

**Folaranmi, S.A.** (2019) A Tree Cannot Make a Forest: Looking Inward, Reaching out in African Art Studies. *African Arts*. 52 (2). p.1-7. (NRF/DSI SARChI Postdoctoral Fellow and PROSPA Fellow).

**Jimoh, G.A.**

**Jimoh, G.A.** (2019) Masked in Metaphors: Counter-Narratives in the Works of Nigerian Cartoonist Mike Asukwo. *African Arts*. 52 (2). p.32-39. (NRF/DSI SARChI Research Associate and PROSPA Fellow)

**Kasozi, D**

**Kasozi, D.** (2019). Paper beads on the Move: Mobilizing Trajectories and Subjectivities to Shape Contemporary Art in Uganda. *African Arts*. 53(2), pp. 40-51. (PROSPA Fellow, Arts of Africa and Global Souths research programme).

**Kirumira, K.R.**

**Kirumira, K.R.** (2019) Reconfiguring the Omweso Board Game: Performing Narratives of Buganda Material Culture. *African Arts*. 52 (2). p.52-63. (RAW Fellow and PROSPA Fellow, Arts of Africa and Global Souths research programme).

**Simbao, R.**

**Simbao, R., Kouoh, K., Nzewi, U.S., Sousa, S. and Koide, E.** (2019) Condition Report 3: Art History in Africa Debating Localization, Legitimization and New Solidarities. *African Arts*. 52 (2). p.10-17.

**Tello, V.**

**Tello, V.** (2019) Counter-memory and and-and: Aesthetics and temporalities for living together. *Memory Studies*. 2019 (2019). p.1-12. (NRF/DSI SARChI Research Associate).

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Ijisakin, E.**

**Ijisakin, E.** Advancing Research in the Humanities and Social Sciences: Inter-Regional conference. *ACLS African Humanities Program with the NRF SARChI program, Geopolitics and the Arts of Africa*. Carmel Guest Farm, George. South Africa. April 2019.

**Jimoh, G.A.**

**Jimoh, G.A.** Articulations of Nigerian Politics in the Visual Arts (ArtoP) Project. *Funded by the Art and Humanities Research Council*. Bournemouth University, Bournemouth. United Kingdom. March 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** No Laughing Matter: Humour and Representation of Violence in Nigeria. *Visiting Artist Lecturer Series*. University of Arkansas, Fayetteville. USA. November 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** From Tangible Restrictions to Virtual Independence: Digital Cartooning and Geopolitics in the 21st Century. *ASA Presidential Fellow 2019. 62nd Annual Meeting of the African Studies Association*. Boston Marriott Copley Place, Boston Massachusetts. USA. November 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** Back to the Roots: Revolution in Nigerian Animation Industry. *Animation and Public Engagement Symposium of 2019*. Texas Tech University, Lubbock. USA. September 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** Never expect power always, please light candle: visual narratives and state of electricity in Nigeria between 1971 and 2019. *8th European Conference on African Studies ECAS2019*. University of Edinburgh, Edinburgh. United Kingdom. June 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** 'Atiku-lating' the 'Buhari-fication' of Realities in Internet Memes. *The Articulation of Nigerian Politics in Visual Arts Seminar and Workshop (ArtoP)*. Bournemouth University, Bournemouth, Dorset. England. March 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Jimoh, G.A.** Conceal to Reveal: Interrogating Metaphoric Narratives in African Cartoons. *Visiting Artist Lecturer Series*. University of Arkansas, Fayetteville. USA. November 2019. (NRF/DSI SARChI Postdoctoral Fellow).

**Kramer, B.D.**

**Kramer, B.D.** Who am I? An exploration of personal memory and identity through visual art in an attempt to rediscover myself. *2019 Postgraduate Conference*. Rhodes University, Makhanda. South Africa. August 2019.



*Luke Kaplan's National Arts Festival exhibition, Hinterland*  
Credit: Department of Fine Art

**Muvhuti, T.B.**

**Muvhuti, T.B.** Destinies Shaped by Geography: Job Kekana in the shadows of Ernest Mancoba and Gerard Sekoto. *2019 Rhodes University Postgraduate Conference*. Rhodes University, Makhanda. South Africa. August 2019.

**Mwaba, S.M.**

**Mwaba, S.M.** Petits récits: Creative perspectives of Chinese encounters in Zambia. *College Art Association conference*. New York. USA. February 2019.

**Simbao, R.**

**Simbao, R.** Africa-China research of the Arts of Africa and Global Souths programme. *Symposium linked to the opening of Dachan's exhibition, The Art of a Spiritual Era Brightens All Living Things at the Zeitz MOCAA, Cape Town*. South Africa. March 2019.

**Simbao, R.** Reaching sideways as we cast new shadows: Counter-narratives and a geopolitics of proximity in the remaking of 'African Studies'. Invited plenary talk. *Centre for Institute for Diaspora and African Studies (IDAS)*. University of Lagos, Lagos. Nigeria. November 2019.

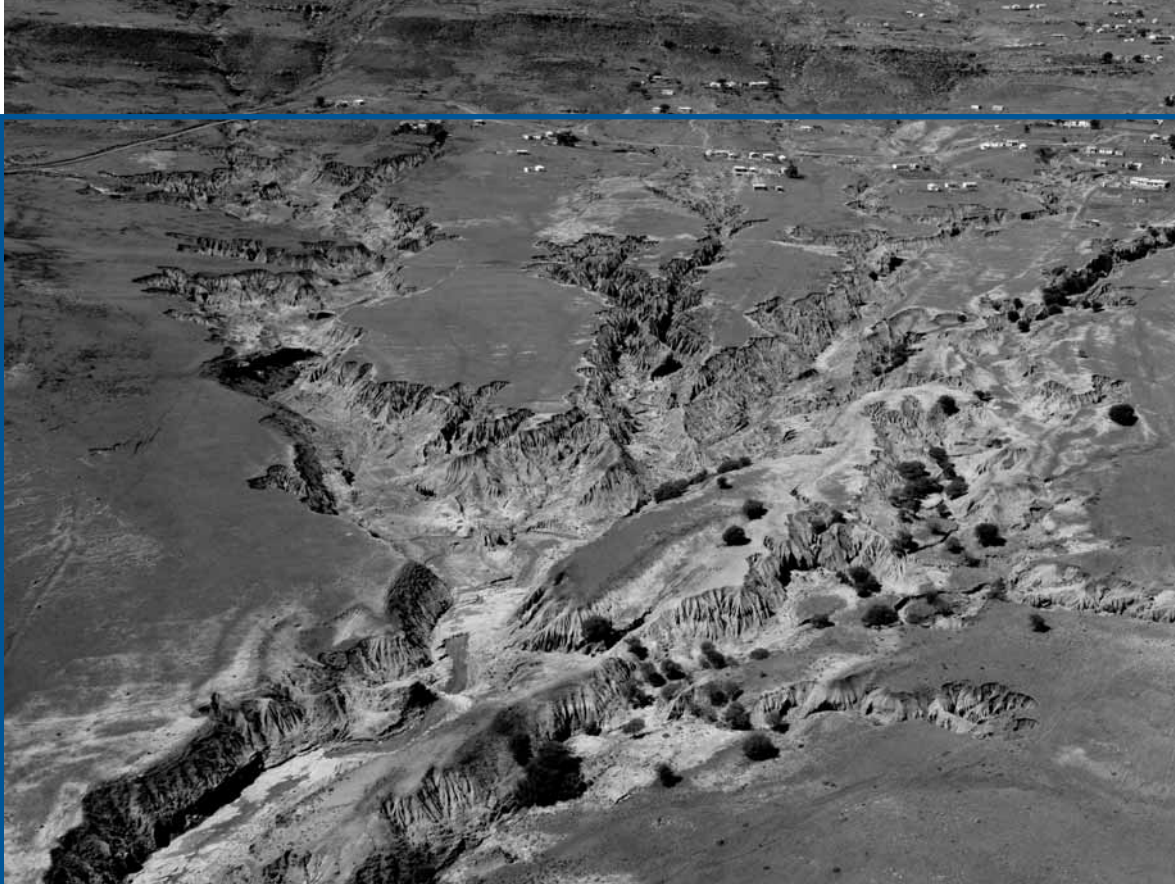
**Simbao, R.** Hushed Resistances and Solidarities: Reframing China-South Africa in the Shadows. Invited plenary talk. *30th Anniversary of the Film Studies School programme, "1989: Movements, Impulses, Upeavals"*. University of Zurich, Zurich. Switzerland. October 2019.

**Simbao, R.** The step begins on the ground where one stands: Womxn artists trouble the 'China-Africa' discourse. *College Art Association (CAA) conference*. New York. USA. February 2019.

**Zhang, Z.L.F.**

**Zhang, Z.L.F.** Representations of Chinese presence in contemporary visual arts from Zambia and Zimbabwe: An analysis. *2019 Postgraduate Conference*. Rhodes University, Makhanda. South Africa. August 2019.

**Zhang, Z.L.F.** Representations of Chinese presence in Zimbabwe: An analysis of Contemporary Visual Art in Zimbabwe. *CAA Annual Conference*. New York. USA. February 2019.



Research in the Department reflects the diversity of Geography. Current activities include the wild honeybush industry; land and agrarian reform; human mobility; the role of tertiary institutions in Grahamstown; the social dynamics of small towns; spatial dynamics related to heritage conservation; the impacts of dams on societies and river systems; soil erosion and sediment transfer; wetlands and their importance to society and the natural environment; applications of Geographical Information Systems (GIS) and Remote Sensing; Antarctic Geomorphology and Biogeomorphology; and climate change.

The Tsitsa project which is a multi-institutional and departmental effort produces significant numbers of Postgraduates. Not only is our research academically diverse, but spatially extensive, with projects extending from the Nordic Arctic to Antarctica.

An aspect that the Department is extremely proud of is our training of Postgraduate students and exposing them to the international research community. All those who have been involved in such interactions have shown that Rhodes University, and the Department of Geography, are conducting research that is internationally relevant and of an international standard.

## Postgraduates / Graduations

At Graduation, three (3) Masters students graduated. Two (2) of the students' projects centred on the use of Remote Sensing technologies for monitoring veld burning and land degradation in the Tsitsa catchment and the third investigated the management of a wetland on a dairy farm.

## Distinguished Visitors / International Visits

Visiting Professor Thembela Kepe, Chair of Geography at the University of Toronto, visited three (3) times during 2019. He is involved in supervising three (3) PhD candidates in our Department.

## Significant Research Aligned Events

Emeritus Professor Kate Rowntree was made a Fellow of the Southern African Association of Geomorphologists (SAAG) at their Biennial conference in Csintsa from 15 - 18 September 2019.

*Land degradation in the Tsitsa catchment, Eastern Cape  
Credit: Department of Geography*



Emeritus Professor Kate Rowntree and Dr Bennie van der Waal continue with their groundbreaking research into sediment dynamics in the Tsitsa catchment with two (2) PhD candidates and three (3) MSc students. Dr van der Waal was a co-organiser of the pre-conference excursion for the Biennial Conference of the Southern African Association of Geomorphologists in September 2019.

Regular presentations are made to the honeybush industry on topics identified as a need linked to the research by Gillian McGregor; topics include the compilation of statistics for cultivation based on GIS and expert mapping, together with fire mapping for permit determination. These contributions are driven by requests put out through the Honeybush Community of Practice (HCOP).

A new research field in the Department has opened up with Gillian McGregor and her students who are investigating precision agriculture work in the citrus industry with a drone. The research is supported through collaboration with Callem Technologies. Similarly, Remote Sensing is being used in collaborative research with the CIB to map the distribution of invasive water hyacinth.

Sinenhlanhla Memela and Philippa Irvine continue to investigate land tenure practices and the sense of place in the Makhandla area, together with the utilisation of and perceptions towards historical buildings.

Professor Fred Ellery and three (3) Postgraduate students are working on the rehabilitation of the wetlands in the Krom valley and the newest developments have been the incorporation of LiDAR (Light Detection and Ranging) digital terrain models into their research.

Professor Meiklejohn was an author in a Nature Communications article titled *"Permafrost is warming at a global scale"* that showed evidence for, and the consequences of, current global climatic warming. At the SAAG Biennial conference, Professor Ian Meiklejohn delivered a keynote address on South African Geomorphological Research in Antarctica. He was also on the

steering committee of the First Southern Hemisphere Conference on Permafrost (SouthCoP) held in December 2019 in Queenstown, New Zealand. The conference was held under the auspices of the International Permafrost Association. His paper contribution at SouthCoP was part of the Scientific Committee for Antarctic Research (SCAR) and IPA Working Group on Antarctic Permafrost and Soils (ANTPAS) for which he is a council member.

### Professor Ian Meiklejohn

#### Head of Department



SAAG (Southern African Association of Geomorphologists) Biennial Conference field trip, which was co-coordinated by the Tsitsa group in the Department, at a view point discussion on effects of land use change on ecosystem services  
Credit: Department of Geography



SAAG (Southern African Association of Geomorphologists) Biennial Conference field trip, which was coordinated by the Tsitsa group in the Department, field trip stop at the magnificent Tsitsa Falls  
Credit: Department of Geography



## International Visits

**Meiklejohn, K.I.**

**Meiklejohn, K.I.** International Permafrost Association, Queenstown, New Zealand. *Steering Committee for the 1st Southern Hemisphere Conference on Permafrost*. 7 - 12 December 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Ellery, W.N.**

**Lidzhegu, Z., Ellery, W.N. and Mantel, S.K.** (2019) Incorporating Geomorphic Knowledge in the Management of Wetlands in Africa's Drylands: a Rapid Assessment of the Kafue Wetland. *Wetlands*. 2019. p.1-15.

Grenfell, S.E., Grenfell, M.C., **Ellery, W.N.**, Job, N. and Walters, D. (2019) A Genetic Geomorphic Classification System for Southern African Palustrine Wetlands: Global Implications for the Management of Wetlands in Drylands. *Frontiers in Environmental Science*. 7 (174). p.1-23.

**Lidzhegu, Z., Ellery, W.N., Mantel, S.K. and Hughes, D.A.** (2019) Delineating wetland areas from the cut-and-fill method using a Digital Elevation Model (DEM). *South African Geographical Journal*. 2019. p.1-19.

**Foster, I.D.L.**

**Foster, I.D.L., Biddulph, M., Boardman, J., Copland-Phillips, R., Evans, J., Pulley, S., Zhang, Y. and Collins, A.L.** (2019) A palaeoenvironmental study of particle size-specific connectivity-New insights and implications from the West Sussex Rother Catchment, United Kingdom. *River Research and Applications*. 35 (2019). p.1192-1202.

Boardman, J., Vandaele, K., Evans, R.D. and **Foster, I.D.L.** (2019) Off-site impacts of soil erosion and runoff: Why connectivity is more important than erosion rates. *Soil Use and Management*. 35 (2019). p.245-256.

McKenzie, M., Mathers, K.L., Wood, P.J., England, J.A., **Foster, I.D.L.**, Lawler, D.M. and Wilkes, M.A. (2019) Potential physical effects of suspended fine sediment on lotic macroinvertebrates. *Hydrobiologia*. 2019. p.1-15.

**Hall, K.**

Inkpen, R. and **Hall, K.** (2019) Universal Shapes? Analysis of the Shape of Antarctic Tafoni. *Geosciences (Switzerland)*. 9 (154). p.1-13.

**Meiklejohn, K.I.**

Bate, G.C., **Matcher, G.F., Venkatachalam, S., Meiklejohn, K.I. and Dorrington, R.A.** (2019) Microalgae in two freshwater lakes and an estuary as a result of groundwater contamination from households. *Transactions of the Royal Society of South Africa*. 2019. p.1-11.

Biskaborn, B.K., Smith, S.L., Noetzli, J., Matthes, H., Vieira, G., Streletskiy, D.A., Schoenetch, P., Romanovsky, V.E., Lewkowicz, A.G., **Meiklejohn, K.I.** and et al. (2019) Permafrost is warming at a global scale. *Nature Communications*. 10 (264). p.1-11.

**Staebe, K., Meiklejohn, K.I., Singh, S.M. and Matcher, G.F.** (2019) Biogeography of Soil Bacterial Populations in the Jutulssessen and Ahlmannryggen of Western Dronning Maud Land, Antarctica. *Polar Biology*. 42 (2019). p.1445-1458.

**Nel, E.**

**Nel, E. and Connelly, S.** (2019) Regional economic transformation: Changing land and resource access on the West Coast of New Zealand's South Island. *Land Use Policy*. 2019. p.1-9.

Connelly, S., **Nel, E.** and Bergen, S. (2019) Evolution of new regional development interventions in New Zealand: An analysis of the first year of the Provincial Growth Fund. *New Zealand Geographer*. 75 (2019). p.177-193.

**Van Der Waal, B.**

Tooth, S. and **Van Der Waal, B.** (2019) Spotlight on...The 'Global Wetland Outlook' report. *Geography*. 104 (3). p.154-159.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Bannatyne, L. and van der Waal, B.**

**Bannatyne, L. and van der Waal, B.** Measuring sediment with the assistance of Citizen Technicians. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Bannatyne, L.J., Foster, I.D.L., Meiklejohn, K.I. and van der Waal, B.** **Bannatyne, L.J., Foster, I.D.L., Meiklejohn, K.I. and van der Waal, B.** Determining sub-catchment contributions to the suspended sediment load of the Tsitsa River, Eastern Cape, South Africa. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Huchzermeyer, N.**

**Huchzermeyer, N.** Changes to the Tsitsa River geomorphology due to water infrastructure development. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Meiklejohn, K.I.**

**Meiklejohn, K.I.** South African Geomorphological Research in Antarctica. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Meiklejohn, K.I.** Ground Temperatures in the Ahlmannryggen, Western Droning Maud Land Antarctica. *First Southern Hemisphere Conference on Permafrost*. Queenstown, New Zealand, December 2019.

**Meiklejohn, K.I.** Using Topography to Establish Holocene Glaciation and Volcanism on Sub-Antarctic Marion Island. *First Southern Hemisphere Conference on Permafrost*. Queenstown, New Zealand, December 2019.

**Rowntree, K.**

**Rowntree, K.** Soil erosion and rainfall erosivity in the Sneeuwberg region of the Karoo. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Rowntree, K.** Working with government to achieve integrated land rehabilitation and climate change response: a case study from the Tsitsa Project. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Rowntree, K.** River evolution along the eastern seaboard. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Schlegel, P.**

**Schlegel, P.** Sediment dynamics of floodplain wetlands in the Tsitsa River Catchment. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**van der Waal, B.**

le Roux, J. and **van der Waal, B.** Avoiding degradation, the importance of soil erodibility. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.

**Van der Waal, B.** Community based natural resource management planning: the role of geomorphology. *Southern African Association of Geomorphologists Biennial Conference*. Csintsa, Eastern Cape. September 2019.



PhD candidate Pippa Schlegel, MSc student Siby Pakati and Researcher Nick Huchzermeyer sampling wetland vegetation and topography on a wet summers day  
Credit: Department of Geography



This was a busy research year for the department with all members active in the field and publishing their research in peer-reviewed journals. The department is still short a member of staff but this hasn't impacted the department's ability to knuckle down and get the teaching done and maintain their research focus. The department's research productivity has steadily climbed over the past five (5) years with an almost fifty percent (50%) increase in accredited research outputs.

Sadly 2019 marked the retirement of Professor Jock Harmer, the Director of Exploration Geology. Jock arrived at the department in 2015 in a difficult time for all universities in South Africa. He will be remembered for bringing a calm and stabilising presence to the department and has been a mentor for many young economic and exploration geologists.

## Postgraduates / Graduations

The Postgraduate school is still growing with five (5) Exploration/Economic Geology MSc students, twelve (12) MSc by Research students and three (3) PhD candidates. A total of three (3) MSc students had their degrees conferred in April.

## Distinguished Visitors / International Visits

Professor Buttner continued with his successful collaboration with the German Research Centre in Potsdam, Germany.

Research into the Archean and the Barberton greenstone belt is the focus of Dr Grosch's research and resulted in him being invited to Prague, Czech Republic to present three (3) papers on the ultramafic rocks of the Onverwacht group, early life in the Archean sub-seafloor environment, and on the geology and crustal evolution of the Paleoproterozoic Barberton greenstone belt.

Professor Tsikos's research on iron and manganese ores resulted in him being invited to present papers in Lyon, France and Glasgow, Scotland.

Low Meteorite impacts was the focus of a conference in Brasilia, Brazil where Professor Prevec was invited to present two (2) papers.

### Professor Tony Booth

*Acting Head of Department*

*Dr Deon van Niekerk, Professor Steve Prevec (not shown) and Ms Alex Collett in the field near Cradock, sampling granodiorites*  
Credit: Steve Prevec





Dr Andy Moore, who is involved in groundbreaking discoveries of modern human origin Rhodes University's research hegemony has once again been recognised by the industry. The institution's Research Associate, Dr Andy Moore, has been involved in a ground-breaking new study that has revealed Southern Africa as the birthplace of modern humans, who lived in a "homeland" in the region for 70 000 years before some migrated due to a shift in climate  
Credit: Steve Prevec

## Books/Chapters/Monographs

**Grosch, E.G.**

Lanari, P., Ferrero, S., Goncalves, P. and **Grosch, E.G.** (2019) Metamorphic geology: progress and perspectives. In: Ferrero, S., Lanari, P., Goncalves, P. and Grosch, E.G. (eds.). *Metamorphic Geology: Microscale to Mountain Belts. Geological Society of London Special Publications 478*. UK: Geological Society of London. p.1-12. ISBN: 9781786204165.

**Grosch, E.G.**, Ferrero, S., Lanari, P. and Goncalves, P. (ed.) (2019) *Metamorphic Geology: Microscale to Mountain Belts. Geological Society of London Special Publications 478*. UK: Geological Society of London. ISBN: 9781786204165.

## International Visits

**Buttner, S.H.**

**Buttner, S.H.** German Research Centre (GFZ), Potsdam, Germany. 2 - 6 December 2019.

**Grosch, E.G.**

**Grosch, E.G.** Charles University, Prague, Czech. *Invited talk: Petrology and isotope geochemistry of mafic-ultramafic rocks of the Onverwacht group, Barberton Greenstone Belt, South Africa*. 15 - 16 May 2019.

**Grosch, E.G.** Czech Academy of Sciences, Prague, Czech. *Invited Talk: Constraints on Archean fluid-rock interaction, thermal processes and evidence for early life in the Archean sub-seafloor environment, Barberton Greenstone Belt, South Africa*. 17 - 18 May 2019.

**Grosch, E.G.** Czech Geological Survey, Prague, Czech. *Invited talk: New insights into the geology and crustal evolution of the Paleoproterozoic Barberton greenstone belt, South Africa*. 11 - 13 May 2019.

**McLoughlin, N.**

**McLoughlin, N.** University of Edinburgh, Edinburgh, UK. *Invited Seminar: Organics and Microalteration textures in Olivines from a Martian Meteorite: Lessons for seeking life in ultramafic rocks and impact structures on Earth*. 10 January 2019.

**Tsikos, H.**

**Tsikos, H.** Ecole Normale Supérieure de Lyon, Lyon, France. *Geochemical research on South African iron ores - invited seminar presentation*. 12 January - 15 March 2019.

**Tsikos, H.** Scottish Universities Environmental Research Center (SUERC), Glasgow, UK. *Invited seminar: Manganese as a proxy of early Earth redox evolution*. 11 - 13 March 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Costin, G.**

Roberts, R.J., Lehong, K.D., Botha, A.E.J., **Costin, G.**, De Beer, F.C., Hoffman, W.J. and Hetherington, C.J. (2019) Clinopyroxene megacrysts from Marion Island, Antarctic Ocean: evidence for a late stage shallow origin. *Mineralogy and Petrology*. 113 (2019). p.155-167.

**Harmer, R.E.**

McFall, K., MacDonald, I., Tanner, D. and **Harmer, R.E.** (2019) The mineralogy and mineral associations of platinum-group elements and precious metals in the Aurora Cu-Ni-Au-PGE deposit, Northern Limb, Bushveld Complex. *Ore Geology Reviews*. 106 (2019). p.403-422.

**McLoughlin, N.**

Johannessen, K.C., **McLoughlin, N.**, Vullum, P.E. and Thorseth, I. (2019) On the biogenicity of Fe-oxyhydroxide filaments in silicified low-temperature hydrothermal deposits: Implications for the identification of Fe-oxidizing bacteria in the rock record. *Geobiology*. 2019 (2019). p.1-23.

Qu, Y., **McLoughlin, N.**, van Zuilen, m., Whitehouse, M., Engdahl, A. and Vajda, V. (2019) Evidence for molecular structural variations in the cytoarchitectures of a Jurassic plant. *Geology*. 47 (4). p.325-329.

**McLoughlin, N. and Grosch, E.G.**

**McLoughlin, N., Grosch, E.G.**, Vullum, P.E., Guagliardo, P., Saunders, M. and Wacey, D. (2019) Critically testing olivine-hosted putative martian biosignatures in the Yamato 000593 meteorite? Geobiological implications. *Geobiology*. 17 (2019). p.691-707.

**Moore, A.E.**

Howarth, G.H., **Moore, A.E.**, Harris, C., van der Meer, Q.H.A. and le Roux, P.C. (2019) Crustal versus mantle origin of carbonate xenoliths from Kimberley region kimberlites using C-O-Sr-Nd-Pb isotopes and trace element abundances. *Geochimica et Cosmochimica Acta*. 266 (2019). p.258-273.



Moore, A.E. and Hemstaedt, H. (2019) Evidence for two blue (type IIb) diamond populations. *Nature*. 570 (2019). p.26-27.

Chan, E.K.F., Timmermann, A., Baldi, B.F., Moore, A.E., Lyons, R.J., Lee, S., Kalsbeek, A.M.F., Petersen, D.C., Rautenbach, H., Förtsch, H.E.A., Bornmann, M.S.R. and Hayes, V. (2019) Human origins in a southern African palaeo-wetland and first migrations. *Nature*. 575 (2019). p.185-189.

Scoon, R.

Mitchell, A.A., Scoon, R. and Sharpe, M.J. (2019) The Upper Critical Zone in the Swartklip Sector, north-western Bushveld Complex, on the farm Wilgerspruit 2JQ: II. Origin by intrusion of ultramafic sills with concomitant partial melting of host norite-anorthosite cumulates. *South African Journal of Geology*. 122 (2). p.143-162.

Scoon, R. and Viljoen, M.J. (2019) Geoheritage of the Eastern Limb of the Bushveld Igneous Complex, South Africa: a Uniquely Exposed Layered Igneous Intrusion. *Geoheritage*. 11 (2019). p.1723-1748.

Scoon, R.N.

Scoon, R.N. and Mitchell, A.A. (2019) Discussion of "Oxygen isotope and trace element compositions of platiniferous dunite pipes of the Bushveld Complex, South Africa - Signals from a recycled mantle component?" by Günther, T., Haase, K.M., Junge, M., Oberthür, T., Woelki, D., and Krumm, S. *Lithos*. 324-325 (2019). p.893-898.

Tsikos, H.

Fairey, B.J., Timmerman, M.J., Sudo, M. and Tsikos, H. (2019) The Role of Hydrothermal Activity in the Formation of Karst-Hosted Manganese Deposits of the Postmasburg Mn Field, Northern Cape Province, South Africa. *Minerals*. 9 (408). p.1-28.

Papadopoulos, A., Tzifas, I. and Tsikos, H. (2019) The Potential for REE and Associated Critical Metals in Coastal Sand (Placer) Deposits of Greece: A Review. *Minerals*. 9 (469). p.1-20.

Thibon, F., Blichert-Toft, J., Albarede, F., Foden, J. and Tsikos, H. (2019) A critical evaluation of copper isotopes in Precambrian Iron Formations as a paleoceanographic proxy. *Geochimica et Cosmochimica Acta*. 264 (2019). p.130-140.

Rasmussen, B., Muhling, J., Tosca, N.J. and Tsikos, H. (2019) Evidence for anoxic shallow oceans at 2.45 Ga: Implications for the rise of oxygenic photosynthesis. *Geology*. 47 (7). p.622-626.

Tzifas, I., Papadopoulos, A., Misaelides, P., Godelitsas, A., Gottlicher, J., Tsikos, H., Gamaletsos, P.N., Luvizotto, G.L., Karydas, A.G., Petrelli, M., Noli, F., Kantarelou, V., Kontofakas, A. and Hatzidimitriou, A.G. (2019) New insights into mineralogy and geochemistry of allanite-bearing Mediterranean coastal sands from Northern Greece. *Chemie der Erde-Geochemistry*. 79 (2019). p.247-267.

Rasmussen, B., Muhling, J., Zi, J.W., Tsikos, H. and Fischer, W.W. (2019) A 1.25 Ga depositional age for the "Paleoproterozoic" Mapped red beds, Kalahari manganese field, South Africa: New constraints on the timing of oxidative weathering and hematite mineralization. *Geology*. 2019. p.1-5.

Van Breugel, Y., Cowan, K.A. and Tsikos, H. (2019) Geochemical Study of Weathered Coal, a Co-Substrate for Bioremediation of South African Coal Discard Dumps. *Minerals*. 9 (772). p.1-15.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Buttner, S.H., Marima, E. and Van Huyssteen, A.

Buttner, S.H., Marima, E., Van Huyssteen, A. and Howarth, G.H. Equilibrium and disequilibrium crystallization and melt segregation in kimberlitic melt inclusions from Monastery mine, South Africa. *TIGER Conference 2019*. Curtin University, Perth. Australia. September 2019.

Dyan, S. and Prevec, S.A.

Dyan, S., Prevec, S.A. and Tonnelier, N. Oxidation state in Bushveld Complex mafic rocks determined from Cr/V ratio modelling. *Igneous and Metamorphic Studies Group 11th Annual Conference (IMSG)*. Kopjeskraal Guest Farm, Parys. South Africa. January 2019.

Gess, R.

Gess, R. The Palaeoenvironment of the high latitude Devonian tetrapods from Waterloo Farm, South Africa. *15th International Symposium on Early and Lower Vertebrates*. Qujing. China. August 2019.

Miyashita, T. and Gess, R. Ontogeny of Palaeozoic stem lampreys as a test for the amocoete-based model of the vertebrate ancestry. *15th International Symposium on Early and Lower Vertebrates*. Qujing. China. August 2019.

Trinajstić, K.M. and Gess, R. The palaeoecology of Placoderm neonate and juveniles from the Late Devonian of South Africa. *15th International Symposium on Early and Lower Vertebrates*. Qujing. China. August 2019.

Grosch, E.G.

Grosch, E.G. and Viola, G. Geological Record of Mid-Archean Flake Tectonics Preserved in the c. 3.3 Ga Kromberg Volcanic Sequence, Barberton Greenstone Belt, South Africa. *Goldschmidt Geochemistry Conference*. Barcelona ICC, Barcelona. Spain. August 2019.

Harmer, R.E.

Harmer, R.E. Keynote: Exploration vectors for REE deposits in magnesium carbonatites derived from integrated field, petrological and experimental data. *HiTech AlkCarbs Conference: Critical raw materials and our green future*. Natural History Museum, London. UK. November 2019.

McLoughlin, N. and Grosch, E.G.

McLoughlin, N. and Grosch, E.G. Investigating Putative Biosignatures in Olivine from the Subsurface of Mars. *Goldschmidt Geochemistry Conference*. Barcelona ICC, Barcelona. Spain. August 2019.

Molyneux, D.P. and Prevec, S.A.

Molyneux, D.P. and Prevec, S.A. Magmatic evolution of a saucer-shaped Karoo sill, Middelburg area, Eastern Cape. *Igneous and Metamorphic Studies Group 11th Annual Conference (IMSG)*. Kopjeskraal Guest Farm, Parys. South Africa. January 2019.

Papadopoulos, V. and Tsikos, H.

Papadopoulos, V., Tsikos, H., Boyce, A. and Mark, D.F. Regional isotopic fingerprinting of hydrothermal barite mineralisation, and its possible association to epigenetic iron and manganese ore formation in the Paleoproterozoic Transvaal Supergroup of South Africa. *Annual Meeting of the Mineral Deposit Studies Group Mineralogical Society of Great Britain and Ireland*. Exeter. UK. January 2019.

Papadopoulos, V., Tsikos, H., Boyce, A. and Mark, D.F. Mississippi-valley type iron and manganese deposits? Multi-proxy evidence for large-scale brine circulation and alkali metasomatism in the Kalahari



Ronald Samokomva, a first year student in Geology, being trained by Chief Technical Officer Andrea King to cut rocks using a diamond-hardened water-cooled rock saw, for research projects in the Department of Geology  
Credit: Steve Prevec

and Postmasburg iron-manganese fields. *Annual Meeting of the Mineral Deposit Studies Group Mineralogical Society of Great Britain and Ireland*. Exeter. UK. January 2019.

**Papadopoulos, V., Boyce, A., Mark, D.F. and Tsikos, H.** Investigation of large-scale brine circulation as mechanism of ore formation in the Kalahari and Postmasburg Iron-Manganese fields, South Africa. *15th Biennial SGA Meeting*. Glasgow. Scotland. August 2019.

**Prevec, S.A. and Buttner, S.H.**

**Prevec, S.A. and Buttner, S.H.** Injection of melt sheet into impact crater footwall: implications from offset dykes of the Sudbury Igneous Complex, Canada. *Large Meteorite Impacts and Planetary Evolution VI*. Finatec Centre, Brasilia. Brazil. October 2019.

**Prevec, S.A., De Bruyn, J.A. and Nxesi, B.F.**

**Prevec, S.A., De Bruyn, J.A. and Nxesi, B.F.** Shocked and juvenile zircons in impact crater footwall, Sudbury, Canada: partial melting of a reactivated footwall mylonite zone. *Large Meteorite Impacts and Planetary Evolution VI*. Finatec Centre, Brasilia. Brazil. October 2019.

**Tsikos, H.**

Thibon, F., Blichert-Toft, J., Albarede, F., Foden, J. and **Tsikos, H.** Copper in banded iron formations as a redox proxy for Precambrian paleoceanography. *Goldschmidt 2019*. Barcelona. Spain. August 2019.

Heard, A.J., Bekker, A., Dauphas, N., **Tsikos, H.** and Ireland, T.J. Geochemical investigation of ferruginous stromatolites from the early Paleoproterozoic Griquatown Iron Formation, South Africa. *Second Geobiology Society Conference*. Banff. Canada. June 2019.

**Tsikos, H.** Constraints of geochemical mass balance on the genesis of Iron and Manganese deposits in the Northern Cape. *GSSA Colloquium on the Deposits of the Northern Cape*. Red Sands, Kuruman. South Africa. October 2019.

**Van Huyssteen, A. and Buttner, S.H.**

**Van Huyssteen, A., Buttner, S.H.** and Howarth, G.H. Ilmenite-hosted melt inclusions from the Monastery kimberlite: implications for kimberlite origins. *11th Igneous and Metamorphic Studies Group Conference: MSG 2019*. University of Johannesburg, Johannesburg. South Africa. January 2019.



*Exploration group*

*Back row (left to right) - T Mavuwa, K Chimanya, T Mutilifa, L Pepler, G Norton, G Lembura, T Kubirské and A Zabula*  
*Front row (left to right) - M Cronwright, A Goddard, J Harmer and D Reid*

*Credit: Steve Prevec*



*Granodiorites, Cradock*

*Credit: Steve Prevec*





Department of History staff were active in research and publication with a total of six (6) book chapters, ten (10) presentations at workshops/colloquia, and six (6) subsidy-bearing publications in peer-reviewed journals being produced. Sixteen (16) papers were presented at academic conferences. Staff also contributed towards enhancing the research profile of the Department by the roles that they played in facilitating a wider culture of research.

### Significant Research Aligned Events

Professor Baines, Professor Kirkaldy, Professor Msindo, Associate Professor Ulrich and Associate Professor Pohlandt-McCormick all acted as external examiners for other institutions in South Africa or internationally and as peer reviewers for accredited journals and publishers. They also served on the editorial boards of various journals.

Professor Kirkaldy served as a member of the Humanities Higher Degrees Committee, the Humanities Committee of Assessors and the Board of the Cory Library.

Professor Msindo continued to serve as Deputy Dean of Humanities and Chair of the Humanities Higher Degrees Committee and was appointed Director of the newly-established African Studies Centre. He also hosted the Biennial Conference of the South African Historical Society, held at Rhodes in June 2019. This attracted a significant number of local and international scholars. All members of the academic and administrative staff of the Department served on the organising committee and assisted in running the conference while it was in progress. Postgraduate students participated actively as facilitators and presenters.

Associate Professor Pohlandt-McCormick planned and hosted a workshop conference: *iMpuma-Koloni Bearings: An Other Cape?*, a joint Rhodes University/University of Fort Hare collaboration, held in June 2019.

Associate Professor Ulrich served as an International Partner and Management Committee Observer for the EU COST action Worlds of Related Coercions in Work (WORCK). She was also part of the working group: *“(Im)Mobilisations of the Workforce”*.

Dr Thumbran organised the *Biko Dialogue* as part of National Arts Fest.

All staff were active in teaching and Postgraduate supervision.

#### Professor Alan Kirkaldy

##### *Head of Department*

*The Isikhumbuzo Applied History Unit took its 2-person play, Umnqa! - Never Defeated to a 2019 Women's Day programme hosted by the Mhala Development Trust of KwaNdlambe, near Peddie. This marks the beginning of taking historical performances into rural villages in collaboration with traditional leadership*  
Credit: Department of History



## Books/Chapters/Monographs

**Baines, G.F.**

**Baines, G.F.** (2019) Confessions of a Conscript, Disclosures of an Historian: An Autobiographical Essay about the Border War. In: Van der Waag & Grundlingh, I.&A. (ed.). *In Different times: The War for Southern Africa, 1966-1989*. Stellenbosch: SUN PRESS. p.248-265. ISBN: 9781928480341.

**Baines, G.F.** (2019) Military Veterans as Victims. In: Peacock, R. (ed.). *Victimology in Africa*. Pretoria: Van Schaik Publishers. p.293-304. ISBN: 9780627037139.

**Baines, G.F.** (2019) A Duty to Remember (and Forget?): A Transnational Perspective on Commemorating War. In: Jacob, F. and Pearl, K. (eds.). *War and Memorials: The Age of Nationalism and the Great War*. Paderborn, Germany: Verlag Ferdinand Schöningh. p.23-45. ISBN: 9783657788223.

**Baines, G.F.** (2019) *Oxford Research Encyclopedia (ORE) of African History*. New York: Oxford University Press. ISBN: 9780190277734.

**Ulrich, N.**

**Ulrich, N.** (2019) 'Journeying into Freedom': Traditions of Desertion at the Cape of Good Hope, 1652-1795. In: Chakraborty, T., van Rossum, M. and Rediker, M. (eds.). *A Global History of Runaways: Workers, Mobility and Capitalism, 1600-1850*. USA: University of California Press. p.115-134. ISBN: 9780520304369.

**Wells, J.C.**

**Wells, J.C.** (2019) Public History in South Africa : A Toll for Recovery. In: Ashton, P. and Trapeznik, A. (eds.). *What Is Public History Globally? Working with the Past in the Pre-set*. London: Bloomsbury. p.131-145. ISBN: 9781350033290.

## Concerts, Exhibitions, Performances, Workshops, Events

**Kirkaldy, A.**

**Kirkaldy, A.** Paper presentation. The re-creation of wild spaces in the Eastern Cape - sound conservation practice or ecological and socio-economic nightmare? *Rhodes University/University of Fort Hare workshop entitled iMpuma-Koloni Bearings: An Other Cape?* Rhodes University, Grahamstown. South Africa. 20 - 21 June 2019.

**Msindo, E.**

**Msindo, E.** Solo. Race in the Humanities Curricula: The Past and the Present. *NIHSS Colloquium on Race in the Humanities Curricular*. Rhodes University PG Village, Grahamstown. South Africa. 25 - 27 February 2019.

**Pohlandt-McCormick, H.**

**Pohlandt-McCormick, H.** Presenter. "Joint Research Projects" Critical thoughts on the experience of the challenges and possibilities of 'collaborative work'. *Refashioning Collaboration*. Centre for African Studies, University of Basel, Basel. Switzerland. 22 - 25 May 2019.

**Pohlandt-McCormick, H.**

**Pohlandt-McCormick, H.** Convener. iMpuma-Koloni Bearings: An Other Cape? Rhodes University/Fort Hare University. *Introduction -- iMpuma-Koloni Bearings: An Other Cape?* Rhodes University, Makhanda. South Africa. 20 - 21 June 2019.

**Thumbran, J.D.**

**Thumbran, J.D.** Convener. Biko Dialogue. *Biko Dialogue*. National Arts Festival, Grahamstown. South Africa. 27 June 2019.

**Thumbran, J.D.** Presentation. Provincialising the Western Cape: (Re) Locating the Coloured Question. *iMpuma-Koloni Bearings: an Other Cape*. Rhodes University/Fort Hare University, Grahamstown. South Africa. 20 - 21 June 2019.

**Thumbran, J.D.** Presenter. Refashioning Collaboration. *Ethics of Collaborations*. Centre for African Studies, University of Basel, Basel. Switzerland. 22 - 25 May 2019.

**Ulrich, N.**

**Van Der Walt, L., Ulrich, N., McGregor, W., Sikwebu, D., Nieftagodien, N., Dee, H., Twala, C., van Heyningen, E. and Mkhize, S.** Design, facilitation, presentation. The Industrial and Commercial Workers Union of Africa. *New Perspectives Workshop (History Workshop, University of the Witwatersrand & Neil Aggett Labour Studies Unit (NALSU))*. Rhodes University, Grahamstown/Makhanda. South Africa. 27 June 2019.

**Ulrich, N.** Paper presentation. Reproducing Empire: Captives of the Frontier, c. 1770-1795, iMpuma-Koloni Bearings: An Other Cape? Rhodes University/Fort Hare University. *Reproducing Empire: Captives of the Frontier*, c. 1770-1795. Rhodes, Grahamstown. South Africa. 20 - 21 June 2019.

**Van Der Walt, L., Naidoo, L., Reynolds, J., Ulrich, N., Ntikanca, K.L., Allan, C.T., Klerck, G., Alfors, L., Fryer, D., McGregor, W., Jara, M. and Kota, A.** Design, facilitation, presentation. Vuyisile Mini Winter School 2019. *Politics Within and at a Distance from the State (Neil Aggett Labour Studies Unit (NALSU))*. Rhodes University, Grahamstown/Makhanda. South Africa. 9 - 12 July 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Baines, G.F.**

**Baines, G.F.** (2019) Book Review: Benedikt Jager & Steffi Hobu, (eds.), [Post]Colonial Histories: Trauma, Memory and Reconciliation in the Context of the Angolan Civil War. Bielefeld: Transcript Verlag, 2017. *History*. 47 (3). p.68-70.

Huxford, G., Alcalde, A., **Baines, G.F.**, Burtin, O. and Edele, M. (2019) Writing Veterans' History: A Conversation on the Twentieth Century. *War & Society*. 38 (2). p.115-138.

**Baines, G.F.** (2019) The Arsenal of Securocracy: Pretoria's provision of arms and aid to Salisbury, c.1974-80. *South African Historical Journal*. 71 (3). p.423-441.

**Baines, G.F.** (2019) Confessions of a Conscript, Disclosures of an Historian: An Auto historiographical Essay. *Life Writing*. 16 (4). p.513-526.

**Baines, G.F.** (2019) The Politics of Commemoration in Post-Apartheid South Africa: A Case Study of Lilliesleaf Museum. *South African Journal of Cultural History*. 33 (1). p.80-97.

**Msindo, E. and Madimu, T.**

**Msindo, E. and Madimu, T.** (2019) Towards Banking Inclusion? The Post Office Savings Bank (POSB) in Southern Rhodesia, 1905-1945. *African Economic History*. 47 (1). p.54-91.

**Msindo, E. and Nyachega, N.**

**Msindo, E. and Nyachega, N.** (2019) Zimbabwe's Liberation War and the Everyday in Honde Valley, 1975 to 1979. *South African Historical Journal*. 71 (1). p.70-93.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Baines, G.F.**

**Baines, G.F.** Transgressed Borders and Transnational Communities: Representing and Remembering South Africa's "Border War". *Popular Culture Association Conference*. Wardmann Park Marriott, Washington D.C. United States of America. April 2019.

**Baines, G.F.** Angola's Avowed Anti-Communist: Jonas Savimbi's Malleable Image. *Anti-Communism in the Twentieth Century: An International Historical Perspective*. Queen's University, Belfast. United Kingdom. May 2019.

**Baines, G.F.** Remembering War by way of Reconciliation: The Return of SADF Veterans to Angola. *Memory in Africa Conference*. University of Pretoria, Pretoria. South Africa. October 2019.

**Baines, G.F.** Statuary Limitations? Memory Politics in Post-Colonial South Africa. *Third Annual Memory Studies Association Conference*. Complutense University, Madrid. Spain. January 2019.

**Chinembiri, C.**

**Chinembiri, C.** Inherited colonial notions of quality in the development of the National Council for Higher Education in Zimbabwe from the 1990 to 2006. *Southern African Historical Society*. Rhodes, Makhanda. South Africa. June 2019.

**Kirkaldy, A.**

**Kirkaldy, A.** Transnationalism and Nationalism in the CPSA/SACP: The example of Ivan Schermbrucker c. 1945-1965. *Southern African Historical Society Biennial Conference*. Rhodes University, Grahamstown. South Africa. June 2019.



Professor Theresa Barnes (front row left) and Dr Janeke Thumbbran (second row) at the Southern African Historical Society (SAHS) Conference, 24 - 26 June, 2019  
Credit: Department of History

**Msindo, E.**

**Msindo, E.** The Evolution of African Studies and its Configurations: Histories, Challenges and Opportunities. *What do we mean by "Reconfiguring African Studies"?* University of Bayreuth, Bayreuth. Germany. October 2019.

**Msindo, E.** African Urbanities: Reflections on the Zimbabwean Experience since the middle ages. *Triumphs, Tragedies and New Trajectories: Rethinking urban history(ies) of Zimbabwe*, Zimbabwe Historical Association, July 2019. Midlands State University, Zvishavane. Zimbabwe. July 2019.

**Msindo, E.** Keynote Speech: Writing History Beyond Trevor Roper: Experience of African History, with special reference to Zimbabwe. *Triumphs, Tragedies and New Trajectories: Rethinking urban history(ies) of Zimbabwe*, Zimbabwe Historical Society Annual Conference, 17-19 July, 2019. Midlands State University, Zvishavane. Zimbabwe. July 2019.

**Paterson, C.J.**

**Paterson, C.J.** Notes on the Origin of the Chase: Indigenous Racing Sports in Pre-Colonial and Colonial Transkei. *iMpuma-Koloni Bearings: An Other Cape?* Rhodes University, Makhanda. South Africa. June 2019.

**Paterson, C.J.** Dissensus. *Centre for Humanities Research*. University of the Western Cape, Cape Town. South Africa. July 2019.

**Thumbbran, J.D.**

**Thumbbran, J.D.** Black Academics Matter: History and Anti-blackness at South African Universities. *History and Decolonisation*. University of Pretoria, Pretoria. South Africa. July 2019.

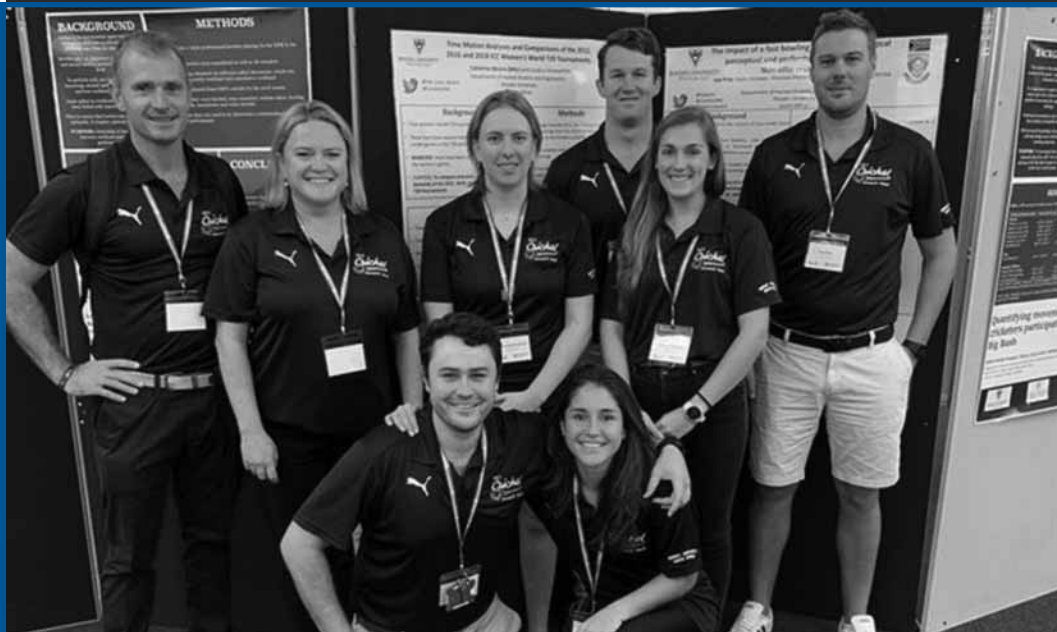
**Thumbbran, J.D.** From Propaganda to Reform: The Institute of Plural Societies and the Department of Information. *Southern African Historical Society*. Rhodes University, Grahamstown. South Africa. June 2019.

**Thumbbran, J.D.** Anti-blackness across the Atlantic. *African Studies Association (ASA)*. Boston Marriott Copley Place, Boston. United States of America. November 2019.

**Ulrich, N.**

**Ulrich, N.** "Imperial reproduction, state power, and accumulation: indenture and the making of an imperial 'refreshment station' at the Cape of Good Hope, c. 1652-1840". *Towards a Global History of Primitive Accumulation*. International Institute of Social History, Amsterdam. Netherlands. May 2019.

**Ulrich, N.** "The ICU, Women and Urban Community Organisation: the case of the 1925 Beer Riot in Bloemfontein". *Southern African Historical Society Conference, Rhodes University, Makhanda, Eastern Cape, 24-26 June, 2018*. Rhodes, Grahamstown. South Africa. June 2019.



The department has had a very successful year in the research sphere with a number of publications which included student co-authors and national and international collaborators.

## Postgraduates / Graduations

In 2019 the department graduated two (2) MSc and nineteen (19) Honours students.

## Distinguished Visitors / International Visits

Associate Professor Candice Christie, Dr Lee Pote (Postdoctoral Research Fellow) and several Postgraduate Human Kinetics and Ergonomics (HKE) students represented the department at the World Congress of Medicine and Science in Cricket in Loughborough, United Kingdom (UK) in July 2019.

Andrew Todd has continued his international work as a member of the International Ergonomics Association (IEA) committee. He, again, travelled extensively around the world for conferences and meetings to promote Human Factors and Ergonomics.

## Significant Research Aligned Events

The Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019) took place in Durban and saw fifteen (15) presentations by staff and students from the HKE department, with Dr Davy being the chair of the scientific committee. A particular highlight was the paper from Miriam Mattison who won the award for the best academic paper at the conference.

The BRICS ergonomics network hosted a network meeting in September 2019 in Xi'an China. Delegates from all five (5) ergonomics societies attended the meeting which concluded with an agreement to further joint scientific education and research activities in the field of ergonomics.

**Dr Swantje Zschoernack**

*Head of Department*

### *Cricket research group from Rhodes University's HKE in England*

*More than 100 delegates from 20 different countries around the world attended the 6th World Congress of Science and Medicine in Cricket Conference (WCSMC) in July 2019, including several Rhodes University representatives. The conference was held at Loughborough University in conjunction with the scheduling of the semi-finals of the ICC Cricket World Cup, and included a cricket research group, led by Associate Professor Candice Christie from Rhodes University's Human Kinetics and Ergonomics (HKE) Department.*

*Credit: Department of Human Kinetics and Ergonomics*





HKE staff and Postgraduate students represent the HKE Department at the 2019 joint conference of the African Symposium on Human Factors and Aviation Safety (ASHFAS) and the Ergonomics Society of South Africa (ESSA) in Durban  
Credit: Department of Human Kinetics and Ergonomics

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Christie, C.J.**

Draper, C.E., Tomaz, S.A., Bassett, S.H., Harbron, J., Kruger, H.S., Micklesfield, L.K., Monyeki, A., Lambert, E.V., **Christie, C.J.**, **Dugmore, H.** and et al. (2019) Results from the Healthy Active Kids South Africa 2018 Report Card. *South African Journal of Child Health (SAJCH)*. 13 (3). p.130-136.

**Davy, J. and Todd, A.**

**Davy, J.**, Gomes, J.O., Volosiuk, A., Jana, A., Ray, G., Ganguli, A.K., Zhang, W. and **Todd, A.** (2019) The BRICSplus Network: A Historical Overview and Future Perspectives of the Network's Role in Human Factors and Ergonomics. *Advances in Intelligent Systems and Computing*. 821 (2018). p.647-656.

**Pote, L. and Christie, C.J.**

**Pote, L.** and **Christie, C.J.** (2019) Workloads placed on adolescent cricket players: A pilot study. *International Journal of Sports Science & Coaching*. 14 (1). p.107-113.

**Pote, L., Proctor, S., Mcewan, K., Davy, J. and Christie, C.J.**

**Pote, L., Proctor, S., Mcewan, K., Davy, J. and Christie, C.J.** (2019) The impact of a fast bowling spell on physiological, perceptual and performance responses in non-elite cricketers. *South African Journal of Sports Medicine*. 31 (1). p.1-5.

**Robinson, B., Pote, L. and Christie, C.J.**

**Robinson, B., Pote, L. and Christie, C.J.** (2019) Strength and conditioning practices of high school rugby coaches: A South African context. *South African Journal of Science*. 115 (9/10). p.1-6.

**Todd, A.**

**Todd, A.** (2019) Matching New Ergonomics Regulations to Stakeholder Competence in South Africa. *Advances in Intelligent Systems and Computing*. 820 (2019). p.478-483.

## Peer-reviewed Proceedings

**Agar, S.L. and Todd, A.**

**Agar, S.L. and Todd, A.** An evaluation of the safety culture of healthcare providers at the 'front-line' in government clinics. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African*

*Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

**Bennett, C.K. and Zschoernack, S.**

**Bennett, C.K. and Zschoernack, S.** The workload of flight attendants during short-haul flight operations: a system analysis. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

**Bennett, C.T. and Zschoernack, S.**

**Bennett, C.T. and Zschoernack, S.** System analysis of the workload of pilots executing short-haul flight operations. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

**Blair, D.R., Todd, A. and Davy, J.**

**Blair, D.R., Todd, A., Dobson, R., Ndlovu, P., Quazi, T. and Davy, J.** Activity analysis of cardboard collectors at Warwick Junction: an exploratory study. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

**Card, J., Agar, S.L., Davy, J. and Todd, A.**

**Card, J., Agar, S.L., Davy, J. and Todd, A.** Ergonomics approach to understanding perceived barriers to the provision of high-quality healthcare. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

**Davy, J. and Todd, A.**

**Davy, J., Gomes, J.O., Volosiuk, A., Jana, A., Ray, G., Ganguli, A.K., Zhang, W. and Todd, A.** The BRICSplus Network: a historical overview and future perspectives of the network's role in Human Factors and Ergonomics. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

**Davy, J., Weaver, K.N., Todd, A. and Paphitis, S.** "Ergonomics on the ground": a case study of service learning in ergonomics education. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

Davy, J., Dlepu, P., Mandondo, N.L. and Zschoernack, S.  
 Davy, J., Dlepu, P., Mandondo, N.L. and Zschoernack, S. A story of incompatibilities: an ergonomist's view of sleep in adolescents and the impact of how schooling systems are designed. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Davy, J., Rasetsoke, D. and Todd, A.  
 Davy, J., Rasetsoke, D., Todd, A., Quazi, T., Ndlovu, P., Dobson, R. and Alfors, L. Analyses of time use in informal economy workers reveals long work hours, inadequate rest and time poverty. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

Goodenough, L.B. and Zschoernack, S.  
 Goodenough, L.B. and Zschoernack, S. Quantifying the Impact of Submersion in Water and Breathing Type on Cognitive Resource Utilization. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

King, J. and Mattison, M.  
 King, J. and Mattison, M. The Effects of Intermittent Task Parameters during Submaximal Dynamic Exertions on Muscle Fatigue Development. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Le Grange, S. and Todd, A.  
 Le Grange, S. and Todd, A. Work Domain Analysis: strengthening the embedding process in sport delivery systems. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Malesa, T.K. and Zschoernack, S.  
 Malesa, T.K. and Zschoernack, S. The effect of different sit-stand interventions on compliance and alternating occupational sitting behaviour of various office administrators at Rhodes University. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

*Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Mattison, M. and Zschoernack, S.  
 Mattison, M. and Zschoernack, S. An investigation into the effects of muscle force and muscle length on the development of localized muscle fatigue. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Redman, C.W. and Todd, A.  
 Redman, C.W. and Todd, A. Community Perceptions and Expectations of the Quality of Household Solid Waste Management in Makana Municipality. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Ryan, B. and Todd, A.  
 Ryan, B. and Todd, A. The use of Cognitive Work Analysis (CWA) to identify constraints and affordances: A Case study of Grassroots Football Administration in South Africa. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Smuts, C. and Manthe, L.C.  
 Smuts, C. and Manthe, L.C. 'FIT4WORK': endorsing industrial athletes at a South African automotive production facility. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Smuts, C. and Mattison, M.  
 Smuts, C. and Mattison, M. Does knowledge of load influence physical preparedness for a manual materials handling task? *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Todd, A.  
 Todd, A. Matching New Ergonomics Regulations to Stakeholder Competence in South Africa. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

Zschoernack, S. and Bennett, C.K.  
 Zschoernack, S. and Bennett, C.K. The Effects of Food Packaging on Driving Performance When Eating While Driving. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

Zschoernack, S., Engelke, K. and Smith, M.J.  
 Zschoernack, S., Engelke, K. and Smith, M.J. The effects of anthropometric measures on aircraft passengers' perceptions of comfort short-haul flights - a laboratory experiment. *Fourteenth Ergonomics Society of South Africa Conference (ESSA2019) and the Fourth African Symposium on Human Factors and Aviation Safety (ASHFAS2019)*. Southern Sun Elangeni and Maharani Hotel, Durban. South Africa. August 2019.

Zschoernack, S., Goebel, M. and Hoyi, Z.  
 Zschoernack, S., Goebel, M. and Hoyi, Z. The Effects of the Type of Rest Breaks on Return-to-Task Performance in Semi-automated Tasks with Varying Complexities. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Barnard, D.V., Pote, L., Munro, C.E., Goble, D., Campbell, B.C., Le Roux, A. and Christie, C.J.

Barnard, D.V., Pote, L., Munro, C.E., Goble, D., Campbell, B.C., Le Roux, A. and Christie, C.J. Workload does not impact performance responses in the Indian Premier League cricket. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

Campbell, B.C., Christie, C.J. and Davy, J.  
 Campbell, B.C., Christie, C.J. and Davy, J. A pilot study to investigate



HKE Postgraduate students Chumani Mona (right) and Elrico De Bruyn (left) present their projects at the 2019 Rhodes University Postgraduate Colloquium  
 Credit: Department of Human Kinetics and Ergonomics

the time of day effects on perceptual, physical and performance indicators of adolescent fast bowlers. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Christie, C.J.**

Vickery, W., **Christie, C.J.** and Gray, J. A coach's perspective of cricket practice design: a case report. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Christie, C.J., Munro, C.E., Mcewan, K., Le Roux, A., King, G.A. and Pote, L.**

**Christie, C.J., Munro, C.E., Mcewan, K., Le Roux, A., King, G.A., Oliver, B. and Pote, L.** Workloads and injury risk in elite South African cricket fast bowlers: A snapshot of one season. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Mcewan, K., Davy, J. and Christie, C.J.**

**Mcewan, K., Davy, J. and Christie, C.J.** Sleep behaviours of elite South African cricket players during a home and away tour, for both One-day International and Twenty20 series. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. United Kingdom. July 2019.

**Munro, C.E. and Christie, C.J.**

**Munro, C.E. and Christie, C.J.** Time motion analyses comparing the 2012, 2016 and 2018 ICC Women's World T20 Tournaments. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Munro, C.E., Mcewan, K. and Christie, C.J.**

**Munro, C.E., Mcewan, K. and Christie, C.J.** Workload monitoring of an elite South African women's cricket team during the 2018/2019 season. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Pote, L. and Christie, C.J.**

**Pote, L. and Christie, C.J.** Workloads placed on adolescent cricket players: a pilot study. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Pote, L., Mcewan, K., Proctor, S. and Christie, C.J.**

**Pote, L., Mcewan, K., Proctor, S. and Christie, C.J.** The impact of a fast bowling spell on physiological, perceptual and performance responses in non-elite cricketers. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.

**Sholto-Douglas, R., Cook, R.L. and Christie, C.J.**

**Sholto-Douglas, R., Cook, R.L., Wilkie, M. and Christie, C.J.** Quantifying movement demands of elite cricket players participating in the 2017/2018 T20 Big Bash League. *6th World Congress of Science and Medicine in Cricket*. Holywell Park Conference Centre, Loughborough. UK. July 2019.



Mr Andrew Todd (back row first left) and Dr Jonathan Davy (back row second left) contribute to the 2019 OSHAfrica Conference  
Credit: Department of Human Kinetics and Ergonomics



# 2019 DEPARTMENT OF ICHTHYOLOGY AND FISHERIES SCIENCE



In 2019, the Department of Ichthyology and Fisheries Science (DIFS) maintained its reputation as an internationally recognized, leading African academic institution that supports the study of fish and the sustainable utilization of aquatic resources, primarily through research and research-related teaching and training of our students in these fields. It's staff of seven (7) academics maintained this international reputation through collaborative teaching and research relationships with more than thirty (30) universities and research institutions around the world.

In 2019, the DIFS generated a third stream income of just over R13 million to maintain these programs; most of which supported, not just research and innovation, but the application of this research and learning in society.

## Postgraduates / Graduations

The DIFS hosted five (5) Postdoctoral Research Fellows, forty-one (41) PhD candidates, twenty-seven (27) MSc and eight (8) Honours students in 2019, and we saw four (4) PhD candidates, seven (7) MSc and nine (9) Honours students graduate.

A school of seventy (70) to eighty (80)-odd Postgraduates was made possible primarily due to a well-developed network of Research Associates and other collaborative relationships. While the DIFS staff were directly involved in the supervision of fifty (50) of our Postgraduate students, our partnership with the South African Institute of Aquatic Biodiversity (SAIAB) saw its staff supervise or co-supervise twenty-nine (29) DIFS students in 2019. Our Postgraduate supervision network also included collaborations with, the South African Environmental Observation Network (SAEON), Department of Agriculture Forestry and Fisheries (DAFF), Oceanographic Research Institute (ORI), Makerere University (Uganda), Bahir Dar University (Ethiopia), University of Namibia, University of KwaZulu Natal (UKZN) and Nelson Mandela University (NMU).

Our students and the department's graduates are holding their own in the market place and in the international arena in which they operate. PhD candidate, Andrew Witte was awarded "Best Student Research Paper" at the *10th International Symposium on Stock Enhancement and Sea Ranching* for his presentation of stock enhancement of South African abalone. Micheal Skeeles, an MSc graduate (with distinction), was accepted to read for a PhD at Deakin University, Australia. Dr Murray Duncan, Dr Alexander Winkler and Dr Aldi Nel, all ex-PhD candidates and subsequently Postdoctoral Research Fellows in the DIFS, were awarded further Postdoctoral Research Fellowships at Stanford University in the USA,

*Students helping with field data collection at Sedgfield*  
Credit: Cliff Jones



*DIFS Research Associate Matthew Naylor (MSc, Rhodes University) demonstrating abalone farming techniques, at HIK Abalone Farm in Hermanus, to the next cohort of DIFS Honours students*  
Credit: Cliff Jones

the University of Algarve in Portugal and Alfred Wegener Institute for Polar and Marine Research in Germany, respectively. No fewer than five (5) of our Postgraduate alumni were employed for the first time or received promotions to more senior management positions in the aquaculture industry in South Africa during the course of 2019; the most notable recent movement was Rowan Yearsley (MSc, Rhodes University) who is currently Managing Director of Marifeed (Pty) Ltd and Chief Executive Officer of Aquinion (Pty) Ltd.

### Distinguished Visitors / International Visits

The DIFS continued to grow its international presence in Higher Education and research. Associate Professor Cliff Jones and Professor Peter Britz travelled to Tromsø (Norway) to participate in the kick-off meeting of their AquaVitae Project, a European Union funded Horizon 2020 program that sees them collaborating with thirty-seven (37) institutions across seventeen (17) countries where they aim to develop sustainable aquaculture technologies around the Atlantic Ocean. The same project saw Associate Professor Jones and Professor Britz hosting collaborators from South Africa, Canary Islands, France and Germany at a workshop held in Morgan Bay during the course of the year.

Associate Professor Jones also participated in a number of other international visits that included the external examination for the Department Fisheries and Aquatic Sciences of the University of Eldoret (Kenya), and he spent time working with research collaborators in Berlin (Germany). He also hosted an international workshop, as part of the COTRA program that aims to mobilise African academics and Postgraduate students

in the fields of aquaculture and fisheries science, and that saw university representatives from Kenya, Uganda, the Democratic Republic of Congo, Malawi and Austria visiting the DIFS.

Professor Warren Potts was invited to participate in an international workshop on incorporating angler specialization into recreational fisheries management in Germany. The workshop was hosted by the International Council for the Exploration of the Sea. Professor Potts also hosted Kieran Hyder (Centre for Environment, Fisheries and Aquaculture Science) for three (3) weeks as part of the planning for the multinational One Ocean Hub program.

Professor Warwick Sauer hosted His Serene Highness, Prince Albert of Monaco over a three (3) day period, where a number of discussions were held on the effects of climate change on the world's natural resources, and he spent time in countries of the Western Indian Ocean, where he runs a number of research projects.

### Significant Research Aligned Events

Cliff Jones and Peter Britz are involved in a collaborative research program that aims to develop sea- and land-based integrated multi-trophic aquaculture systems (IMTA), where the waste of one species is used to farm another. This includes the integration of seaweed and sea-cucumber production in the effluent of abalone farms, where alternative, high value species are produced, coupled with the cleaning of farm waste. This project has seen them partnering with researchers from the Canary Islands, Germany and France.



Associate Professor Jones and DIFS Research Associate, Richard Taylor continue to work on a project that integrates aquaculture and agriculture with sustainable water and nutrient recovery from light industries such as breweries, in collaboration with crop scientists from UKZN.

Cliff Jones, Pete Britz, Horst Kaiser, Matthew Naylor and Dr Aldi Nel continued their collaborative research with abalone feed producer Marifeed (Pty) Ltd. and various abalone farms (HIK Abalone Farm Pty Ltd; Aquinion Pty Ltd; Wildcoast Abalone Pty Ltd), where their recent research focussed on the intestinal biome of abalone and various linkages between diet and abalone farm production efficiencies.

Professor Kaiser is a member of a research group that was formed by three (3) SA Universities and a University in Australia, the Knysna Basin Project and SAIAB to develop a breeding programme for the critically endangered river pipefish *Syngnathus watermeyerii*. He also started a new collaboration with the Department of Biochemistry and Microbiology (Dr Brendan Wilhelm) on metabarcoding bacterial communities in media grow-bed zones in aquaponics systems. He co-supervises Nasser Kasozi, a PhD candidate on the project.

Throughout 2019, Professor Kaiser and Dr Charles Teta (Postdoctoral Research Fellow, DIFS) and HIK Abalone Farm (Pty) Ltd developed a suite of biomarkers that can be used to quantify the stress response in South African abalone.

Professor Sauer and a group of international authors produced a Policy Brief for the United Nations, looking at the high seas, and ecological connectivity between the areas beyond national jurisdiction and coastal waters with a view to safeguarding interests of coastal communities in developing countries. Professor Sauer also headed an international team of researchers, and completed the first global review of Octopus fisheries, demonstrating the current state of octopus resources worldwide and concern over current protection of the resource in many countries where it is fished commercially.

Professor Peter Britz' abalone stock enhancement research reached a significant milestone by demonstrating significant survival of the three (3) million hatchery reared abalone reseeded at Cape Recife, Port Elizabeth thereby opening the way for a sustainable restored fishery.

Dr Wilbert Kadye conducted research in freshwater ecology, covering aspects that include trophic ecology, invasion biology and food web dynamics. He worked in collaboration with Dr Albert Chakona (SAIAB) in the field of freshwater systematics and taxonomy.

Professor Warren Potts and Dr Amber-Robyn Childs continued their fisheries ecology research on the biology, ecology, physiology and behaviour of coastal fish species, focusing on the synergistic effects of exploitation and climate change. This involved assessing the physiological and behavioural plasticity of linefish species - specifically the effects of overexploitation and climate change using acoustic telemetry and physiology as part of an African Coelacanth Ecosystem project (ACEP) program, assessing the physical and physiological impacts of catch and release angling, evaluating the use of pro-environmental behavioural interventions to improve the health and survival of fishery species and understanding recreational fisheries in a socio-ecological context.

Professor Potts led several projects including a National Research Foundation (NRF) and ACEP which aimed to gain an understanding of fisheries-induced selectivity on fish physiological traits, the South African fisheries research component for the

One Ocean Hub program, which aims to improve the resilience of South Africa's coastal fisheries through the implementation of a socio-ecological systems approach, a NRF bilateral project between South Africa and Namibia, which aims to understand the biological and physiological effects of an ocean warming-induced hybridization event for two congeneric coastal fisheries species in Namibia and a number of smaller (privately funded) projects on aspects of recreational fisheries.

Dr Childs began her NRF Y-rated funded project on the links between the behaviour and physiology of fishes, and continued her collaboration with Professor Potts NRF-ACEP project investigating fisheries-induced evolution, and other recreational fishery projects. She also continued her collaboration with Dr Nikki James (SAIAB) on her NRF-Marine and Coastal Research grant on shallow-water seascape connectivity.

Professor Potts and Dr Childs' research lab (SAFER lab) organised and hosted the 5th Southern African Linefish Symposium at the Mpekweni Coastal Resort in partnership with the SAIAB. The organising committee included Postdoctoral Research Fellows, Dr Murray Duncan and Dr Alexander Winkler and Dr Taryn Murray (SAIAB). The conference obtained additional funding from the SAIAB and used this to fund the attendance of three (3) Postgraduate students and host twenty (20) undergraduate and Postgraduate students from the University of Fort Hare and Walter Sisulu University on the third day of the conference.

Professor Sauer and Professor Gretta Pecl from Australia organised the second Species on the Move international conference in the Kruger Park. The conference had attendees from some forty (40) countries, looking at the effects of climate change on both marine and terrestrial species.

### Associate Professor Clifford Jones

#### Head of Department



Students get hand-on experience in spawning fish  
Credit: Pete Britz



## Peer Reviewed Subsidy-Earning Journal Research Publications

Arkhipkin, A.I., Lipinski, M.R. and Sauer, W.H.H.

Laptikhovsky, V., Arkhipkin, A.I., Lipinski, M.R., Markaida, U., Murua, J., Nigmatullin, C., Sauer, W.H.H. and Hoving, H.J.T. (2019) Iteroparity or Semelparity in the Jumbo Squid *Dosidicus gigas*: A Critical Choice. *Journal of Shellfish Research*. 38 (2). p.375-378.

Cochrane, K.L. and Sauer, W.H.H.

Cochrane, K.L., Sauer, W.H.H. and Aswani, S. (2019) Science in the service of society: Is marine and coastal science addressing South Africa's needs? *South African Journal of Science*. 115 (2). p.1-7.

Cochrane, K.L., Sauer, W.H.H. and Aswani, S. (2019) Reply to 'Society's needs cannot be met by applied science alone: A response to Cochrane et al. (2019). *South African Journal of Science*. 115 (7/8). p.1-2.

Cochrane, K.L., Downey-Breedt, N., Lemahieu, A., Sauer, W.H.H., Malherbe, W. and Scott, L.

Cochrane, K.L., Rakotondrazafy, H., Aswani, S., Chaigneau, T., Downey-Breedt, N., Lemahieu, A., Paytan, A., Sauer, W.H.H., Malherbe, W., Scott, L. and et al. (2019) Tools to Enrich Vulnerability Assessment and Adaptation Planning for Coastal Communities in Data-Poor Regions: Application to a Case Study in Madagascar. *Frontiers in Marine Science*. 5 (505). p.1-22.

Cochrane, K.L., Eggers, J.M. and Sauer, W.H.H.

Cochrane, K.L., Eggers, J.M. and Sauer, W.H.H. (2019) A diagnosis of the status and effectiveness of marine fisheries management in South Africa based on two representative case studies. *Marine Policy*. 2019. p.1-18.

Cochrane, K.L., Grant, T. and Sauer, W.H.H.

Dutra, L.X.C., Sporne, I., Haward, M., Aswani, S., Cochrane, K.L., Frusher, S., Gasalla, M.A., Giancesella, S.M.F., Grant, T., Sauer, W.H.H. and et al. (2019) Governance mapping: A framework for assessing the adaptive capacity of marine resource governance to environmental change. *Marine Policy*. 106 (103392). p.1-13.

Coppinger, C.R.

Coppinger, C.R., James, N.C., Gouws, G., Mann, B.Q., Guissamulo, A. and Mwale, M. (2019) Assessing the genetic diversity of catface grouper *Epinephelus andersoni* in the subtropical Western Indian Ocean. *Fisheries Research*. 218 (2019). p.186-197.

Dames, V.

Dames, V., Bernard, A.T.F., Floros, C., Mann, B.Q., Speed, C., Maggs, J.Q., Laing, S., Meekan, M. and Olbers, J. (2019) Zonation and reef size significantly influence fish population structure in an established marine protected area, iSimangaliso Wetland Park, South Africa. *Ocean & Coastal Management*. 2019. p.1-12.

Downey, N.J. and Sauer, W.H.H.

Dahlet, L., Downey, N.J., Arce, G., Sauer, W.H.H. and Gasalla, M.A. (2019) Comparative study of skipjack tuna *Katsuwonus pelamis* (Scombridae) fishery stocks from the South Atlantic and western Indian oceans. *Scientia Marina*. 83 (1). p.19-30.

Downey-Breedt, N.

Schleyer, M.H., Downey-Breedt, N. and Benayahu, Y. (2019) Species composition of Alcyonacea (Octocorallia) on coral reefs at Europa Island and associated connectivity across the Mozambique Channel. *Marine Biodiversity*. 49 (2019). p.2485-2491.

Duncan, M.I.

Bates, A.E., Cooke, R.S.C., Duncan, M.I., Edgar, G.J., Bruno, J.F., Benedetti-Cecchi, L., Cote, I.M., Lefcheck, J.S., Costello, M.J., Barrett, N.S., Bird, T.J., Fenberg, T. and Stuart-Smith, R.D. (2019) Climate resilience in marine protected areas and the 'Protection Paradox'. *Biological Conservation*. 236 (2019). p.305-314.

Duncan, M.I. and Potts, W.M.

Duncan, M.I., James, N.C., Bates, A.E., Goschen, W. and Potts, W.M. (2019) Localised intermittent upwelling has increased along South Africa's south coast due to El Niño Southern Oscillation phase state. *African Journal of Marine Science*. 41 (3). p.325-330.

Duncan, M.I., Bates, A.E., James, N.C. and Potts, W.M. (2019) Exploitation may influence the climate resilience of fish populations through removing high performance metabolic phenotypes. *Scientific Reports*. 9 (11437). p.1-10.



Students seeding abalone off the coast, as part of the DIFS' abalone ranching project  
Credit: Pete Britz

Elston, C.

Elston, C., Cowley, P.D. and von Brandis, R.G. (2019) Movement patterns of juvenile porcupine rays *Urogyrnus asperimus* at a remote atoll: a potential nursery ground within a proposed marine protected area. *Environmental Biology of Fishes*. 2019. p.1-10.

Gennari, E.

Chapuis, L., Collin, S.P., Yopak, K.E., McCauley, R.D., Kempster, R.M., Ryan, L.A., Schmidt, C., Kerr, C.C., Gennari, E., Egeberg, C.A. and Hart, N.S. (2019) The effect of underwater sounds on shark behaviour. *Scientific Reports*. 9 (6924). p.1-11.

Kuguru, G., Gennari, E., Wintner, S., Dicken, M.L., Klein, J.D., Rhode, C. and Bester van der Merwe, A. (2019) Spatio-temporal genetic variation of juvenile smooth hammerhead sharks in South Africa. *Marine Biology Research*. 15 (10). p.568-579.

Morse, P., Mole, M.A., Bester, M.N., Johnson, R., Scacco, U. and Gennari, E. (2019) Cape fur seals (*Arctocephalus pusillus pusillus*) adjust traversing behaviour with lunar conditions in the high white shark (*Carcharodon carcharias*) density waters of Mossel Bay, South Africa. *Marine Ecology Progress Series*. 622 (2019). p.219-230.

Lucrezi, S., Ellis, S. and Gennari, E. (2019) A test of causative and moderator effects in human perceptions of sharks, their control and framing. *Marine Policy*. 109 (2019). p.1-11.

Gennari, E. and Towner, A.V.

Gennari, E., Kock, A.A., Smale, M.J., Towner, A.V., Khan, N., Bester, L.A., Johnson, R., Fischer, C., Meyer, M. and Morse, P. (2019) Antibiotic sensitivity of bacteria isolated from the oral cavities of live white sharks (*Carcharodon carcharias*) in South African waters. *South African Journal of Science*. 115 (11/12). p.1-6.

Haupt, P.

Cerutti, J.M.B., Burt, A.J., Haupt, P., Bunbury, N., Mumby, P.J. and Schaeppman-Strub, G. (2019) Impacts of the 2014-2017 global bleaching event on a protected remote atoll in the Western Indian Ocean. *Coral Reefs*. 2019. p.1-12.

Kadye, W.T.

Chakona, A., Gouws, G., Kadye, W.T., Jordaan, M.S. and Swartz, E.R. (2019) Reconstruction of the historical distribution ranges of imperilled stream fishes from a global endemic hotspot based on molecular data: Implications for conservation of threatened taxa. *Aquatic*

*Conservation-Marine and Freshwater Ecosystems*. 2019. p.1-15.

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**Chakona, A., Rennie, C.L. and Kadye, W.T.** (2019) First record of *Lernaea cyprinacea* (Copepoda: Lernaeidae) on an imperilled endemic anabantid, *Sandelia bainesii* (Teleostei: Anabantidae), from the Eastern Cape province, South Africa. *African Journal of Aquatic Science*. 44 (2). p.183-187.

**Kadye, W.T. and Booth, A.J.**

**Kadye, W.T. and Booth, A.J.** (2019) Environmental niche patterns of native and non-native fishes within an invaded African river system. *Journal of Fish Biology*. 2019. p.1-9.

**Kaiser, H.**

**Kasozi, N., Tandlich, R., Fick, M., Kaiser, H. and Wilhelmi, B.** (2019) Iron supplementation and management in aquaponics systems: A review. *Aquaculture Reports*. 15 (100221). p.1-10.

**Kahwa, D., Nyatia, E., Rutaisire, J. and Kaiser, H.** (2019) Spermatzoa morphology and ultrastructure in Nile perch, *Lates niloticus* (Linnaeus, 1758). *African Journal of Aquatic Science*. 44 (1). p.97-102.

**Kambikambi, M.J. and Kadye, W.T.**

**Kambikambi, M.J., Chakona, A. and Kadye, W.T.** (2019) The influence of diet composition and tissue type on the stable isotope incorporation patterns of a small bodied southern African minnow *Enteromius anoplus* (Cypriniformes, Cyprinidae). *Rapid Communications in Mass Spectrometry* 33 (2019). p.613-623.

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**Lee, B., Cockcroft, K., Arkhipkin, A.I., Wing, S.R. and Randhawa, H.S.** (2019) Age, growth and mortality estimates for the ridge-scaled grenadier *Macrourus carinatus* (Günther, 1878) in the south-western Atlantic. *Fisheries Research*. 218 (2019). p.174-185.

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**Ebert, D.A. and Leslie, T.D.** (2019) *Leucoraja elaineae* sp. nov., a new rough skate (Rajiformes: Rajidae) from the Western Indian Ocean. *Zootaxa*. 4691 (3). p.225-234.

**Lipinski, M.R.**

**Mbatha, F.L., Yemane, D., Ostrowski, M., Moloney, C.L. and Lipinski, M.R.** (2019) Oxygen and temperature influence the distribution of deepwater Cape hake *Merluccius paradoxus* in the southern Benguela: a GAM analysis of a 10-year time-series. *African Journal of Marine Science*. 41 (4). p.413-427.

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**Magellan, K., Booth, A.J. and Weyl, O.L.F.** (2019) Innate responses to conspecific and heterospecific alarm cues in the endangered eastern cape redbfin *Pseudobarbus afer*. *Journal of Fish Biology*. 2019. p.1-7.

**Maggs, J.Q. and Childs, A.R.**

**Maggs, J.Q., Cowley, P.D., Porter, S.N. and Childs, A.R.** (2019) Should I stay or should I go? Intra-population variability in movement behaviour of wide-ranging and resident coastal fishes. *Marine Ecology Progress Series*. 6 (2019). p.111-124.

**Mofu, L.**

**Mofu, L., South, J., Wasserman, R.J., Dalu, T., Woodford, D.J., Dick, J.T.A. and Weyl, O.L.F.** (2019) Inter-specific differences in invader and native fish functional responses illustrate neutral effects on prey but superior invader competitive ability. *Freshwater Biology*. 64 (2019). p.1655-1663.

**Mofu, L., Cuthbert, R.N., Dalu, T., Woodford, D.J., Wasserman, R.J., Dick, J.T.A. and Weyl, O.L.F.** (2019) Impacts of non-native fishes under a seasonal temperature gradient are forecasted using functional responses and abundances. *NeoBiota*. 49 (2019). p.57-75.

**Mofu, L., Woodford, D.J., Wasserman, R.J., Dalu, T. and Weyl, O.L.F.** (2019) Diet of *Glossogobius callidus* (Teleostei: Gobiidae) in freshwater impoundments in the Sundays River Valley of the Eastern Cape, South Africa. *African Journal of Aquatic Science*. 44 (4). p.415-420.

**Moxham, E.J.**

**Moxham, E.J., Cowley, P.D., Bennett, R.H. and von Brandis, R.G.** (2019) Movement and predation: a catch-and-release study on the acoustic tracking of bonefish in the Indian Ocean. *Environmental Biology of Fishes*. 102 (2019). p.365-381.

**Murray, T.S.**

**Murray, T.S., Cowley, P.D., Mann, B.Q., Maggs, J.Q. and Gouws, G.** (2019) Movement patterns of an endemic South African sparid, the black musselcracker *Cymatoceps nasutus*, determined using mark-recapture method. *African Journal of Marine Science*. 41 (1). p.71-81.

**Ortega-Cisneros, K.**

**Lombard, A.T., Dorrington, R.A., Reed, J.R., Ortega-Cisneros, K., Penry, G.S., Pichegru, L., Smit, K.P., Vermeulen, E.A., Witteveen, M., Sink, K.J., McInnes, A.M. and Ginsberg, T.** (2019) Key Challenges in Advancing an Ecosystem-Based Approach to Marine Spatial Planning Under Economic Growth Imperatives. *Frontiers in Marine Science*. 6 (146). p.1-11.

**Pethybridge, H., Weijerman, M., Perryman, H., Porobic, J., McGregor, V., Bulman, C., Hutton, T., Lozano-Montes, H., Ortega-Cisneros, K. and et al.** (2019) Calibrating process-based marine ecosystem models: An example case using Atlantis. *Ecological Modelling*. 412 (1). p.1-13.

**Parker, D. and Booth, A.J.**

**Winker, H., Carvalho, F., Thorson, J.T., Kell, L.T., Parker, D., Kapur, M., Sharma, R., Booth, A.J. and Kerwath, S.E.** (2019) JABBA-Select: Incorporating life history and fisheries' selectivity into surplus production models. *Fisheries Research*. 2019. p.1-17.

**Peel, R.A. and Taylor, G.C.**

**Peel, R.A., Hill, J.M., Taylor, G.C., Tweddle, D. and Weyl, O.L.F.** (2019) Species succession and the development of a lacustrine fish community in an ephemeral lake. *Journal of Fish Biology*. 2019. p.1-15.

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**Potts, W.M.**

**Kerwath, S.E., Parker, D., Winker, H., Potts, W.M., Mann, B.Q., Wilke, C.G. and Attwood, C.** (2019) Tracking the decline of the world's largest seabream against policy adjustments. *Marine Ecology Progress Series*. 610 (2019). p.163-173.

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**Potts, W.M., Downey-Breedt, N. and Sauer, W.H.H.**

**Potts, W.M., Downey-Breedt, N., Obregon, P., Hyder, K., Bealey, R. and Sauer, W.H.H.** (2019) What constitutes effective governance of recreational fisheries? - A global review. *Fish and Fisheries*. 21 (2019). p.91-103.

**Potts, W.M., Jordan, T. and Childs, A.R.**

**Potts, W.M., Jordan, T. and Childs, A.R.** (2019) Can long-term content analysis of print media be used to examine species composition, population demography and changes in distributional range of recreational fishery species? *African Journal of Marine Science*. 41 (3). p.231-245.

**Ramoejane, M.**

**Ramoejane, M., Gouws, G., Swartz, E.R., Sidlauskas, B.L. and Weyl, O.L.F.** (2019) Molecular and morphological evidence reveals hybridisation



Data collection off the coast close to Hamburg  
Credit: Pete Britz

between two endemic cyprinid fishes. *Journal of Fish Biology*. 2019. p.1-17.

**Sauer, W.H.H. and Potts, W.M.**

Caussy, L., Appadoo, C., **Sauer, W.H.H. and Potts, W.M.** (2019) Preliminary observations of the reproductive biology of the Frenchman seabream *Polysteganus baissaci* (Sparidae) from Mauritius. *African Journal of Marine Science*. 41 (1). p.455-461.

**Sauer, W.H.H., Downey-Breedt, N. and Lipinski, M.R.**

**Sauer, W.H.H.**, Gleadall, I.G., **Downey-Breedt, N.**, Doubleday, Z., Gillespie, G., Haimovici, M., Ibanez, C.M., Katugin, O.N., Leporati, S., **Lipinski, M.R.** and et al. (2019) World Octopus Fisheries. *Reviews in Fisheries Science & Aquaculture*. 2019 (2019). p.1-149.

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**Scheepers, M.J. and Gouws, G.** (2019) Assessing multiple mating and reproductive skew in three species of clinid fishes (Blenniiformes: Clinidae: Clinini), in reference to multiple mating in viviparous teleosts. *African Journal of Marine Science*. 41 (2). p.145-153.

**Scheepers, M.J. and Gouws, G.** (2019) Mating System, Reproductive Success, and Sexual Selection in Bluntnose Klipfishes (*Clinus cottoides*). *Journal of Heredity*. 2019. p.351-360.

**Shaw, P.W.**

Marian, J.E.A.R., Apostolico, L.H., Chiao, C.C., Hanlon, R.T., Hirohashi, N., Iwata, Y., Mather, J., Sato, N. and **Shaw, P.W.** (2019) Male Alternative Reproductive Tactics and Associated Evolution of Anatomical Characteristics in Loliginid Squid. *Frontiers in Physiology*. 10 (2019). p.1-9.

**Shaw, P.W. and Sauer, W.H.H.**

Sato, N., Iwata, Y., **Shaw, P.W.** and **Sauer, W.H.H.** (2019) Whole spermatangia within the seminal receptacles of female chokka squid (*Loigo reynaudii*) d'Orbigny, 1839-1841. *Journal of Molluscan Studies*. 85 (2019). p.172-176.

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**Taylor, G.C., Hill, J.M. and Weyl, O.L.F.** (2019) The diet and trophic ecology of non-native *Micropterus salmoides* in two South African impoundments. *African Journal of Aquatic Science*. 44 (2). p.143-145.

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**Teta, C. and Kaiser, H.**

**Teta, C. and Kaiser, H.** (2019) Menthol as an alternative anaesthetic and sedative for rainbow trout, *Oncorhynchus mykiss*. *African Journal of Aquatic Science*. 44 (1). p.71-66.

**Vousden, D.H., Sauer, W.H.H. and Downey, N.J.**

Popova, E., **Vousden, D.H., Sauer, W.H.H.**, Mohammed, E.Y., Allain, V., **Downey, N.J.**, Fletcher, R., Gjerde, K.M., Halpin, P.N. and et al. (2019) Ecological connectivity between the areas beyond national jurisdiction and coastal waters: Safeguarding interests of coastal communities in developing countries. *Marine Policy*. 104 (2019). p.90-102.

**Watson, R.G.A. and Gennari, E.**

Grusd, S.P., Moloney, C.L., Distiller, G., **Watson, R.G.A.**, Cowley, P.D. and **Gennari, E.** (2019) Using mark-recapture methods to estimate population size and survival of pyjama sharks *Poroderma africanum* in Mossel Bay, South Africa. *African Journal of Marine Science*. 41 (4). p.1-12.

**Winkler, A.C., Farthing, M.W., Potts, W.M. and Duncan, M.I.**

**Winkler, A.C., Farthing, M.W., Potts, W.M. and Duncan, M.I.** (2019) Sectioned or whole otoliths? A global review of hard structure preparation techniques used in ageing sparid fishes. *Reviews in Fish Biology and Fisheries*. 29 (2019). p.605-611.

**Winkler, A.C., Mannheim, S., Childs, A.R., De Beer, C.L. and Potts, W.M.**

**Winkler, A.C., Mannheim, S., Childs, A.R., Santos, C.V., De Beer, C.L., Smale, M. and Potts, W.M.** (2019) A snapshot assessment of the diet of Cape fur seals *Arctocephalus pusillus pusillus* at Ilha dos Tigres, Angola. *African Journal of Marine Science*. 41 (4). p.443-447.





The Department of Information Systems is particularly interested in the generation of knowledge in the areas of ICT4D, eGovernment, eLearning, IT Project Management, Social Networks, Information Security, Behavioural Cybersecurity, and User Experience.

Research in these areas have produced eight (8) journal articles, and sixteen (16) conference papers, with aspects of this research being presented locally as well as internationally in the United Kingdom, Zambia, Costa Rica, Germany, Portugal, China, and United States of America. In addition to producing research outputs, staff in the Department of Information Systems contribute to their discipline as journal editors and reviewers, conference reviewers and panel members, and external examiners of theses for other academic institutions.

## Postgraduates / Graduations

Postgraduate numbers in the Department include ten (10) PhD candidates, twelve (12) Masters students, and a class of thirty-three (33) Honours students. We celebrated the graduation of two (2) Doctoral candidates, and four (4) Masters students.

## Distinguished Visitors / International Visits

Distinguished visitors to the Department included Professor Sabine Koch from the Karolinska Institutet, Stockholm, Sweden. She gave a guest lecture to Postgraduate students on Health Information Systems.

Professor Sue Conger, a Visiting Professor from the Satish and Yasmin Gupta College of Business at the University of Dallas, continues to make a valuable contribution to the research efforts, with a number of publications of IT in developing countries.

Professor Graham Wright, a Visiting Professor of the Department, continues to make a valuable contribution to the research efforts, in the field of Health Information Systems.

Ms Brenda Mallinson, a Research Associate of the Department, continues to make a valuable contribution to the research efforts, with a number of publications in the field of eLearning.

Professor Greg Foster and Professor Stephen Flowerday were each awarded grants by the South Africa Sweden University Forum (SASUF) to collaborate on joint Swedish South African research projects. Professor Foster's project falls within the Health Information Systems arena and Professor Flowerday's focusses on Information Security.

Professor Stephen Flowerday was invited by the Scottish Informatics and Computer Science Alliance (SICSA) as a Distinguished Visiting Fellow to Scotland, where he gave guest lectures and met with Doctoral candidates and staff from several Scottish universities concerning their research.

## Professor Stephen Flowerday

*Head of Department*

*2019 Systems Development Project winners with Dr Karl van der Schyff (third from left) with Mr Sid Bwerinofa (fourth from left), Principal Consultant at BSG who handed over sponsored prize to student winners*

*Credit: Department of Information Systems*

## Concerts, Exhibitions, Performances, Workshops, Events

Pade-Khene, C.

**Pade-Khene, C.** Presenter. Combining Potential: Harnessing Technology & Youth Leadership in SRHR-#SAM4AYSRHR. *Launch of SAfAIDS Regional MobiSAfAIDS Application for Social Accountability Monitoring (SAM) of Adolescent and Young People's Sexual and Reproductive Health (AYSRH) and Rights in SADC.* Intercontinental Hotel, Lusaka. Zambia. 4 - 5 March 2019.

## International Visits

Pade-Khene, C.

**Pade-Khene, C.** United Nations University - Institute in Macau, Macau, Macau. *Fostering research collaboration on digital platforms and citizen engagement: MobiSAM.* 20 - 26 August 2019.

## Other Publications

Mallinson, B.J.

**Mallinson, B.J.** (2019). *Towards an Open Educational Resources Strategy for the Republic of Zambia.* UK: Commonwealth of Learning.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Flowerday, S.

Maoneke, P.B. and **Flowerday, S.** (2019) Password Policies Adopted by South African Organizations: Influential Factors and Weaknesses. *Communications in Computer and Information Science.* 973 (2019). p.30-43.

Musarurwa, A., **Flowerday, S.** and Cilliers, L. (2019) The bring-your-own-device unintended administrator: A perspective from Zimbabwe. *Electronic Journal of Information Systems in Developing Countries.* 2019 (e12076). p.1-20.

Renaud, K.

Venter, I.M., Blignaut, R.J., **Renaud, K.** and Venter, M.A. (2019) Cyber security education is as essential as "the three R's". *Heliyon.* 5 (2019). p.1-8.

Thinyane, H.

**Thinyane, H.** (2019) Supporting the Identification of Victims of Human Trafficking and Forced Labor in Thailand. *Communications in Computer and Information Science.* 2019. p.61-74.

Poveda, S., Gill, M., Junio, D.R., **Thinyane, H.** and Catan, V. (2019) Should social enterprises complement or supplement public health provision? *Social Enterprise Journal.* 15 (4). p.495-518.

Ju, B., Sandel, T.L. and **Thinyane, H.** (2019) WeChat use of mainland Chinese dual migrants in daily border crossing. *Chinese Journal of Communication.* 12 (4). p.377-394.

Van Der Schyff, K.

**Motara, Y.M.** and **Van Der Schyff, K.** (2019) A functional ontology for information systems. *South African Computer Journal.* 32 (1). p.57-76.

Van Der Schyff, K. and Flowerday, S.

**Van Der Schyff, K.** and **Flowerday, S.** (2019) Social media surveillance: A personality-driven behaviour model. *South African Journal of Information Management.* 21 (1). p.1-9.

## Peer-reviewed Proceedings

Flowerday, S.

Gundu, T., **Flowerday, S.** and Renaud, K. Deliver Security Awareness Training, then Repeat: {Deliver; Measure Efficacy}. *ICTAS2019: Information Communication Technology and Society.* Blue Waters Hotel, Durban. South Africa. March 2019.

Mitchell, M. and Sieborger, I.

**Mitchell, M.** and **Sieborger, I.** Building a National Network through peered community area networks: realising ICTs within developing countries. *ICTAS2019: Information and Communication Technology and Society.* Blue Waters Hotel, Durban. South Africa. March 2019.

Renaud, K.

**Renaud, K.** and Dupuis, M. Cyber Security Fears Appeal: Unexpectedly Complicated. *New Security Paradigms Workshop (NSPW).* The Tilajari Hotel and Conference Centre, San Carlos. Costa Rica. September 2019.

Theunissen, K.E. and Sieborger, I.

**Theunissen, K.E.** and **Sieborger, I.** The potential use of Tablet Computers to support Teaching and Learning activities in South African Schools. *ICTAS2019: Information Communication Technology and Society.* Blue Waters Hotel, Durban. South Africa. March 2019.

Thinyane, H.

**Thinyane, H.** and Bhat, K.S. Apprise: Supporting the Critical-Agency of Victims of Human Trafficking in Thailand. *CHI 2019: Weaving the Thread of CHI.* Glasgow, Scotland. United Kingdom. May 2019.

Tilbury, J.L., De La Rey, E. and Van Der Schyff, K.

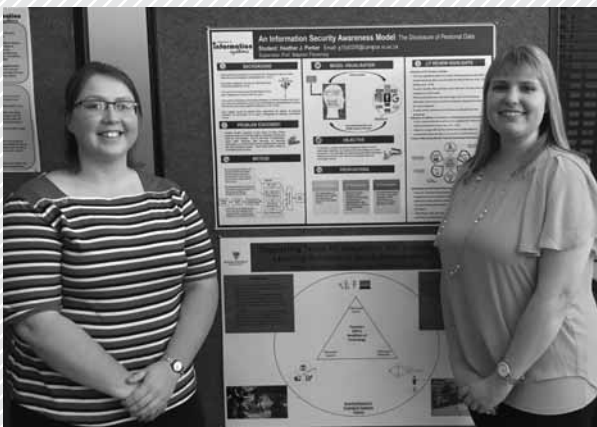
**Tilbury, J.L., De La Rey, E.** and **Van Der Schyff, K.** Business Process Models of Blockchain and South African Real Estate Transactions. *2nd International Conference on Advances in Big Data, Computing and Data Communication Systems.* Drakensberg Sun Resort, Winterton. South Africa. August 2019.

Tsegaye, T.A. and Flowerday, S.

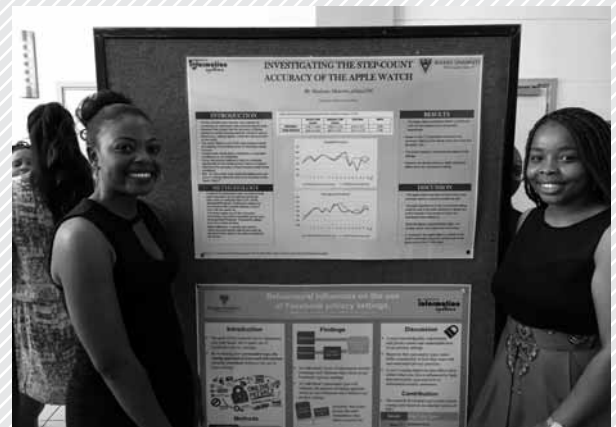
**Tsegaye, T.A.** and **Flowerday, S.** PoPI Compliance through Access Control of Electronic Health Records. *2019 SAICSIT Conference: digital eco-systems gone wild.* Skukuza Conference Centre, Skukuza. South Africa. September 2019.

Upfold, C.T. and Bell, K.J.

**Upfold, C.T.** and **Bell, K.J.** The Influence of Learning Style Theory within a Blended Learning Environment: A Systematic Review. *SACLA 2019 Conference - Computing Matters of Course!* Northern Drakensburg, KwaZulu-Natal. South Africa. July 2019.



Two Masters student's posters on display: Kristen Theunissen and Heather Parker  
Credit: Department of Information Systems



Two Honours student's posters on display: Shaloam Mutetwa and Wadzanai Muzondo  
Credit: Department of Information Systems



Two Rhodes students walking through campus

Credit: Rhodes University Communications and Advancement Division

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Baduza, G. and Pade-Khene, C.**

**Baduza, G. and Pade-Khene, C.** A Holistic View of ICTD and Upscaling of Community Development Projects. *International Conference on Information Systems (ICIS) 2019. 12th Annual AIS SIG Global Development pre-ICIS Workshop*. Internationales Congress Center München (ICM), Munich. Germany. December 2019.

**Conger, S.**

Christie, O.E. and **Conger, S.** An Analysis of Expatriates Adjustment by Age. *European Academy of Management (EURAM) 2019*. Lisbon. Portugal. June 2019.

**Flowerday, S. and Musarurwa, A.**

**Flowerday, S. and Musarurwa, A.** Information Privacy and BYOD: a case study of a Zimbabwean bank. *18th Annual Security Conference: Securing the Interconnected World*. Tuscany Suites & Casino, Las Vegas. USA. May 2019.

**Mallinson, B.J.**

**Mallinson, B.J.** Open Educational Resources: Levering Educational Advantage. *Technology for Teaching and Learning Summit*. Johannesburg. South Africa. October 2019.

**Mallinson, B.J.** Evaluating the Design, Development, and Implementation Experiences of the Digital Fluency Course. *Pan-Commonwealth Forum 9 (PCF9)*. Edinburgh. Scotland. September 2019.

**Pade-Khene, C., Sieborger, I. and Thinyane, M.**

**Pade-Khene, C., Sieborger, I. and Thinyane, M.** Data-driven Citizen Engagement and Empowerment: Lessons and Reflections from MobiSAM. *CODATA 2019: Towards next-generation data-driven science: policies, practices and platforms*. The Friendship Hotel of Beijing, Beijing. China. September 2019.



# 2019

SCHOOL OF

## JOURNALISM AND MEDIA STUDIES



The School graduated fifty-four (54) Bachelor of Journalism, forty-nine (49) Bachelor of Arts, seven (7) Honours, ten (10) Masters, seven (7) Postgraduate Diploma, twenty-two (22) Media Management Diploma, four (4) Postgraduate Diploma in Economic Journalism students and three (3) Doctor of Philosophy candidates. The Postgraduates were engaged in a variety of journalism and media studies projects, ranging from health and economics journalism to critical analyses of social media in the global South and more.

### Distinguished Visitors / International Visits

The School hosted its first-ever symposium on Digital Media Methods for media researchers. It was organised by Professor Harry Dugmore and Dr Alette Schoon and welcomed fifteen (15) delegates from six (6) institutions who joined staff and Postgraduates from the School. Keynote speakers included Professor Jean Burgess and Professor Axel Bruns from the Queensland University of Technology, Brisbane; Professor Tanja Bosch from the University of Cape Town; Mr Marco Konopacki from the Institute of Technology and Society, Rio de Janeiro, Brazil; Mr Indra de Lanerolle from the University of the Witwatersrand; and Professor Wisdom Tettey from the University of Toronto. The symposium's focus was to discuss ways to study digital media that work for the African continent which is characterised by inequality and great diversity of access and use.

Professor Lynette Steenveld was awarded by the Andrew W Mellon Foundation funding to host a seminar series. A range of discussions and performances was held, drawing artists, poets, musicians and thinkers from the global South. Some notable performances included the following: *Black Milk of Morning* performed by South African poets Dolla Sapeta and Lesego Rampolokeng, and Palestinian poet Ghayath Almadhoun; Angolan musician and instrument maker, Victor Gama, presented *tectonik: TOMBWA* (this multimedia music performance focused on the story of Augusto Zita N'Gonguenho's attempt to write about the anthropology of colonialism in the 1980s using non-western and scientific methods);

#### *Historian and Rhodes University alumna, Dr Nomathamsanqa Tisani.*

*The seminar series, hosted by the School of Journalism & Media Studies, 'Southern Epistemologies Thinking Beyond the Abyss for a Transformative Curriculum', took place at the Makhanda-based Pan-Africanist oriented school, Isikolo sama-Afrika (African School of Thought). The seminar created a space to touch intangible: African histories and untold identities. Isikolo sama-Afrika also provided a safe space for curricular and pedagogy discussions from a Pan-Africanist and Black Consciousness perspective. Historian and Rhodes University alumna, Dr Nomathamsanqa Tisani, ended the seminar by saying "You are your own liberator and we are in charge of creating our own world".*

*Credit: School of Journalism and Media Studies*

Zimbabwean artist Richard Mudariki and curator Thandazani Dhlakama presented *Five Bhobh Conversations* (featuring twenty-nine (29) artists from Zimbabwe and presenting a social commentary in code about life in the country); the Makhanda Black Kolektive presented *Ukuzihlambulula* from an anti-humane world: dreaming liberated spaces, praxis and knowledges from the other side of the line; and Cape-originating film artists Kino Kadre presented Dreaming Cinema Scenarios Inside Community.

Additionally for the seminar series, lectures were given by prominent voices of Southern epistemologies: Orof Ravi Sundaram, delivered a lecture on pirate modernity and digital media; Professor Yusuf Sayed spoke on social justice, social change and a decolonial curriculum in South Africa; Professor Catarina Gomez presented a post-colonial analysis of the experience of Portuguese colonialism in Angola, and Professor Boaventura de Sousa Santos spoke on how to re-found democratic conviviality.

## Significant Research Aligned Events

In celebration of their twenty-five (25) years in South Africa the Open Society Foundation for South Africa, launched a special programme to support the next generation of investigative journalists. In partnership with Professor Anton Harber from the Journalism Programme at the University of the Witwatersrand, five (5) fellows spent a semester at Rhodes University in the Grocott's Mail newsroom working on five (5) investigative projects based in the Eastern Cape. They were mentored by Ms Sue MacLennan, Professor Harry Dugmore, Professor Anthea Garman, Mr Rod Amner, Mr Ryan Hancocks and Mr Shepi Mati. The Open Society also renewed a grant to Professor Harry Dugmore for a second edition of his study *Paying the Piper: The sustainability of the news industry and journalism in South Africa in a time of digital transformation and political uncertainty*.

From the Mellon-funded Media, *Digitality and Sociality* project, Mr Eugene Paramoer organised a very successful week-long filmmaking workshop in Bonteheuwel, one of Cape Town's gang-ridden areas. This is related to the action-research process for his doctoral thesis and was also a community-based event that was highly appreciated by the participants.

Masters student, Ms Binwe Adebayo presented the paper *"Towards a convivial approach to the Global South Being and Belonging"* at the Millennium Conference at the London School of Economics.



Dr Alette Schoon, co-organiser of the Digital Media Methods symposium

Credit: School of Journalism and Media Studies

From the NRF-funded *Licence to Talk* project, Doctoral candidate, Ms Martina della Togna and MA students, Banathi Mqoboka and Juliet Witi attended the opening of the Sixth Democratic Parliament in Cape Town and the civil society workshop organised by Parlywatch. The social media data they gathered from the hashtag #SONA2019 was presented at the annual South African Communication Association conference at the University of Cape Town. They also wrote journalistic articles arising out of their research on *"Putting the people first in the people's parliament"* for the Daily Maverick and The Journalist. Della Togna was also invited to present her doctoral research at an Eastern Cape roundtable focused on the relationship between civil society and provincial legislatures.

## Research Seminars

During 2019 the School invited authors, filmmakers, and academics to speak at weekly research seminars:

- Dr Siphiwo Mahala, author of *When a Man Cries*, *Yakhal Indoda*, *African Delights*, *Red Apple Dreams* and the play, *The House of Truth*, talked about creative production and his work as an author and Drum scholar, playwright, and filmmaker;
- Dr Bev Ditsie gave students a masterclass in documentary filmmaking;
- Dr Elizabeth Thomas, from the Hunterstoun Institute, who collaborated with Dr Alette Schoon in the production of a series of documentaries on land in the Tyhume Valley, talked about the project;
- Professor Tally Palmer ran a workshop on the intersections between the social and the ecological;
- Dr Omotayo Omitola spoke on intertextuality in blogs;
- Mr Paul Wessels spoke about the paradox of teaching creative writing;
- Dr Ian Seiborger presented on political discourses in the tabloid Daily Sun;
- Photographer Bonile Bam from the Market Photography Workshop spoke to students;
- Professor Lynda Spencer talked about the Urban Connections in African Popular Imaginaries project;
- Dr Siphokazi Magadla, reflected on the use of African languages in teaching and assessment;
- Mr Will Stevens, Deputy Consul-General and Public Affairs Officer for the US Consulate spoke on US diplomacy, current global issues and journalism;
- Makhanda estate agency owner, Mr Richard Gaybba made a case for strengthening and supporting community journalism and the need for Grocott's Mail;
- and doctoral candidate, Michela Oosthuizen shared her research on addictive messages that stimulate a consumer culture.

**Professor Larry Strelitz**

*Head of School*



*University of Coimbra's (Portugal) Sociology Professor, Boaventura de Sousa Santos*

The Rhodes University School of Journalism and Media Studies (JMS) held the first of its final two seminars for the year on 14 October, with the much anticipated visit of University of Coimbra's (Portugal) Sociology Professor Boaventura de Sousa Santos, at the Eden Grove Lecture Complex. Professor de Sousa Santos addressed the Mellon seminar - on the topic 'Southern Epistemologies: Thinking beyond the Abyss for a Transformative Curriculum'. JMS Professor Lynnette Steenveld opened the event and said that Department's conception of the seminar was inspired by Prof de Sousa Santos' work on social and epistemic justice, and was considered a good opportunity for the University's audience to explore the idea of 'Southern Epistemologies' that derive from spaces and people who are not recognised as sites and producers of knowledge. Credit: School of Journalism and Media Studies



*In a workshop of the Digimethods symposium at the School of Journalism and Media Studies in June 2019, Marco Konopacki demonstrates the WhatsApp digital scraping tool that he used for his research into the influence of bots during the Brazilian elections for spreading propaganda*  
Credit: School of Journalism and Media Studies

rural area. In: Mutsvairo, B. and Ragnedda, M. (eds.). *Mapping the Digital Divide in Africa*. Amsterdam: Amsterdam University Press. p.195-214. ISBN: 9789462986855.

**Prinsloo, J.**

Peek, B. and Prinsloo, J. (2019) NINE Learning and teaching: reflections on an environmental justice school for activists in South Africa. In: *Environmental Justice, Popular Struggle and Community Development*. UK: Policy Press. p.135-152. ISBN: 9781447350859.

**Schoon, A.**

Schoon, A. (2019) Hip Hop as a valorising practice. In: Haupt, A., Williams, Q., Alim, H.S. and Jansen, E. (eds.). *Neva Again: Hip Hop Art, Activism and Education in Post-Apartheid South Africa*. Cape Town: HSRC Press. p.237-250. ISBN: 9780796924452.

## Concerts, Exhibitions, Performances, Workshops, Events

**Schoon, A.**

Schoon, A. and de Lanerolle, I. Workshop. The Izolo Diary Method. *The First African Digital Media Research Methods Symposium*. Rhodes University, Makhanda. South Africa. 7 June 2019.

## Peer-Reviewed Subsidy-Earning Journal Research Publications

**Dugmore, H.**

Draper, C.E., Tomaz, S.A., Bassett, S.H., Harbron, J., Kruger, H.S., Micklesfield, L.K., Monyeki, A., Lambert, E.V., Christie, C.J., Dugmore, H. and et al. (2019) Results from the Healthy Active Kids South Africa 2018 Report Card. *South African Journal of Child Health (SAJCH)*. 13 (3). p.130-136.

**Malila, V.**

Malila, V. (2019) Beyond Watchdog Journalism: Media and Social Accountability in South Africa. *African Journalism Studies*. 40 (1). p.91-106.

## Books/Chapters/Monographs

**Boshoff, P. and Prinsloo, J.**

Boshoff, P. and Prinsloo, J. (2019) Gender and sexuality in the media. In: Iqani, M. and Chiumbu, s. (eds.). *Media Studies: Critical African and Decolonial Approaches*. Cape Town: Oxford University Press. P.195-214. ISBN: 9780190443535.

**Buthelezi, S.M.N. and Dalvit, L.**

Buthelezi, S.M.N. and Dalvit, L. (2019) Exploring how mobile phones mediate bonding, bridging and linking social capital in a South African



Nyaungwa, M. and Garman, A.

Nyaungwa, M. and Garman, A. (2019) Speaking to power through newspaper editorials in Zimbabwe. *Journal of African Media Studies*. 11 (1). p.51-64.

Prinsloo, J.

Prinsloo, J. (2019) Editorial: Gender and the economy in post-apartheid South Africa. *Agenda: a Journal About Women and Gender*. 33 (4). p.1-2.

Prinsloo, J. (2019) Editorial. *Agenda: a Journal About Women and Gender*. 32 (4). p.1-2.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Boshoff, P.

Boshoff, P. 'Let them eat grass': pastors vs the people in South Africa's Daily Sun. *International Association for Media and Communication Research (IAMCR)*. Facultad de Ciencias de la Información, Complutense University, Madrid. Spain. July 2019.

Boshoff, P. 'It's our law now': social belonging and 'People's Justice' in the Daily Sun. *SACOMM (South African Communications Association)*. University of Cape Town, Cape Town. South Africa. August 2019.

Boshoff, P. 'Take this, you monster!' Vengeful women in South Africa's Daily Sun tabloid. *International Association for Media and Communication IAMCR (International Association for Media and Communication Research) Research Conference*. Complutense University, Madrid. Spain. July 2019.

Boshoff, P. Becoming subjects: A social semiotics approach to researching digital self-representation. *African Digital Media Research Methods Symposium*. Rhodes University School of Journalism and Media Studies, Grahamstown. South Africa. June 2019.

Dugmore, H.

Dugmore, H. Misinfodemics - Upacking the Core Narratives of Multinational Drink Companies Online Marketing Campaigns Aimed at Young People in Developing Countries. *Association of Internet Researchers Conference*. Brisbane. Australia. October 2019.

Garman, A.

Garman, A. State Capture and Journalism Capture. *IAMCR*. Universidad Complutense de Madrid, Madrid. Spain. July 2019.

Garman, A. Unnatural: writing in precarious times. *IALJS*. State University of New York, Stony Bridge, Port Jefferson. USA. May 2019.

Garman, A. Tie me up. Tie me down. Writing with Constraint. *The Australasian Association of Writing Programs*. University of Technology Sydney, Sydney. Australia. November 2019.

Garman, A. Walking the abyssal line with double consciousness: a way to educate for freedom? *IAMCR*. Universidad Complutense de Madrid, Madrid. Spain. July 2019.

Garman, A. Unnatural: Writing in precarious times. *Literature and Ecology Colloquium*. Amazwi South African Museum of Literature, Grahamstown. South Africa. September 2019.

Isaacs De Vega, T.J.

Isaacs De Vega, T.J. Media Accountability in Context. *RU 2019 PG Conference*. Rhodes University, Makhanda. South Africa. August 2019.

Schoon, A.

Schoon, A. African personhood and the promises of new media: understanding the digital media practices of the hip-hop artists of Makhanda. *International Association of Media Researchers Conference 2019 Preconference Era or Error of Transformation? Assessing Afrocentric Attributes to Digitalisation*. Universidad Complutense de Madrid, Madrid. Spain. July 2019.

Schoon, A. Not just sitting at home: The dignity of backyard digital media technology. *International Association of Media Researchers Conference 2019*. Universidad Complutense de Madrid, Madrid. Spain. July 2019.

Schoon, A. An Introduction to the DigiMethods Symposium. *The First African Digital Media Research Methods Symposium*. Rhodes University, Makhanda. South Africa. June 2019.



Professor Tanja Bosch from the University of Cape Town delivers her keynote at the Digital Media Methods symposium  
Credit: School of Journalism and Media Studies



Professor Lorenzo Dalvit with Margot (Guide Dog) and Hugo  
Credit: Simon Pamphilon



## The Faculty of Law continues to build research capacity of its staff and students in accordance with its position in a research-intensive institution.

During the 2019 academic year staff members participated in many national and international academic conferences as outlined below. This participation paves the way for meaningful contribution by our staff members and students to national and international legal debates

### Distinguished Visitors / International Visits

Visiting Professor Nambitha Dambuzza and Visiting Fellow Mr Max Boqwana delivered riveting public lectures in the Faculty of Law in 2019. In her public lecture, *'Customary Law in South Africa - Shunned?'*, Professor Dambuzza discussed some of the criticism levelled against the courts in relation to their application of customary law. In doing so, she considered the development of customary law by the courts over the last two (2) and half decades and the impact thereof on South African society.

In Mr Max Boqwana's public lecture, *'Ethics in the Legal Profession?'*, he considered how lawyers and auditors have helped facilitate some of this country's biggest corporate scandals and grand-scale state corruption in recent times. As a result, Mr Boqwana offered some thoughts on how law students should seek to return to the ideals of honour, diligence, fairness and justice in their future practice.

Visiting Professor Clive Plasket delivered a public lecture in October 2018 entitled *'Procedural fairness, executive decision-making and the rule of law'* and followed this up with another lecture entitled *'Planting Seeds for the Future: Dissenting Judgments and the Bridge from the Past to the Present'* on 8 October 2019.

### Significant Research Aligned Events

Helen Kruuse was awarded a fellowship to attend training by the National Institute of Teaching Ethics and Professionalism in Melbourne, Australia, 4 - 6 December 2019. She was also appointed as one of the United Nations 'Ethics Champions' in their Education for Justice (E4J) programme. As part of her 'championing', she has devised a localised professional ethics module for South African law students together with translations, case studies and a Youtube video featuring Wim Trengove SC, Visiting Professor to the Faculty.

Professor Helena van Coller was elected to the Board of Directors at the General Assembly of the African Consortium for Law and Religion Studies for a term of five (5) years.

Silke Joseph, a 2019 LLB graduate of the Faculty was announced a joint winner of the SALRC Pius Langa Essay Competition. She submitted a shortened version of her LLB research essay entitled *'The more things change, the more they stay the same: the constitutionality of immigration law in South Africa'*. Her achievement was celebrated at a gala dinner event hosted by Juta and the SALRC in September 2019.

#### *Judge Clive Plasket, Judge of Appeal*

*On 8 October 2019, the Law Faculty's Visiting Professor and Judge of Appeal in the Supreme Court of Appeal (SCA), Clive Plasket, delivered a public lecture in the Moot Room at Rhodes University. The lecture titled, 'Planting Seeds for the Future: Dissenting Judgments and the Bridge from the Past to the Present', focused on five judgments that were handed down before 1994. The cases concerned racial discrimination, the control of public power, the review of administrative action for unreasonableness, prisoners' rights and the control of emergency powers and ouster clauses*

*Credit: Faculty of Law*

In July 2019, two (2) final year students, Thokozani Dladla and Mfundulunthu Somand delivered papers at the South African Law Deans' Association's Student Conference on Decolonisation and Africanisation of Legal Education, held at the University of Venda.

**Professor Rosaan Kruger**

*Dean of Faculty*

## Books/Chapters/Monographs

**Akinloye, I.A.**

**Akinloye, I.A.** (2019) Human Flourishing, Church leadership and Legal Disputes in Nigerian Churches. In: Stellenbosch: SUN MeDIA. p.25-41.

**Campbell, J.**

**Campbell, J.** (2019) Decolonising Clinical Legal Education. In: Tshivhase, A.E., Mpedi, L.G. and Reddi, M. (eds.). *Decolonisation and Africanisation of Legal Education in South Africa*. Cape Town: Juta & Co. p.31-47. ISBN: 9781485133841.

**Glover, G.**

**Glover, G.** (2019) Chapter 4 Renewal options, public policy, and consensus: The *Beadica* and *Oregon Trust* cases\*. In: Botha, M.M., Barnard, J. and van Wyk, J. (eds.). *De Serie Legenda Developments in Commercial Law Volume II Law of Specific Contracts and Consumer Protection Law*. Durban: LexisNexis (Pty) Ltd. p.65-90. ISBN: 9780639008868.

**Kruuse, H.**

**Kruuse, H.** (2019) Legal ethics and professional responsibility. In: Meintjes-van der Walt, L. (ed.). *Introduction to South African Law*. 3rd Ed. Cape Town: Pearson Education South Africa (Pty) Ltd. p.78-94. ISBN: 9781776102235.

**Van Coller, H.**

**Van Coller, H.** (2019) Administrative Law. In: Meintjes-van der Walt, L. (ed.). *Introduction to South African Law*. 3rd Ed. Cape Town: Pearson Education South Africa (Pty) Ltd. p.271-280. ISBN: 9781776102235.

## Concerts, Exhibitions, Performances, Workshops, Events

**Rahim, S.**

**Rahim, S.** Research Member. SETA Governance Project Inception Meeting. *BankSeta of SETA Governance Evaluation*. MERSETA, Johannesburg. South Africa. 20 November 2019.

**Rahim, S.** Research Member. SETA and DHET Theory of Change Workshop as part of the SETA Governance Project. *Change Management within the SETA Framework*. Wits University, Johannesburg. South Africa. 11 October 2019.

## International Visits

**Mashinini, T.N.**

**Mashinini, T.N.** University of Missouri, Columbia, United States of America. *ADAPTT-USDP Research Visit*. 7 - 14 June 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Van Coller, H.**

**Van Coller, H.** (2019) Administrative Law. *Annual Survey of South African Law*. 2017 (1). p.36-72.

**Van Coller, H.** (2019) Ritual Slaughter: a Religious Right? *Recht, Religie en Samenleving*. 18 (1). p.117-138.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Akinloye, I.A.**

**Akinloye, I.A.** (2019) Analysis of the Constitutionality, Practicability and Enforceability of Tax Regulations against Religious Organizations in

Nigeria. *Journal of Church and State*. 2019. p.1-23.

**Akinloye, I.A. and Akinloye, A.** (2019) *Olatunbosun v State*: Safeguarding Children Against Kidnapping in Worship Places. *Oxford Journal of Law and Religion*. 8 (2019). p.414-421.

**Akinloye, I.A.** (2019) *Dairo v Registered Trustees of the Anglican Diocese of Lagos* (2017) IPELR-42573: An Evaluation of the St Saviour's Church (Miscellaneous) Act 1991 and its Implication for the Legal Status of the Anglican Diocese of Lagos. *Oxford Journal of Law and Religion*. 8 (2019). p.206-212.

**Glover, G.**

**Glover, G.** (2019) Tyrannical Masters No More? Promissory Insurance Warranties after *Viking Inshore Fishing (Pty) Ltd v Mutual & Federal Insurance Co Ltd*. *Stellenbosch Law Review*. 30 (3). p.333-360.

**Glover, G.** (2019) Remedies, repentance and the doctrine of election in South African contract law. *Acta Juridica*. 1 (2019). p.59-97.

**Kruuse, H.**

Whitear, N. and **Kruuse, H.** (2019) The ethics of legal practitioners in resource-scarce institutions - *PM Mashishi v Z Mdlala* [2018] 17 BLLR 693 (LC); (2018) 39 ILJ 1607 (LC). *Obiter*. 40 (2). p.383-398.

**Plasket, C.**

**Plasket, C.** (2019) Disproportionality - The Hidden Ground of Review: *Medirite (Pty) Ltd v South African Pharmacy Council & Another*. *South African Law Journal*. 136 (2019). p.15-26.

**Tsele, M.**

**Tsele, M.** (2019) Rationalising Judicial review: Towards refining the 'Rational Basis' review test(s). *South African Law Journal*. 136 (2019). p.328-360.

**Van Coller, H. and Akinloye, I.A.**

**Van Coller, H. and Akinloye, I.A.** (2019) *The State v Twynham*: The (Ir)Relevance of further Regulation of Religious Organisations in South Africa. *Stellenbosch Law Review*. 30 (2019). p.299-314.

## Peer-reviewed Proceedings

**Akinloye, I.A.**

**Akinloye, I.A.** Human Flourishing, Church Leadership, and Legal Disputes in Nigerian Churches. *African Consortium for Law and Religion Studies (ACLARS)*. Baze University, Abuja. Nigeria. May 2018.

**Van Coller, H.**

**Van Coller, H.** Ritual Slaughter and Religious Freedom: The Impact on the Flourishing of Religious Communities in South Africa. *African Consortium for Law and Religion Studies (ACLARS)*. Baze University, Abuja. Nigeria. May 2018.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Akinloye, I.A.**

**Akinloye, I.A.** The Proposed Regulation of Religions in South-Africa: An Attempt of Imposing Sameness of Religions. *Religion and the Production of Difference*. University of Groningen, Groningen. Netherlands. October 2019.

**Akinloye, I.A.** Proliferation of Worship Places and Environmental Degradation in Nigeria: The Constitutional and Legal Issues Arising. *Law, Religion and the Environment in Africa*. University of Botswana, Gaborone. Botswana. May 2019.

**Bergover, S.N.**

**Bergover, S.N.** Public interest litigation and Costs. *Public interest litigation in Australia*. La Trobe University, Melbourne. Australia. August 2019.

**Glover, G.**

**Glover, G.** Can you believe a dustbin? Some dilemmas with the test for fraudulent misrepresentation. *Social Justice Conference*. Nelson Mandela University, Port Elizabeth. South Africa. August 2019.

**Kruger, R.**

**Kruger, R.** Hierarchy to Dialogue: EU-African Exchange on the Right to Equality and Discrimination Law. *Jean-Monnet Symposium on the European Union as the Protector and Promoter of Equality at the European Academy*. European Academy, Otzenhausen. Germany. March 2019.





*Students gathering in the Faculty of Law quadrangle*  
Credit: Faculty of Law

**Kruuse, H.**

**Kruuse, H.** Acting radically but ethically: Refusing to raise a prescription defence in public and private law matters. *Private Law and Social Justice Conference*. Nelson Mandela University, Port Elizabeth. South Africa. August 2019.

**Van Coller, H.**

**Van Coller, H.** Church Bells: a Noise Nuisance or the Legitimate Exercise of a Religious Conviction? *Law, Religion and the Environment in Africa*. University of Botswana, Gaborone. Botswana. May 2019.

**Van Coller, H.** Regulating religion by secular institutional structures and polices: aspiring for sameness, ignoring religious difference - A South African perspective. *Religion and the Production of Difference*. University of Groningen, Groningen. Netherlands. October 2019.

# 2019

## DEPARTMENT OF LITERARY STUDIES IN ENGLISH



Research interests in the Department range widely, and include areas such as postcolonial, transnational and diasporic literature; popular African culture and Afrofuturism; post-apartheid literature; ecocriticism and literature; romance fiction; crime and detective fiction; digital and visual media and academic writing.

The Department currently has three (3) research projects in progress that fund Postdoctoral Research Fellowships, Visiting Scholars and Writers-in-Residence, and Postgraduate students from Honours to Doctoral level, ensuring that a diverse and active research culture prevails in the Department.

Professor Lynda Spencer's project titled *"Urban Connections in African Imaginaries"* (UCAPI), funded by the Mellon Foundation, participated in the 5th Es'kia Mphahlele Postgraduate Colloquium and Arts Forum and the 3rd African Feminisms (Afems) Conference, both hosted by Wits University, and the 4th Eastern Africa Literary and Cultural Studies Conference (EALCSC), which took place at Bahir Dar University, in Ethiopia.

Two (2) UCAPI affiliates edited a special issue of *English in Africa* titled *"Cartographies of War and Peace in Eastern Africa"*. UCAPI hosted a Writer-in-Residence for three (3) months, aspiring author Muna Liban from Somaliland. Associate Professor Spencer supervised one (1) Postdoctoral Research Fellow in 2019, Dr Wanjiru Kiguru.

Lynda Spencer and Ashleigh Harris (Uppsala University, Sweden) collaborated on a project titled *"Contemporary African Texts and Contexts: Decolonising the Archive, Genre and Method"*, which is funded by the Swedish Foundation for International Cooperation in Research and Higher Education (STINT) and the National Research Foundation (NRF). Professor Spencer took six (6) Postgraduate students to Uppsala University, Sweden, to participate in methodology workshop on African Literary Archives Today. Professor Ashleigh Harris from Uppsala University, spent a week in the department and launched her book titled *Afropolitanism and the Novel: De-realizing Africa*.

Professor Sam Naidu's project titled *The Intersecting Diasporas Group* (IDG), a collaborative research project with San Francisco State University, focuses on transnational subjectivities represented in literature of the African, Latin American, and South Asian diasporas. Professor Naidu supervised one (1) Postdoctoral Research Fellow, Dr Indrani Karmakar in 2019. Her book *A Survey of South African Crime Fiction* received the Vice-Chancellor's Distinguished Book Award of 2019.

STIAS Colloquium

Credit: Department of Literary Studies in English

## Postgraduates / Graduations

- PhD (4 graduates): Carol Leff (supervisor: Sam Naidu), Thando Njovane (supervisor: Sue Marais), Jenny Du Preez (supervisor: Lynda Spencer), Megan van der Nest (supervisor: Sam Naidu).
- MA (4 graduates): Siyamthanda Dilinga (supervisor: Dirk Kloppe), Emma Laubscher (supervisor: Minesh Dass), Oriole Friedemann (supervisor: Lynda Spencer), Jordan Stier (supervisor: Lynda Spencer).

## Significant Research Aligned Events

Selected as part of the inaugural cohort (2017-2019) of Iso Lomso ('eye of tomorrow') early mid-career researchers at the Stellenbosch Institute for Advanced Study (STIAS), Aretha Phiri, a Senior Lecturer in the Department of Literary Studies in English, has had a particularly productive tenure. She has been a Visiting Fellow at the Institute for Black Atlantic Research (IBAR), the Centre for the Study of International Slavery (CSIS) in the UK, and the National Humanities Center (NHC) in North Carolina, US. She is the editor of and contributor to the book volume *African Philosophical and Literary Possibilities: Re-reading the Canon* (Rowman and Littlefield, 2020).

As part of her project entitled *Interrogating Blackness, Locating Africanness in the fiction of Toni Morrison, Zoë Wicomb, NoViolet Bulawayo, Chimamanda Ngozi Adichie and Taiye Selasi*, Aretha convened an interdisciplinary colloquium at STIAS entitled *Revising the Black Atlantic: African Diaspora Perspectives*. Foregrounding established and emerging women and queer feminist academics in the Humanities and Social Sciences from across the globe, the colloquium attempted to re-imagine current thinking around African decolonisation through (contemporary) critiques of a predominantly Western-oriented, heteronormative, patriarchal and hierarchical Black Atlantic scholarship. Invited participant, Longstreet Professor of English at Emory University in Atlanta, Georgia, Michelle M. Wright, commented that: *I have to say that the seminar at STIAS showed how incredibly deft, sophisticated, far-seeing and resolute African women scholars are! The participants in the seminar were so thoroughly engaged with one another. There was a real wealth of views, philosophies, experiences and a desire to share and to hash out ideas together, speaking honestly and disagreeing dynamically, but always with good humour.*

**Professor Dirk Kloppe**

*Head of Department*

## Books/Chapters/Monographs

- Kloppe, D.**  
**Kloppe, D.** (2019) *The Optical Unconscious: David Lurie's Karoo Photographs*. In: *Karoo: Land of Thirst*. Berlin: Hatje Cantz Verlag GmbH. p.18-23. ISBN: 9783775745949.
- Naidu, S.**  
**Naidu, S.** (2019) *Diaspora and the Short Story*. In: Delaney, P. and Hunter, A. (eds.). *The Edinburgh Companion to the Short Story in English*. Scotland: Edinburgh University Press. p.1-20. ISBN: 9781474400657.
- Phiri, A.**  
**Phiri, A.** (2019) *Lost in translation: re-reading the contemporary Afro-diasporic condition in Taiye Selasi's Ghana Must Go*. In: Durán-Almaraz, E.M. and Kabir, A.J. (eds.). *Debating the Afropolitan*. New York: Routledge: Taylor and Francis. p.85-95. ISBN: 9780367085780.

## Concerts, Exhibitions, Performances, Workshops, Events

- Phiri, A.**  
**Phiri, A.** Convener. *Revising the Black Atlantic: African Diaspora Perspectives*. Revising the Black Atlantic: African Diaspora Perspectives. Stellenbosch Institute for Advanced Studies, Stellenbosch. South Africa. 10 - 11 October 2019.
- Simelane, S.T., Wilson, J.S.E., Kirsten, A.L., Akram, T., Ngulube, I.A.C. and Awuor, N.A.**  
**Simelane, S.T., Wilson, J.S.E., Kirsten, A.L., Akram, T., Ngulube, I.A.C. and Awuor, N.A.** Presentations. African Literary Archives Today. *Research Methodology*. Uppsala University, Uppsala. Sweden. 25 May - 2 June 2019.
- Spencer, L.G.**  
**Spencer, L.G.** Writing Mentor. Academic Writing Workshop. *Hargeisa International Book Fair*. Redsea Cultural Centre, Hargeisa. Somaliland. 15 - 22 July 2019.
- Spencer, L.G. and Khan, S.** Event Organiser. Theorising from the Epicentres of our Agency (Afems) 2019 Conference. *African Feminisms*. Wits University, Johannesburg. South Africa. 5 - 7 September 2019.

## Distinguished Visitors

- Agofure, J.**  
**Dr J Agofure.** Ahmadu Bello University, Zaria, Nigeria. *Residency*. February 2019.
- Harris, A.**  
**Professor A Harris.** Uppsala University, Uppsala, Sweden. *Collaboration*. October 2019.
- Liban, M.**  
**Ms M Liban.** Hargeisa, Somaliland. *Writer-in Residence*. September 2019.
- Likaku, R.**  
**Mr R Likaku.** Uppsala University, Uppsala, Sweden. *Doctoral Exchange Student*. February 2019.
- Winstanley, L.**  
**Ms L Winstanley.** University of Barcelona, Barcelona, Spain. *Research*. July 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

- Awuor, N.A.**  
**Awuor, N.A.** (2019) Book Review: Review of the Impossible Return: Struggles of the Ethiopian Jews, the Beta Israel. *Eastern African Literary and Cultural Studies*. 5 (2). p.144-147.
- Tembo, M.N.**  
**Tembo, M.N.** (2019) Reading Emmanuel Jal's *War Child* as spiritual autobiography. *Nordic Journal of African studies*. 28 (4). p.1-21.



## Peer Reviewed Subsidy-Earning Journal Research Publications

**Bosman, S.J.**

**Bosman, S.J.** (2019) Nguyen's Ghosts in *The Sympathizer*: Collapsing Binaries and Signalling Just Memory. *Scrutiny2*. 24 (1). p.3-12.

**Cornwell, D.G.N.**

**Cornwell, D.G.N.** (2019) Love as 'Locatedness' in Richard Ford's *The Ultimate Good Luck*. *English Studies in Africa*. 62 (1). p.58-69.

**Cornwell, D.G.N.** (2019) Cormac McCarthy and the South Africans. *English in Africa*. 46 (2). p.7-23.

**Goldblatt, C.**

**Goldblatt, C.** (2019) Setting readers at sea: Fatou Diome's *Ventre de l'Atlantique*. *Tydskrif vir letterkunde*. 56 (1). p.89-101.

**Gouws, J.**

**Gouws, J.** (2019) Book Review: Catherine Bates, *On Not Defending Poetry: Defence and Indefensibility in Sidney's Defense of Poesy*. Pp. vi + 299. Oxford and New York: Oxford University Press, 2017, £65.00 (ISBN 978 0 19 879377 9). *Notes and Queries*. 2019. p.587-588.

**Karmakar, I.**

**Karmakar, I.** (2019) Being a Foreigner ... Is a Sort of LifeLong Pregnancy: Interrogating the Maternal and the Diasporic in Jhumpa Lahiri's *The Namesake*. *Scrutiny2*. 24 (1). p.44-57.

**Kenqu, A.Y.**

**Kenqu, A.Y.** (2019) Black South African artists in conversation: Nongqawuse, "The Bellow of the Bulls" and other travelling tropes in Zakes Mda's *The Heart of Redness*. *English in Africa*. 46 (1). p.57-78.

**Kenqu, A.Y.** (2019) "Plunging into the Mire of Corruption and Pleasure": Niq Mhlongo's *Way Back Home*. *Current Writing*. 31 (2). p.155-165.

**Kenqu, A.Y.** (2019) Splitting and becoming double in Zakes Mda's *The Heart of Redness*. *Safundi*. 20 (1). p.58-81.

**Klopper, D.**

**Klopper, D.** (2019) The Twice-Told Tale: Ethiopia, Race and the Veil of Signs. *English in Africa*. 46 (3). p.37-54.

**Klopper, D.** (2019) Dry bones: the story of palaeoanthropology in South Africa. *Safundi*. 20 (1). p.33-57.

**Marais, M.**

**Marais, M.** (2019) "A cry in the vast dark": Ian Holding's *What Happened to Us* and the confession of shame. *Journal of Commonwealth Literature*. 2019. p.1-14.

**Marais, M.** (2019) Reconciliation, White Shame, and the Sympathetic Imagination in Ian Holding's *Of Beasts and Beings*. *Research in African Literatures*. 50 (1). p.198-212.

**Naidu, S.**

**Naidu, S.** (2019) In Search of the "Goodlife": Border Crossing and Agency in Luis Alberto Urrea's *Into the Beautiful North* and Graciela Limón's *The River Flows North*. *Scrutiny2*. 24 (1). p.92-103.

**Naidu, S.** (2019) Editorial: Intersecting Diasporas. *Scrutiny2*. 2019. p.1-2.

**Ntsepo, N.T.**

Nichols, P., Erasmus, Z., **Ntsepo, N.T.**, Mlahleki, L., Mabalane, K., Ngobeni, K. and Ckool, K. (2019) Writing within simultaneity: A reflective progress report through letters from the Wits Writing Programme. *Stellenbosch Papers in Linguistics Plus / SPiL Plus*. 57 (2019). p.131-147.

**Spencer, L.G.**

**Spencer, L.G.** (2019) 'In defence of chick-lit': refashioning feminine subjectivities in Ugandan and South African contemporary women's writing. *Feminist Theory*. 20 (2). p.155-169.

**Tembo, M.N.**

**Tembo, M.N.** (2019) Reframing migrant identities: Namelessness and impersonation in Dinaw Mengestu's *All Our Names*. *Literator: Journal of Literary Criticism, Comparative Linguistics and Literary Studies*. 40 (1). p.1-6.

**Tembo, M.N.** (2019) Troubling frames: Zapiro's iconography on Oscar Pistorius as traumas. *Journal of Contemporary African Studies*. JCAS. 2019 (2019). p.1-22.

**Tembo, M.N.** (2019) "Made of Sterner Stuff": Female Agency and

Resilience in Nadifa Mohamed's *The Orchard of Lost Souls*. *Journal of Literary Studies*. 35 (3). p.1-18.

**Wylie, D.**

**Wylie, D.** (2019) "Haunted Still by Memories": John Eppel's Post-Settler Plant Poetic. *Journal of Literary Studies*. 35 (4). p.58-76.

**Wylie, D.** (2019) Narrating whales in Southern Africa. *English in Africa*. 46 (1). p.37-55.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Awuor, N.A.**

**Awuor, N.A.** "The revolution will not be televised": Digital publishing ain't the narratives of Okwiri Oduor and Ndinda Kioko. *The 5th Eskia Mphahlele Post-Graduate Colloquium and Arts Forum*. University of the Witwatersrand, Johannesburg. South Africa. July 2019.

**Bosman, S.J.**

**Bosman, S.J.** Aqueous Hauntings: The Ghost and Memories of Water in Luis Alberto Urrea's 'Welcome to the Water Museum' (2015). *The 15th Annual Literature and Ecology Colloquium: Water*. AMAZWI, Grahamstown / Makhanda. South Africa. September 2019.

**Fuhner, M.A.**

**Fuhner, M.A.** Meg Vandermerwe's portrayal of the effects of migration on women in *Zebra Crossing*. *African Feminisms (Afems): Theorising from the Epicentres of our Agency*. University of the Witwatersrand, Johannesburg. South Africa. September 2019.

**Kiguru, D.W.**

**Kiguru, D.W.** Speculative fiction and African urban futures: Reading *Imagine Africa 500*. *4th Eastern African Literary and Cultural Studies Conference*. Bahir Dar University, Bahir Dar. Ethiopia. August 2019.

**Kiguru, D.W.** Performing Sexuality in Bukusu Circumcision Rituals.

*Africa: Connections and Disruptions*. Edinburgh Centre for African Studies, Edinburgh. Scotland. June 2019.

**Klopper, D.**

**Klopper, D.** and Sekwiha-Gwajima, E. A Life Elsewhere: Wilma Stockenström's *The Expedition to the Baobab Tree*. *Eastern Africa Literary and Cultural Studies Conference*. Bahir Dar University, Bahir Dar. Ethiopia. August 2019.

**McGregor, J.A.**

**McGregor, J.A.** "Knife, Sting, and Tooth": The Lasting Effects of Frodo's Wounds. *Tolkien 2019: The Fiftieth Anniversary Conference of the Tolkien Society*. MacDonald Burlington Hotel, Birmingham. United Kingdom. August 2019.

**Naidu, S.**

**Naidu, S.** That ever-blurry line between us and the criminals?: Re-visioning Justice in African Noir. *Revising the Black Atlantic: African Diaspora Perspectives International Colloquium*. Stellenbosch Institute for Advanced Study (STIAS), Stellenbosch. South Africa. October 2019.

**Naidu, S.** A Border-Crossing Teaching Body: Reflections on a Decolonial Literary Studies Pedagogy in a South African Context. *HELTASA Conference 2019*. Eden Groove, Grahamstown. South Africa. November 2019.

**Njovane, T.**

**Njovane, T.** Trauma Theory, Postcolonialism and Childhood in African Fiction. *Studies in Historical Trauma and Transformation Colloquium*. University of Stellenbosch, Stellenbosch. South Africa. July 2019.

**Njovane, T.** Memory, Home and the Uncanny in the Life Writing of Mphahlele and Masekela. *Rereading and Remapping Foundational Texts Genealogies Colloquium*. University of the Witwatersrand, Johannesburg. South Africa. July 2019.

**Phiri, A.**

**Phiri, A.** Reading cultural populism and the politics of redress. *Cultures of Populism*. African Centre for the Study of the United States at University of the Witwatersrand, Johannesburg. South Africa. July 2019.

**Phiri, A.** Things Fall Apart, the Centre Cannot Hold: Inscribing African Feminist Histories in/ for the Twenty-First Century. *African Feminist Histories*. African Feminist Initiative - Department of Women's, Gender and Sexuality Studies, Penn State University, Pennsylvania. United States of America. April 2019.

**Phiri, A.** What's so Black about the Atlantic? An African Diaspora Riposte. *Revising the Black Atlantic: African Diaspora Perspectives*. Stellenbosch Institute for Advanced Studies, Stellenbosch. South Africa. October 2019.

**Phiri, A.** What's so Black about the Atlantic? An African Diaspora Riposte. *Re-visiting the Black Atlantic: Gender, 'Race' and Performance*. Liverpool University, Liverpool. United Kingdom. June 2019.

**Sibisi, N.M.**

**Sibisi, N.M.** "Black (Female) Joy: Koleka Putuma and Mmatumisang Motsisi writing, staging, and (re)defining joy". *African Feminisms (Afems): Theorising from the Epicentres of our Agency*. University of the Witwatersrand, Johannesburg. South Africa. September 2019.

**Spencer, L.G.**

**Spencer, L.G.** "Don't mess with Kansiime": The cultural economy of transgressive female humour. *African Feminisms (Afems): Theorising from the Epicentres of our Agency*. University of the Witwatersrand, Johannesburg. South Africa. September 2019.

**Spencer, L.G.** "A New Kind of Romance": Romance imprints and the Digital Age in Africa. *4th Eastern African Literary and Cultural Studies Conference*. Bahir Dar University, Bahir Dar. Ethiopia. August 2019.

**Tlhako, M.F.**

**Tlhako, M.F.** Bafetile, Baretlogete: Grief and Mourning in Cynthia Jele's *The Ones With Purpose*. *African Feminisms (Afems): Theorising from the Epicentres of our Agency*. University of the Witwatersrand, Johannesburg. South Africa. September 2019.



Left to right: Danai Mupotsa (University of Witwatersrand), Rocio Cobo-Piñero (University of Seville), Michelle Wright (Emory University), Aretha Phiri (Rhodes University), Polo Moji (University of Cape Town), Marzia Milazzo (Vanderbilt University)

Credit: Department of Literary Studies in English



During 2019, the Department of Management continued to promote and develop a research culture and research capability by integrating the development of research thinking and skills into its teaching, particularly at the fourth-year level where students are exposed to a research methodology module and produce a research report.

The Department also offers a structured research component in the Masters and Phd programme. As evident in the research outputs listed, 2019 was a productive year for the Department. Staff not only participated in international teaching programmes but also co-authored books, contributed chapters to books, presented their research at local and international conferences and published in peer reviewed subsidy-earning journals and in peer-reviewed proceedings.

## Postgraduates / Graduations

During 2019, twelve (12) Management Masters students, two (2) Financial Management Masters students and four (4) PhD candidates were registered in the Department. Two (2) students graduated with their Masters degree.

## International Visits Abroad

### Louw, L.

**Louw, L.** Lectured on the *International Event Management Studies programme* at the Shanghai University of International Business and Economics, Shanghai, China, 25 March - 4 April, 2019.

**Louw, L.** Invited to co-lecture on "*Personal leadership development in a globalised world*" in the Summer school offering in the Faculty of Economics at the University of Utrecht, Netherlands, 8 July - 12 July 2019.

**Louw, L.** Visited the Kemmy Business School at the University of Limerick, Ireland, 27 May - 31 May 2019. The purpose of this visit was to explore a collaborative research agenda on the SDG as outlined by the Principles for Responsible Management Education, UN Global initiative. The discussion considered a co-edited book with four universities collaborating.

### Louw, M.J

**Louw, M.J.** Lectured on the *International Event Management Studies programme* at the Shanghai University of International Business and Economics, Shanghai, China, 1 April - 12 April, 2019.

**Louw, M.J.** Invited to co-lecture on "*Personal leadership development in a globalised world*" in the Summer school offering in the Faculty of Economics at the University of Utrecht, Netherlands, 8 July - 12 July 2019.

*The 2019 Southern African Institute for Management Scientists (SAIMS) conference was held at the Nelson Mandela University, School of Management Sciences during September 2019 in Port Elizabeth. From left to right, Mr Thinkwell Ndlovu (previous Masters student), Dr Antoni Xolile, Professor Lynette Louw, Ms Quintabella Andangnui, Professor Nadine Oosthuizen, Ms Lisa Maholo, Ms Siphosihle Mnyamana, Dr Tinashe Ndoro (previous staff member). Kneeling in front, Mr Mattheus Louw and Dr Francis Asah (previous PhD candidate)*

*Credit: Department of Management*



## Distinguished Visitor

Professor Dr Rainer Lisowski, Professor in Public Management at the University of Applied Sciences Bremen, Germany, was a distinguished international visitor from 5-6 February 2019 in the Department of Management, Faculty of Commerce at Rhodes University. His presentation was entitled: *Deep troubled sea? Reasons for rising (national-) populism*.

Professor Sheila Killian, the then Director of the Kemmy Business School at the University of Limerick, Ireland met with colleagues in the Faculty of Commerce to explore research agendas in the area of SDG in the week of 25 February 2019.

**Mr Trevor Amos**

*Head of Department*



Professor Lynette Louw and Professor Peet Venter from UNISA SBL, co-editors of the most recent *Strategic Management*, 4th edition  
Credit: Department of Management

## Books/Chapters/Monographs

**Amos, T.**

**Amos, T., Pearce, N.J., Ristow, L. and Ristow, A. (2019) *Human Resource Management*. 5th Ed. Cape Town: Juta & Co. ISBN: 9781485130413.**

**Amos, T. (2019) *Business Functions An Introduction (Customised Work)*. 3rd Ed. Cape Town: Juta & Co. ISBN: 9781485129080.**

**Amos, T. (2019) Strategic Leadership. In: Louw, L. & Venter, P. (eds.). *Strategic Management: Towards sustainable strategies in southern Africa*. 4th Ed. Cape Town: Oxford University Press. p.415-457. ISBN: 9780190723743.**

**Amos, T. (2019) Human resource management. In: Nieuwenhuizen, C. (ed.). *Business Management: An African Perspective*. Cape Town: Juta & Co. p.371-417. ISBN: 9781485130550.**

**Amos, T., Pearce, N.J., Ristow, L. and Ristow, A. (2019) *Virtual Book Version) Human Resource Management*. 4th Ed 2016. Cape Town: Juta & Co. ISBN: 978148512997-4.**

**Boness, C.M.**

**Boness, C.M. (2019) Case 5: How to Make Friends in Rwanda: A Chinese Tea Ceremony. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.111-128. ISBN: 9783030251840.**

**Boness, C.M. and Wei, N. (2019) Case 11: Working Conditions in a Chinese-Ugandan Communications Company. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.179-190. ISBN: 9783030251840.**

**Boness, C.M. (2019) Case 1: Dealing with Organisational Strategies in the Tanzanian-Chinese Chalinze Water Project. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.61-70. ISBN: 9783030251840.**

**Boness, C.M. and Wei, N. (2019) Case 16: A Cross-cultural Conference in the Mozambique Confucius Institute. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.233-246. ISBN: 9783030251840.**

**Boness, C.M. (2019) Case 14: Hiring and Firing in the Chinese-Zimbabwean Mining Industry. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.215-224. ISBN: 9783030251840.**

**Boness, C.M. (2019) Case 10: Sharing Knowledge in a Sundanese Oil Refinery Through Cultural and Language Trainings. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.171-178. ISBN: 9783030251840.**

**Boness, C.M. (2019) Transforming Shame in the German Educational System Using the Team Ombuds Model. In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.333-348. ISBN: 9783030134082.**

**Boness, C.M. and Mayer, C.H.**

**Boness, C.M., Mayer, C.H. and Wei, N. (2019) Case 3: Dealing with Organisational Structures, Decision-Making and Participation in the Zambian Textile Industry. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.85-100. ISBN: 9783030251840.**

**Boness, C.M., Mayer, C.H. and Wei, N. (2019) Case 7: Managing a Chinese-Angolan National Housing Project in Angola's Capital, Luanda. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.135-148. ISBN: 9783030251840.**

**Chigwendere, F.B.**

**Chigwendere, F.B. (2019) Case 2: "Not who I am, not what I mean": Intercultural Communication in Chinese-South African Interactions. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.71-84. ISBN: 9783030251840.**

**Liu, Z.**

**Liu, Z. (2019) Chinese Cultural Concepts and Their Influence on Management. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.19-36. ISBN: 9783030251840.**

**Liu, Z.** (2019) Case 12: Managing a Chinese-South African Restaurant in Port Elizabeth, South Africa. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.191-204. ISBN: 9783030251840.

**Louw, L.**

**Louw, L.** (2019) *Introduction: The nature of Strategic Management*. In: Louw, L. & Venter, P. (eds.). *Strategic Management: Towards sustainable strategies in southern Africa*. 4th Ed. Cape Town: Oxford University Press. ISBN: 9780190723743.

**Louw, L. and Venter, P. (ed.)** (2019) *Strategic Management: Towards sustainable strategies in southern Africa*. 4th Ed. Cape Town: Oxford University Press. ISBN: 9780190723743.

**Louw, L., Burger, K.E. and Louw, M.J.**

**Louw, L., Burger, K.E. and Louw, M.J.** (2019) Case 13: Employee Perceptions of a Chinese Heavy-Machinery-Importing Organisation Operating in Uganda. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.205-214. ISBN: 9783030251840.

**Louw, L., Mayer, C.H. and Boness, C.M.**

**Louw, L., Mayer, C.H. and Boness, C.M. (ed.)** (2019) *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. ISBN: 9783030251840.

**Louw, M., Louw, L. and Geyser, F.B.**

**Louw, M., Louw, L. and Geyser, F.B.** (2019) Case 6: Setting Up Small, Medium and Micro Enterprises by Chinese Entrepreneurial Immigrants in Maputo, Mozambique. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.127-134. ISBN: 9783030251840.

**Mayer, C.H.**

**Mayer, C.H.** (2019) Introduction. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.3-18. ISBN: 9783030251840.

**Mayer, C.H.** (2019) Healing Rituals to Transform Shame: An Example of Constellation Work. In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.521-532. ISBN: 9783030134082.

**Mayer, C.H.** (2019) Unemployed and High Achiever? Working with Active Imagination and Symbols to Transform Shame? In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.463-470. ISBN: 9783030134082.

**Mayer, C.H.** (2019) Working with Shame Experiences in Dreams: Therapeutical Interventions. In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.433-446. ISBN: 9783030134082.

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**Mayer, C.H.** (2019) Opening the Black Box Part 2: Exploring Individual Shame in German Research. In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.21-34. ISBN: 9783030134082.

**Mayer, C.H.** (2019) Opening the Black Box Part 1: On Collective Shame in German Society. In: Mayer, C.H. and Vanderheiden, E. (eds.). *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. p.3-20. ISBN: 9783030134082.

**Mayer, C.H. (ed.)** (2019) *The Bright Side of Shame: Transforming and Growing Through Practical Applications in Cultural Contexts*. Switzerland: Springer Nature Switzerland. ISBN: 9783030134082.

**Muhangi, S.**

**Muhangi, S.** (2019) Case 9: Transforming Employee Conflicts in a Chinese Construction Firm in Kampala, Uganda. In: Mayer, C.H., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions*. Switzerland: Palgrave Macmillan. p.161-170. ISBN: 9783030251840.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Antoni, X.L.**

**Matchaba-hove, T., Antoni, X.L. and Giwe, M.B.** (2019) The Use of Banking Products and Services by Low-Income and Under-Banked Consumers in the Nelson Mandela Bay. *Academy of Accounting and Financial Studies Journal*. 23 (2). p.1-13.

**Louw, L.**

**Le Maitre, D., Blignaut, J.N., Louw, L., Palmer, C.G. and Preston, I.R.** (2019) The aliens have invaded! *Water, Sewage and Effluent* 39 (3). p.21-23.

**Matipedza, T.L. and Sampa, M.**

**Matipedza, T.L., Sampa, M., Ndoro, T. and Chuchu, T.** (2019) Attributes Influencing Financial Institutions Selection by African Youth Tourists. *African Journal of Hospitality, tourism and Leisure (AJHTL)*. 8 (2). p.1-9.

**Mayer, C.H.**

**Mayer, C.H.** (2019) Exceptional Human Experiences in the Life and Creative Works of Paulo Coelho: A Psychobiographical Investigation. *Spirituality in Clinical Practice*. 6 (3). p.166-181.

**Mayer, C.H., Oosthuizen, R.M. and Tonelli, L.** (2019) Subjective experiences of employment equity in South African organisations. *SA Journal of Human Resource Management*. 17 (2019). p.1-12.

**Mayer, C.H. and Louw, L.**

**Mayer, C.H., Louw, L. and Von der Ohe, H.** (2019) Sense of coherence in Chinese and German students. *Health SA Gesondheid: Journal of Interdisciplinary Health Sciences*. 24 (2019). p.1-11.

**Ndoro, T.T.**

**Ndoro, T.T. and Martins, N.** (2019) Employee engagement at a higher education institution in South Africa: Individual, team and organisational levels. *Journal of Psychology in Africa*. 29 (2). p.121-125.

**Ndoro, T.T. and Van Niekerk, R.** (2019) A Psychobiographical Analysis of the Personality Traits of Steve Jobs's Entrepreneurial Life. *Indo-Pacific Journal of Phenomenology*. 19 (1). p.1-11.

**Ndoro, T.T. and Louw, L.**

**Ndoro, T.T., Louw, L. and Kanyangale, M.** (2019) Practices in operating a small business in a host community: A social capital perspective of Chinese immigrant entrepreneurship within the South African business context. *International Journal of Entrepreneurship and Small Business*. 36 (1-2). p.148-163.

**Oosthuizen, N.**

**Oosthuizen, N. and Ferreira, D.** (2019) Destination Enhancers Influencing Tourism Demand. *African Journal of Hospitality, tourism and Leisure (AJHTL)*. 8 (4). p.1-21.

**Owusu Ansah, M. and Louw, L.**

**Owusu Ansah, M. and Louw, L.** (2019) The influence of national culture on organizational culture of multinational companies. *Cogent Social Sciences*. 5 (2019). p.1-15.

## Peer-reviewed Proceedings

**Antoni, X.L.**

**Antoni, X.L.** The Influence of Financial Literacy on Retirement Planning in the Nelson Mandela Bay. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.

**Chodokufa, K. and Louw, L.**

**Chodokufa, K. and Louw, L.** Building and Managing Multiple Stakeholder Relationships: A Stakeholder's Perspective. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.

**Maholo, L., Louw, M.J. and Amos, T.**

**Maholo, L., Louw, M.J. and Amos, T.** The Importance of Direct Financial and Work Content Factors in the Retention of Employees in Two Selected Municipalities. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.





*Staff and students attending the conference*

*From left to right, Professor Lynette Louw, Ms Lisa Maholo, Mr Mattheus Louw, Mr Joshua Manyonganise, Ms Siphosihle Mnyamana, Professor Nadine Oosthuizen, Ms Mikaela Oosthuizen and Ms Quintabella Andangnui*  
 Credit: Department of Management

**Okeja, O.D. and Louw, L.**

**Okeja, O.D. and Louw, L.** The Effect of Brand Knowledge on the Investment Decisions of Individual Investors as Mediated by Availability Bias. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.

**Oosthuizen, N.**

Perks, S., **Oosthuizen, N.** and Maduna, T. Factors Necessary For Secured Investors Toward Foreign Direct Investment Ownership Transfer in Special Economic Zones: A Proposed Framework. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.

Rootman, C., **Oosthuizen, N.** and Mabuyane, B. 2019. Practical guidelines for role players in the South African skin care industry: demographic factors and consumer behaviour. *6th International Conference on Business and Management Dynamics (ICBMD 2019)*. Jointly hosted by: Cape Peninsula University of Technology, South Africa; University of Namibia Business School, Namibia; University of Fort Hare, South Africa; North West University, South Africa; University of KwaZulu, Natal, South Africa; International University of Management, Namibia. Swakopmund: Namibia, 2 - 4 September 2019.

Rootman, C., **Oosthuizen, N.** and Mabuyana, B. Selected Product Variables and Consumer Buying Behaviour in the South African Skin Care Industry. *31st SAIMS Conference - Responsible Management in Disruptive Times*. Nelson Mandela University, School of Management Sciences, Port Elizabeth. South Africa. September 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Andangnui, Q. and Louw, L.**

**Andangnui, Q., Louw, L.** and Cattaneo, N. Macro-locational determinants of Chinese foreign direct investment in Cameroon. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.

**Asah, F.T. and Louw, L.**

**Asah, F.T., Louw, L.** and Williams, J.M. The availability of credit from formal financial sector to small and medium enterprises (SMEs) in South Africa. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.

**Chodokufa, K. and Louw, L.**

**Chodokufa, K. and Louw, L.** Relationship characteristics influence on stakeholder relationship management: a case of Chinese mining organisations in Southern Africa. *13th China goes Global Conference*. Rollins College, Orlando. Florida. October 2019.

**Maholo, L., Louw, M.J. and Amos, T.**

**Maholo, L., Louw, M.J.** and Amos, T. The importance of direct financial and work content factors in the retention of employees in two selected municipalities. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.

**Muhangi, S., Louw, L. and Louw, M.J.**

**Muhangi, S., Louw, L.** and Louw, M.J. Identity conflict and conflict transformation in a Chinese organization in Uganda's construction industry. *31st Southern African Institute for Management Studies Conference*. Nelson Mandela University, Port Elizabeth. South Africa. January 2019.

**Manyonganise, J., Louw, M. and Oosthuizen, N.**

**Manyonganise, J., Louw, M.** and Oosthuizen, N. Customer perceptions on customer relationship management and its possible influence on revenue management at a selected water board in South Africa. *31st Southern African Institute for Management Scientists (SAIMS) Conference*. Nelson Mandela University, Port Elizabeth. South Africa. September 2019.



# 2019

## DEPARTMENT OF MATHEMATICS (PURE AND APPLIED)



The Department of Mathematics continues to pursue research in a number of key research areas bridging pure and applied mathematics.

Particular focus areas include:

- Functional analysis including measure theory and martingales;
- Algebraic graph theory;
- Geometric control, particularly invariant optimal control;
- Computational and analytical relativity, and gravitational waves;
- Machine learning.

In 2019, the department was pleased to welcome two (2) new staff members, Dr Marcel Atemkeng and Dr Catherine McLean. Dr Atemkeng brings with him a close collaboration with SKA-related projects in machine learning for radio-astronomy. Dr McLean is a recent Rhodes graduate who strengthens our programme in geometrical control.

### Postgraduates / Graduations

The department supervised two (2) Masters students and five (5) PhD candidates across both the Mathematics and Applied Maths divisions.

### Distinguished Visitors / International Visits

Our academic staff made research visits to India, Germany, Hungary, Romania, Slovenia, Australia, and the United Kingdom.

### Significant Research Aligned Events

The department continues its participation in the National Astrophysics and Space Sciences Program (NASSP) as an associate member of the Cape Town node. Our participation provides opportunities to offer graduate projects as part of the program, as well as opportunities to offer graduate courses in astrophysics. We continue to actively use its local computer cluster and have become one of the most active users at the Centre for High Performance Computing (CHPC) in Cape Town.

### Professor Denis Pollney

*Head of Department*

*Recent addition to the department, Dr Marcel Atemkeng was awarded the Kambule Doctoral Award, recognizing and celebrating African excellence in machine learning and artificial intelligence. The award was presented during the Deep Learning Indaba conference in Nairobi, Kenya, in August 2019*

*Credit: Department of Mathematics (Pure and Applied)*

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**John, A. and Stevens, C.**

**John, A. and Stevens, C.** (2019) Accretion onto deformed black holes via pseudo-Newtonian potentials. *PoS - Proceedings of Science*. 2019. p.1-9.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Andriantiana, E.O.D.**

**Andriantiana, E.O.D.**, Razanajatovo Misanantenaina, V. and Wagner, S. (2019) The average size of independent sets of graphs. *European Journal of Mathematics*. 2019. p.1-16.

**Andriantiana, E.O.D.**, Dadedzi, K. and Wagner, S. (2019) The ancestral matrix of a rooted tree. *Linear Algebra and its Application*. 575 (2019). p.35-65.

**Atemkeng, M.T.**

Mulongo, J., **Atemkeng, M.T.**, Ansah-Narh, T., Rockefeller, R., Nguenang, G.M. and Garuti, M.A. (2019) Anomaly Detection in Power Generation Plants Using Machine Learning and Neural Networks. *Applied Artificial Intelligence*. 34 (1). p.64-79.

**Barrett, D.I. and Remsing, C.C.**

**Barrett, D.I. and Remsing, C.C.** (2019) On geodesic invariance and curvature in nonholonomic Riemannian geometry. *Publicationes Mathematicae-Debrecen*. 94 (1-2). p.1-15.

**Barrett, D.I. and Remsing, C.C.** (2019) A note on flat nonholonomic Riemannian structures on three-dimensional Lie groups. *Beitrage zur Algebra und Geometrie*. 60 (2019). p.419-436.

**Burton, M.**

**Bamigboye, C.O.**, Oloke, J.K., **Burton, M.**, Dames, J.F. and Lateef, A. (2019) Optimization of the Process for Producing Biomass and Exopolysaccharide from the King Tuber Oyster Mushroom, *Pleurotus tuber-regium* (Agaricomycetes), for Biotechnological Applications. *International Journal of Medicinal Mushrooms*. 21 (4). p.311-322.

**Ganguly, A., Pollney, D. and Stevens, C.**

Barack, L., Cardoso, V., Nissanke, S., Sotiriou, T.P., Askar, A., Belczynski, C., **Ganguly, A.**, **Pollney, D.**, **Stevens, C.**, Bertone, G. and et al. (2019) Black holes, gravitational waves and fundamental physics: a roadmap. *Classical and Quantum Gravity*. 36 (14). p.1-178.

**John, A.**

**John, A.** (2019) Black hole accretion in scalar-tensor-vector gravity. *Monthly Notices of the Royal Astronomical Society*. 490 (2019). p.3824-3829.

**John, A. and Stevens, C.**

**John, A. and Stevens, C.** (2019) Bondi accretion in the spherically symmetric Johannsen-Psaltis spacetime. *European Physical Journal C*. 79 (962). p.1.

**Stevens, C.**

Doulis, G., Frauendiener, J., **Stevens, C.** and Whale, B. (2019) COFFEE? An MPI-parallelized Python package for the numerical evolution of differential equations. *SoftwareX*. 10 (2019). p.1-6.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Andriantiana, E.O.D.**

**Andriantiana, E.O.D.** and Dossou-Olory, A.A.V. Nordhaus-Gaddum inequalities for the number of connected induced subgraphs. *62nd Annual Congress of the South African Mathematical Society*. University of Cape Town, Cape Town. South Africa. December 2019.

**Bester, H.L.**

**Smirnov, O.M.**, **Hugo, B.**, **Asad, K.M.B.**, **Bester, H.L.** and Tasse, C. Imaging in the presence of direction-dependent effects with the MeerKAT radio telescope. *International Conference on Electromagnetics in Advanced Applications*. Spain, Grenada. September 2019.

**Remsing, C.C.**

**Remsing, C.C.** A Family of 2D Homogeneous Spaces. *Conference on Geometry: Theory and Applications*. University of Innsbruck, Innsbruck. Austria. June 2019.

**Remsing, C.C.** Curve theory in homogeneous spaces. *Second Mini-Symposium on Geometry, Groups, and Control*. Rhodes University, Grahamstown. South Africa. December 2019.



The 2019 Research and Creative Outputs produced by staff and students at the Department of Music and Musicology is rooted primarily in African Indigenous Music and Western Art Music. Academic and performance collaborations between students and staff contributed to the Department's significant quantity and quality of research outputs.

## African Indigenous Music

An innovative podcast series *Afroloops* focusing on musical instruments from Africa was developed and recorded by the Music, Culture and History World Music 3 students. This series is aimed at teachers and students from schools in order to enrich the resources available to teach African music.

Three (3) final year students were selected to present their research at the South African Society for Research in Music (SASRIM) annual conference held in Stellenbosch in September 2019. Warona Garekwe presented *Documenting the playing technique and musical style of katara ya Setswana* (Botswana four-string guitar) while Tamsyn Monique Hanslo and Vuyelwa O'Lacy Moyo presented *Creating a new space of rightful access through podcast at ILAM: Developing the living archive*. The presentations were very successful and the students represented the Department of Music and Musicology very well.

## Western Art Music

The Department of Music and Musicology, Rhodes University (RU) collaborated with the Department of Music, University of the Free State (UFS) in a musical highlight of the Department's outputs. On 6 October 2019, the Free State Youth Orchestra, RU Orchestra, RU Chamber Choir and RU Vocalists presented a Symphony concert conducted by Alexander Fokkens in the Guy Butler Theatre, Settler's Monument. A short curtain raiser performed by the DSG/SAC string ensemble preceded the concert, which began with a performance by the combined orchestras by S.A composer Hendrik Hoffmeyr.

The invited guest soloist from UFS Samson Diamond performed a Violin Romance by Ludwig van Beethoven, while RU performers Catherine Foxcroft and Garreth Robertson (MMus student) performed the Concerto for 2 pianos BWV 1060 by J.S. Bach. The RU Vocalists performed extracts from the Magic Flute by W.A. Mozart, including a solo Aria performed by RU student Masi Mbube. The Beethoven 7th Symphony was performed by the combined orchestras after a short interval, and the concert concluded with the premier performance of *Invictus*, composed specifically for the event by South African composer Gareth Walwyn. The audience's standing ovation for the mass group of performers (FSYO, RYO, RUCC, RUV) was long and well deserved.

The proceeds from the concert contribute exclusively to the Department of Music and Musicology's funding initiative, the BMus 1st year scholarship (R20 000). The recipient of the scholarship for 2020 is local Grahamstown resident Ms Yoliswa Gusha.

*RU Orchestra, FSYO and RU Vocalists during the Symphony concert*  
Credit: Department of Music and Musicology



## Postgraduates / Graduations

The number of Postgraduate students supervised in the Department more than doubled in 2019. In addition to eight (8) BMus/BA Honours students, twelve (12) MMus students and six (6) PhD candidates were supervised by staff in the Department.

The Department of Music and Musicology is proud to have graduated five (5) BMus Honours students, three (3) BA Honours (Music) students and two (2) MMus students in 2019.

## Distinguished Visitors / International Visits

The Department of Music and Musicology was privileged to provide a platform to several internationally acclaimed performers including Professor Dizu Plaatjies and Ibuyambo Ensemble. They held two (2) workshops attended by students from the university as well as a full house concert where they performed on various African instruments from around the continent.

Western Art musicians who performed in the RU Concert Series included US pianist Rob Auler, South African pianist Terence Marais (RU Alumnus based in Spain), and colleagues from the University of Free State, Petro Engelbrecht (piano) and Anmari van der Westhuizen (cello).

The Department hosted the 13th National Grahamstown Music Competition, an annual event which offers young musicians at Junior, Secondary and Tertiary levels across South Africa an opportunity to compete at a National level. The adjudicators included Dr Erika Bothma (Nelson Mandela University (NMU)) and Ms Lizzie Rennie (Diocesan School for Girls (DSG)).

## Significant research aligned event

PhD candidate, Jacobus Frederick Viljoen performed two (2) of his three (3) doctoral recitals in Makhanda. Guest artists included US cellist Caleb Vaughn-Jones (Duo recital for piano and cello), as well as NMU based violinist David Bester (Duo recital for violin and piano). PhD candidate and Mellon Artist-in-Residence, Paul Hanmer performed a set of his original jazz compositions in a lunch hour concert.

**Associate Professor Catherine Foxcroft**  
*Head of Department*



*Dr McConnachie (second from right) with her students, Warona Garekwe (first left), Vuyelwa Moyo (second left) and Tamsyn Hanslo (first right)*

*Credit: Department of Music and Musicology*



PhD candidate, Jacobus Frederick Viljoen (right) with duo partner, Caleb Vaughn-Jones  
Credit: Department of Music and Musicology

## Distinguished Visitors

**Foxcroft, C.**

**C Foxcroft.** Rhodes University, Pretoria, South Africa. *Adjudicator UNISA National Piano Competition.* July 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Brukman, J.**

**Brukman, J.** Musicking the Freedom Charter: Bongani Ndodana-Breen's Credo and democratic idealism in apartheid - post-apartheid South Africa. *Conflict-/Collaboration.* Sir Zelman Cowen School of Music, Monash University, Melbourne. Australia. December 2019.

**McConnachie, B.**

**McConnachie, B.** 2019. *The collaborative path towards a tertiary African music undergraduate curriculum in South Africa.* Unsettling Paradigms: the Decolonial Turn in the Humanities Curriculum at Universities in South Africa, Pretoria 10 - 12 July 2019.

**McConnachie, B.** 2019. *The collaborative path towards a tertiary African music undergraduate curriculum in South Africa.* British Forum for Ethnomusicology, Aberdeen, Scotland 11 - 14 April 2019.

**McConnachie, B.** 2019. *Through the eyes of the student: a field-work collaboration project on amaXhosa culture in the Keiskammahoek region of the Eastern Cape, South Africa.* British Forum for Ethnomusicology, Aberdeen, Scotland 11 - 14 April 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Brukman, J.**

**Brukman, J.** (2018) 'The White Claw Grabbing the Black Man's Creative Work': Dominant Culture and African Expression, One Festival and Two World Premieres" *SAMUS 38.* p.261-288.

## Concerts, Exhibitions, Performances, Workshops, Events

**Foxcroft, C.**

**Foxcroft, C.** Soloist. Piano Concerto. *Bach Piano Concerto for 2 pianos BWV 1060 Rhodes Orchestra in collaboration with FSYO.* Guy Butler Hall, Settlers Monument, Makhanda. South Africa. 6 October 2019.

**Foxcroft, C.** Solo. CD recording. *Schubert Piano Sonate D960 and Rachmaninoff Piano Sonate No 2 Op 36.* Hugo Lambrechts Music Centre, Cape Town. South Africa. 14 June 2019.

**Foxcroft, C.** Pianist. Chamber concert RU Concert series. *Brahms piano quintet Op 34 and Dvorak piano quintet Op 81 (in collaboration with David Bester (NMU), Lwazi Mkula, Elmarie vd Vyver, Anmari vd Westhuizen (UFS).* Beethoven Room, Makhanda. South Africa. 7 August 2019.

**McConnachie, B.**

**McConnachie, B.** Panel member for discussion on *Decolonisation in Music Education.* R.U. and NMU at the South African Society for Music Teachers annual conference held in Port Elizabeth 14 - 16 March 2019.

**McConnachie, B.** Mellon Early Careers Symposium Colloquium with the America University of Beirut, University of Ghana, University of the Witwatersrand and the University of Cape Town. Thursday 28 November - 8 December held at UCT, Cape Town and STIAS, Stellenbosch. Member of the Mellon project hosted by UCT - *Mapping Africa's Musical Identities.*

# 2019 INTERNATIONAL LIBRARY OF AFRICAN MUSIC (ILAM)



The International Library of African Music (ILAM) has its origins in African Studies. It is committed to a rich platform upon which a renewed vision is taking shape. This vision includes the dual role of ILAM serving as an archive and as a centre of excellence for the study of African music performance. Current activities at ILAM include the mentoring of young African authors to circumvent the dominance of non-African authors of African music. The past few editions of *African Music* bears testimony to the idea of developmental editing where an inexperienced author is mentored from the first draft to publication.

The increasing traffic of Postdoctoral Research Fellows and visitors funded by the African Humanities Programme (AHP) is leading to a greater presence in other parts of the continent, while these guests also make their contribution to research capacity at ILAM.

As far as community engagement is concerned, in 2019 ILAM received a grant of R100 000 from the National Heritage Council to add metadata to the recordings obtained in partnership with the Ntinga Development Centre in Keiskammahoek. Adding metadata is the second step towards creating new knowledge about the music heritage of this province.

In many quarters there is a fear of archives no longer being relevant but ILAM is a repository as well as a place and space for cementing relationships through sound and performance, in a manner by which its relevance cannot be disputed. Its importance in developing and maintaining these relationships for the heritage of this continent and its diaspora should be emphasised. This is evident in my numerous encounters with scholars and others in South Africa and elsewhere who look towards ILAM for leadership. The development of new relationships, previously frustrated by our history and the conservative way in which most institutions are managed, is one of our main goals. As an institution ILAM is an example of open accessibility and makes its mark in many innovative ways.

Another way in which ILAM contributes to reconfiguring knowledge production in Africa is by making the music archive relevant to its developmental context. We ask how may the music archive be imagined in a context of vociferous demands for the decolonization of knowledge production and in the academic sector? We argue that it is through the study of sound, mediated in and as *ngoma*, with “music” also being a western theoretical construct, that sound studies connect profoundly with other disciplines, to the past, the present and to the future. In the sound is invested a wide range of inter-disciplinary knowledge and we intend to capitalise on this tremendous resource.

*Students performing a dance from Ghana*  
Credit: ILAM





Front desk: Dr McConnell and Dr Watkins at the British Forum for Ethnomusicology meeting in Aberdeen, Scotland  
Credit: ILAM

## Postgraduates / Graduations

**Elijah Madiba.** MMus. The title of the thesis is, *Repatriating Xhosa music recordings archived at the International Library of African Music (ILAM) and reviving interest in traditional Xhosa music among the youth in Grahamstown*. Masters thesis, Rhodes University, Grahamstown.

In 2019 ILAM received a grant of R1,2 million for 2020 - 2022 from the National Arts Council for a jazz heritage research project in the Eastern Cape. The grant includes a bursary for a PhD candidate and a bursary for a Masters degree student. The bursaries were awarded to Qhawe Giyose and Thobeka Ndlebe.

## Distinguished Visitors / International Visits

Veit Erlmann gave a talk entitled *Lion's Share. Remaking South African Copyright*. In this lecture, Erlmann talked about his forthcoming book of the same title. The book is an ethnography of the current effort at reforming South African copyright in key areas such as copyright legislation; protection of traditional knowledge/traditional cultural expressions; regulation of collection societies, and criminal enforcement of copyright. Veit Erlmann held the Endowed Chair of Music History at the University of Texas at Austin. Among his publications are *African Stars*, *Studies in Black South African Performance and Nightsong*, and *Performance, Power and Practice in South Africa*, both published by the University of Chicago Press. A recent book, *Music, Modernity and the Global Imagination*, published by Oxford University Press won the Alan P. Merriam Prize for the best English-language monograph in ethnomusicology.

## Significant Research Aligned Events

Lee Watkins, Elijah Madiba and Boudina McConnell presented a Round Table theme entitled: *Rethinking the decolonial moment through collaborative music practice in South Africa: Creative partnerships and praxis with the International Library of African Music*, British Forum for Ethnomusicology (BFE), 11-14 April 2019, Scotland. These three (3) papers are scheduled for publication in the accredited BFE journal.



Ethnomusicology students in the background, recording a ritual in Keiskammahoek.  
Credit: ILAM

## Publication of African Music Volume 11, 1, in December 2019

In the first term of 2019 ILAM hosted a colloquium where John-Doe Dordzro, an AHP Fellow from January to March 2019, and Obianuju Njoku, a PhD candidate, made presentations. John-Doe's paper was entitled *Brass band music in Ghana: The indigenisation of European military music and popular culture* while Obianuju's paper reported on her fieldwork experience among the Nupe people in Nigeria. Obianuju's was titled *Chronicling Fieldwork Experience in Ethnomusicology: The Nupe Paradigm*.

**Dr Lee Watkins**

**Director: ILAM**

## Books/Chapters/Monographs

Thram, D.

Thram, D. (2019) Music Archives and Repatriation: Digital Return of Hugh Tracey's "Chemirocha" Recordings in Kenya. In: Gunderson, F., Lancefield, R.C. and Woods, B. (eds.). *The Oxford Handbook of Musical Repatriation*. Oxford: Oxford University Press. p.37-62. ISBN: 9780190659806.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Thram, D.

Thram, D. (2019) The International Library of African Music Instrument Collection and Music Heritage Sustainability. *Galareana*. 2 (2019). p.39-56.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Thram, D.

Thram, D. (2019) Book Review: Tracing the Mbira Sound Archive in Zimbabwe. Luis Gimenez Amoros. 2018. New York: Routledge. Bibliography, index, discography, filmography, 7 figures, 131pp. *African Music: Journal of the International Library of African Music*. 11 (1). p.176-181.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Thram, D.

Thram, D. The Role of AV Archives in Music Heritage Sustainability: conditions for accessibility and reuse. *50th annual IASA (International Association of Sound and Audiovisual Archives) conference*. National Institute for Sound and Vision. Hilversum. The Netherlands. October 2019.

Thram, D. Enter and Revive: Conditions for Accessibility and Reuse (Invited presenter). *Find the File Festival*. Haus der Kulturen der Welt, Berlin. Germany. March 2019.

Watkins, L.

Watkins, L. The International Library of African Music (ILAM) and its relationship with a decolonial imaginary in present day South Africa.

*50th annual IASA (International Association of Sound and Audiovisual Archives) conference*. National Institute for Sound and Vision. Hilversum. Netherlands. October 2019.

Watkins, L. The music archive as an agent for developing the decolonial in collaborative relationships AND Moving beyond Tracey: Finding new stakeholders in the community. *British Forum for Ethnomusicology (BFE)*. Scotland. 11-14 April 2019.

Watkins, L. The relationship between ILAM and music research in Lusophonic Africa, with emphasis on Mozambique. (Invited presenter). *Faculty of Social and Human Sciences - New University of Lisbon*. 5-6 December 2019.

Madiba, E.

Madiba, E. A collaborative approach to repatriating isiXhosa music recordings archived at the International Library of African Music (ILAM) and their revitalization (part of a round-table with RU colleagues). *British Forum for Ethnomusicology (BFE)*. Scotland. 11-14 April 2019.



Dr McConnell and students at the Sandile Dam, after a fieldtrip to Keiskammahoek  
Credit: ILAM



African Music Instrumental Music Studies students performing at a heritage concert  
Credit: ILAM

The International Library of African Music at Rhodes University hereby announces its first seminar for 2019. Venue: International Library of African Music.

Date: Monday, 4 March 2019. Time: 17:00



John-Duc Yao Dordzo



Obianuju Akunna Njoku

ILAM Seminar Poster  
Credit: ILAM





The various activities of the Faculty of Pharmacy in 2019 bears testimony of a renewed vision of being a dynamic faculty that is actively pursuing its vision of research excellence and innovation. We continue to explore our priorities based on our strategic plan. The faculty enrolment continued to grow in 2019, with a total headcount of six hundred and eighty-two (682), an increase on the six hundred and seventy-two (672) headcount in 2018.

The Faculty of Pharmacy focused on the following strategic aspects during 2019:

- Implementing mechanisms to improve staff qualifications especially those undertaking PhDs;
- Participating in research activities, seminars, conferences.

Faculty members contributed to a number of national conferences - as invited and plenary session speakers. Quality assurance remains a key priority within the Faculty and improvement plans are continually assessed and all regulatory requirements are adhered to.

The following achievements and other activities warrant special mention:

- Research Methodology presentations which were attended by all BPharm IV students and all academic staff.
- Dr Oltmann represented Rhodes University at the Health Summit hosted by the Eastern Cape Department of Health (ECDoH) at the end of August 2019 in East London. The programme for the summit included the re-orientation of the health system towards Primary Health Care, and to strengthen intervention strategies to combat corruption and promote accountability and transparency, within the health sector amongst other initiatives.

Two (2) PhD candidates supervised by Dr Setshaba David Khanye attended the Frank Warren Organic Chemistry Conference 2019 organized by University of KwaZulu-Natal (UKZN). The conference is deeply rooted in the rich history of natural product chemistry, where the emphasis is on pharmaceutical drug discovery.

The Dean, Associate Professor Sandile Khamanga, represented the Faculty at the 3rd National Pharmacy Conference on 3-5 October 2019.

In the next few years the Faculty will focus on improvement in five (5) areas:

- Strengthening our network of collaborative projects among public and private sector stakeholders;
- Attracting or growing and retaining the best academics in pharmacy;
- Becoming the first-choice destination for BPharm undergraduate students;
- Becoming the first-choice destination for Postgraduate students;
- Positioning the Faculty as a relevant stakeholder in the Eastern Cape Province and beyond.

#### *White Coat ceremony*

*The Rhodes University Faculty of Pharmacy recently held its third annual White Coat Ceremony at Eden Grove Red to inaugurate first-year students into the pharmacy profession. Natalie Paterson, First-year Class Coordinator and organiser of the ceremony, believes that this annual event motivates students by providing a sense of belonging and a context for their studies.*

*Credit: Faculty of Pharmacy*



## Postgraduate education and trainings

Technicians and Postgraduates from the Faculty of Pharmacy attended a UV/VIS and FTIR mine seminar in Port Elizabeth in March 2019 - organised by Anatech Instruments.

Research performance was good with thirty (30) Masters' students, eight (8) PharmD and sixteen (16) PhD candidates registered in 2019.

A total of one hundred and forty-five (145) BPharm students, one (1) MSc (Pharm), three (3) MPharm students and two (2) PharmD candidates graduated in April 2019.

More than sixty percent (60%) of academic staff have PhDs and three (3) new members of staff are registered for their PhDs. The Faculty continues to provide support to students and new staff through ongoing initiatives such as mentoring.

## Distinguished Visitors / International Visits

Professor Burton attended the 10th Biennial International Pharmacy Education Symposium hosted by Monash University in Prato, Italy in July 2019. The theme of the conference was *I am still learning* and Professor Burton presented a paper with the title *Listening to the life stories of older people: an opportunity for transformative learning*.

Tererai Nhokodi, an MSc (Pharm) student attended the 7th Student conference of the University of Namibia 13 - 14 November 2019. He presented his work on microbial water quality and drought.

Jean Rusere attended the 3rd Multi-disciplinary Research Conference, NIPAM, Windhoek, Namibia, 23 - 25 July 2019 and presented a review of the significance of socio-cultural factors and gendered discriminative norms, on women's sexual and reproductive health rights and livelihoods towards sustainable ethical development in developing countries.

Professor Beverly Wilson was invited to give a presentation about the Rhodes University PharmD Programme at Jinan University, China.

Dr Seepararani Rath, attended the American Association of Pharmaceutical Scientists conference in San Antonio, Texas, USA.

Samridhi Sharma was awarded a Travel Bursary/Travel Grant by the ICPIIC Scientific Programme Committee to attend the 5th International Conference on Prevention and Infection in September 2019 in Geneva, Switzerland.

Dr Ngqwala was on sabbatical and was selected for the 2019 TechWomen program as an Emerging Leader and attended a five (5)-week mentorship and exchange program in the San Francisco Bay Area and Silicon Valley, and Washington, DC between September 2019 and November 2019. Furthermore, she did work on Health and Toxicity of Pharmaceuticals at the University of California, Berkeley campus and University of Chan Zuckerberg in San Francisco.

Professor Tandlich was invited to teach and did research in Disaster Management at University of Žilina in Slovakia and Technical University of Liberec, Czech Republic.

## Significant Research Aligned Events

One of activities that deserves special mention is the visibility of five (5) academic staff who attended the South African Medical and Research Council (SAMRC) Symposium, which

was held in East London where poster and podium presentations on a wide range of medically related topics were delivered.

Dr Oltmann is representing Rhodes University on the Eastern Cape Health Research Committee and the Eastern Cape AIDs Council.

Associate Professor Khamanga continues to serve as a reviewer for the Clinical Trials Committee of the South African Health Products Regulatory Authority (SAHPRA).

Professor Walker, Associate Professor Khamanga, Professor Burton and two (2) Postgraduate students attended and participated at the 3rd National Pharmacy Conference which was held in October 2019 at Sun City, North-West.

Professor Walker was awarded the Academic Pharmacist award for his contributions towards Pharmacy and Pharmacy Education. This award formed part of the 2019 SAPC National Pioneer Pharmacy Professional Awards.

Professor Khamanga, Professor Wilson, and Ms Paterson met PharmD students at Livingstone Hospital in Port Elizabeth and Frere Hospital in East London to get an update of their research progress and discuss challenges that they face.

Dr Goosen gave a podium presentation at the conference of the Academy of Pharmaceutical Sciences at KleinKapp Boutique in Pretoria.

Professor Johannes Bodenstein presented an oral paper entitled *Evaluating the prescribing and management practices of venlafaxine at a public sector psychiatric hospital* and Mrs Mari-San Bodenstein, Clinical Associate in the Faculty of Pharmacy, also presented a paper *An evaluation of the prescribing and monitoring of clozapine at a public sector psychiatric hospital* at the Biological Psychiatry Congress held at the Century City Conference Centre, Cape Town, from 14 - 17 September 2019.

A number of Postgraduates received invitations to the Vice-Chancellor's Cocktail Function in honour of the 2019 Postgraduate students' journals and conference award recipients.

Dr Sibiya was nominated for the National Research Foundation (NRF) Black Academics Advancement Programme (BAAP) - the Post-PhD track.

The Faculty has made significant strides by acquiring an Advanced™ Osmo1™ Single Sample Micro Osmometer, Perkin Elmer Spectrum Two FT-IR, a USP Hanson Dissolution Apparatus and a TA Instruments Discover Series DSC 250 for Pharmaceuticals Samples. All these instruments ensure the utmost in data integrity through thoughtful and innovative design.

**Associate Professor Sandile Khamanga**

*Dean of Faculty*

## Books/Chapters/Monographs

Burton, S.

Burton, S. and Kubashe N. Corporatization of Community Pharmacy. In: Babar, Z.U.D. (ed) *Encyclopaedia of Pharmacy Practice and Clinical Pharmacy, Vol 2*. Academic Press, Elsevier Science. p.278-288. ISBN: 9780128127360.

Oltmann, C. and Gray, A.

Oltmann, C., Osman, L., Gray, A., Vawda, Y.A., Pharasi, B., Hela, M., Butler, N., Anderson, N., Enslin, G., de Rapper, S., Vienings, H., Gower, N. and Bayever, D. (2019) Chapter 7 - Pharmacy Practice. In: Gray, A. and Osman, L. (eds.). *Pharmacy Law in South Africa - a practitioner's handbook*. Durban: LexisNexis (Pty) Ltd. p.151-156. ISBN: 9780639005256.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Goosen, E.D.

Nyambe, M.N., Goosen, E.D., Beukes, D.R., van de Venter, M. and Koekemoer, T.C. (2019) In Vitro Evaluation of the Phytopharmacological Potential of *Sargassum incisifolium* for the Treatment of Inflammatory Bowel Diseases. *Medicines*. 6 (2). p.26-38.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Beteck, R.M. and Khanye, S.D.

Beteck, R.M., Seldon, R., Jordaan, A., Warner, D.T., Hoppe, H.C., Laming, D. and Khanye, S.D. (2019) New Quinolone-Based Thiosemicarbazones Showing Activity Against *Plasmodium falciparum* and *Mycobacterium tuberculosis*. *Molecules*. 24 (1740). p.1-11.

Chikukwa, M.T.R., Walker, R.B. and Khamanga, S.M.

Chikukwa, M.T.R., Wesolw, M., Korzeniowska, A.B., Ciosek-Skibinska, P., Walker, R.B. and Khamanga, S.M. (2019) Assessment of taste masking of captopril by ion-exchange resins using an electronic gustatory system. *Pharmaceutical Development and Technology*. 2019. p.1-9.

Dowse, R.

Bellamy, K., Dowse, R., Ostini, R., Martini, N. and Kairuz, T. (2019) Preferences of Resettled Refugees on Pictograms Describing Common Symptoms of Illness. *Journal of Immigrant and Minority Health*. 2019. p.1-4.

Duxbury, T.O., Khamanga, S.M., Tandlich, R. and Srinivas, S.

Duxbury, T.O., Bradshaw, K., Khamanga, S.M., Tandlich, R. and Srinivas, S. (2019) Environmental health promotion at a National Science Festival: An experiential-education based approach. *Applied Environmental Education and Communication*. 2019. p.1-16.

Khanye, S.D.

Beteck, R.M., Seldon, R., Jordaan, A., Warner, D.T., Hoppe, H.C., Laming, D., Legoabe, L.J. and Khanye, S.D. (2019) Quinolone-isoniazid hybrids: synthesis and preliminary *in vitro* cytotoxicity and anti-tuberculosis evaluation. *MedChemComm*. 10 (2019). p.326-331.

Beteck, R.M., Legoabe, L.J., Isaacs, M., Khanye, S.D., Laming, D.

and Hoppe, H.C. (2019) Anti-Trypanosomal and Antimalarial Properties of Tetralone Derivatives and Structurally Related Benzocycloalkanones. *Medicina*. 55 (206). p.1-10.

Mbaba, M., Dingle, L.M.K., Cash, D., De La Mare, J.A., Laming, D.,

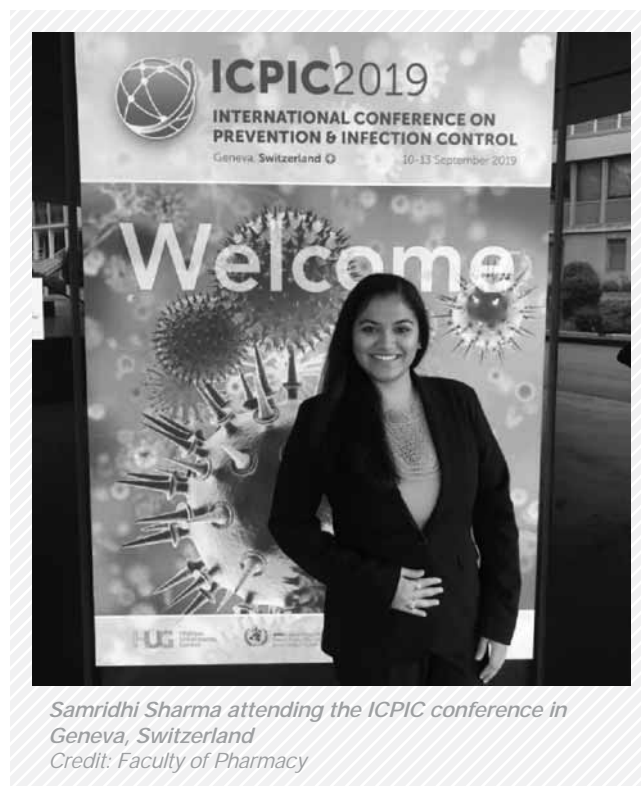
Taylor, D., Hoppe, H.C., Edkins, A.L. and Khanye, S.D. (2019) Repurposing a polymer precursor: Synthesis and *in vitro* medicinal potential of ferrocenyl 1,3-benzoxazine derivatives. *European Journal of Medicinal Chemistry*. 2019. p.1-15.

Kloppers, R.

Wehmeyer, A., Coetzee, R., Hoffman, N., Johnson, Y. and Kloppers, R. (2019) Medicine-use evaluation of doxazosin prescribing to inform formulary recommendations. *SAMJ South African Medical Journal*. 2019. p.1-5.

Makoni, P.A., Chikukwa, M.T.R., Khamanga, S.M. and Walker, R.B.

Makoni, P.A., Chikukwa, M.T.R., Khamanga, S.M. and Walker, R.B. (2019) Stability Indicating HPLC-ECD Method for the Analysis of Clarithromycin in Pharmaceutical Dosage Forms: Method Scaling versus Re-Validation. *Scientia Pharmaceutica*. 87 (31). p.1-20.



Makoni, P.A., Kasongo, W.K.M. and Walker, R.B.

Makoni, P.A., Kasongo, W.K.M. and Walker, R.B. (2019) Short Term Stability Testing of Efavirenz-Loaded Solid Lipid Nanoparticle (SLN) and Nanostructured Lipid Carrier (NLC) Dispersions. *Pharmaceutics*. 11 (397). p.1-21.

Manda, A., Walker, R.B. and Khamanga, S.M.

Manda, A., Walker, R.B. and Khamanga, S.M. (2019) An Artificial Neural Network Approach to Predict the Effects of Formulation and Process Variables on Prednisone Release from a Multipartite System. *Pharmaceutics*. 11 (109). p.1-18.

Munedzimwe, T.C.

Munedzimwe, T.C., van Zyl, R.L., Heslop, D.C., Edkins, A.L. and Beukes, D.R. (2019) Semi-Synthesis and Evaluation of Sargahydroquinolic Acid Derivatives as Potential Antimalarial Agents. *Medicines*. 6 (47). p.1-9.

Ngqwala, N. and Tandlich, R.

Nondlazi, S., Ngqwala, N., Zuma, B.M., Mensah, P. and Tandlich, R. (2019) Effect of fly ash-lime treatment on the acute toxicity of greywater towards *Daphnia magna*. *Nova Biotechnologica et Chimica*. 18 (1). p.59-65.

Ntemi, P.V., Walker, R.B. and Khamanga, S.M.

Ntemi, P.V., Walker, R.B. and Khamanga, S.M. (2019) Design, evaluation and optimization of taste masked clarithromycin powder. *Pharmazie*. 74 (12). p.721-727.

Olawode, E.O. and Tandlich, R.

Olawode, E.O., Tandlich, R., Prinsloo, E., Isaacs, M., Hoppe, H.C., Seldon, R., Warner, D.F., Steenkamp, V. and Kaye, P.T. (2019) Synthesis and biological evaluation of 2-chloro-3-[(thiazol-2-yl)amino]-1,4-naphthoquinones. *Bioorganic & Medicinal Chemistry Letters*. 29 (13). p.1572-1575.

Sibiya, N.H.

Ludidi, A., Baloyi, M., Khathi, A., Sibiya, N.H. and Ngubane, P. (2019) The effects of *Momordica balsamina* methanolic extract on haematological function in streptozotocin-induced diabetic rats: Effects on selected markers. *Biomedicine & Pharmacotherapy*. 116 (2019). p.1-7.

Akinnuga, A.M., Siboto, A., Khumalo, B., Sibiya, N.H., Ngubane, P. and Khathi, A. (2019) Evaluation of the effects of bredemolic acid on selected markers for glucose homeostasis in diet-induced prediabetic rats. *Archives of Physiology and Biochemistry*. 2019. p.1-7.

Baloyi, M., Khathi, A., Sibiya, N.H. and Ngubane, P. (2019) The Haematological Effects of Oleanolic Acid in Streptozotocin-Induced Diabetic Rats: Effects on Selected Markers. *Journal of Diabetes Research*. 2019 (2019). p.1-9.

Sibiya, S., Msibi, B., Khathi, A., Sibiya, N.H., Booyesen, I. and Ngubane, P. (2019) The effect of dioxidovanadium complex (V) on hepatic function in streptozotocin-induced diabetic rats. *Canadian Journal of Physiology and Pharmacology*. 97 (12). p.1169-1175.

**Tandlich, R.**

**Malema, M.S.,** Mwenge Kahinda, J.M., Abia, A.L.K., **Tandlich, R., Zuma, B.M.** and Ubomba-Jaswa, E. (2019) The efficiency of a low-cost hydrogen sulphide (H<sub>2</sub>S) kit as an early warning test for assessing microbial rainwater quality and its correlation with standard indicators microorganisms. *Nova Biotechnologica et Chimica*. 18 (2). p.133-143.

**Kasozi, N., Tandlich, R.,** Fick, M., Kaiser, H. and **Wilhelmi, B.** (2019) Iron supplementation and management in aquaponic systems: A review. *Aquaculture Reports*. 15 (100221). p.1-10.

**Tandlich, R., Dube, C.S., Madikizela, P. and Ngqwala, N.**

**Collings, D., Tandlich, R., Dube, C.S., Madikizela, P., Ngqwala, N.** and Ahmed, M. (2019) Preliminary study on the potential use of fly ash as a ventilated improved pit latrine additive. *Journal of Solid Waste Technology and Management*. 45 (4). p.395-402.

**Veerubhotla, H.M.K. and Walker, R.B.**

**Veerubhotla, H.M.K. and Walker, R.B.** (2019) Development and Validation of a Stability-indicating RP-HPLC Method Using Quality by Design for Estimating Captopril. *Indian Journal of Pharmaceutical Sciences*. 81 (1). p.45-56.

**Walker, R.B.**

**Okafor, N.I., Nkanga, C.I., Walker, R.B., Siwe Noundou, X. and Krause, R.W.M.** (2019) Encapsulation and physicochemical evaluation of efavirenz in liposomes. *Journal of Pharmaceutical Investigation*. 50 (2019). p.201-208.

**Nkanga, C.I., Siwe Noundou, X., Walker, R.B. and Krause, R.W.M.** (2019) Co-encapsulation of Rifampicin and Isoniazid in Crude Soybean Lecithin Liposomes. *South African Journal of Chemistry - Suid-Afrikaanse Tydskrif vir Chemie*. 72 (2019). p.80-87.

**Weyers, C.**

**Weyers, C., Dingle, L.M.K., Wilhelmi, B., Edkins, A.L. and Veale, C.** (2019) Use of a non-hepatic cell line highlights limitations associated with cell-based assessment of metabolically induced toxicity. *Drug and Chemical Toxicology*. 2019. p.1-7.

**Witika, B.A. and Walker, R.B.**

**Witika, B.A. and Walker, R.B.** (2019) Development, manufacture and characterization of niosomes for the delivery of nevirapine. *Pharmazie*. 74 (2). p.91-96.

**Wrench, W.M., Van Dyk, L., Srinivas, S. and Dowse, R.**

**Wrench, W.M., Van Dyk, L., Srinivas, S. and Dowse, R.** (2019) Outcome of illustrated information leaflet on correct usage of asthma-metered dose inhaler. *African Journal of Primary Health Care and Family Medicine*. 11 (1). p.1-9.

## Peer-reviewed Proceedings

**Burton, S.F.**

Klitsie, M and **Burton, S.F.** Thinking while doing - simulation-based dispensing practice integrating complex cognitive skills. *10th Biennial Monash Pharmacy Education Symposium 2019*. Prato, Italy. July 2019. Pharmacy Education, 2019; 19 (1) 306.

**Burton, S.F.** and Klitsie, M. Listening to the life stories of older people: an opportunity for transformative learning. *10th Biennial Monash Pharmacy Education Symposium 2019*. Prato, Italy. July 2019. Pharmacy Education, 2019; 19 (1) 329.

**Madikizela, P., Madondo, R. and Tandlich, R.**

**Madikizela, P., Madondo, R., Odume, N.O., Laubscher, R. and Tandlich, R.** Disaster management and land use policy in Sarah Baartman District Municipality. *2019 CRISON: Crisis Management and the Solutions for Crisis Situations*. University of Tomáa, Uherské Hradité. Czech Republic. September 2019.

**Tandlich, R. and Ngqwala, N.**

**Angala, A.N., Tandlich, R., Ngqwala, N., Zuma, B.M. and Moyo, S.** Citizen science, treatment and compliance monitoring of microbial water quality in Namibia. *11th International Conference: Air and Water Components of the Environment*. University of Babes-Bolyai, Cluj-Napoca. Romania. March 2019.

**Angala, A.N., Tandlich, R., Ngqwala, N. and Zuma, B.M.** Efficiency of a decentralised system in the treatment of rainwater in South Africa. *11th International Conference: Air and Water Components of the Environment*. University of Babes-Bolyai, Cluj-Napoca. Romania. March 2019.

**Tandlich, R., Vhiriri, E.P. and Ngqwala, N.**

**Tandlich, R., Angala, A.N., Vhiriri, E.P., Ngqwala, N., Zuma, B.M. and Nnadozie, C.F.** Scoping the WASH vulnerability of the population in Southern African Development Community: Angola and Namibia. *24th International Scientific Conference: Solutions for crisis situations in specific environments*. University of Zilina, Zilina. Slovakia. May 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Duxbury, T. and Tandlich, R.**

**Duxbury, T., Paphitis, S., Tandlich, R. and Carlos Bezerra, J.** Building health resilience: An engaged, systems analysis and epistemically just approach to rural health development. *4th World Conference on Qualitative Research*. Universidade Lusófona do Porto, Porto. Portugal. October 2019.

**Duxbury, T., Paphitis, S., Tandlich, R. and Carlos Bezerra, J.** Engaged Rural health Development: A Social Justice Framework. *Postgraduate Conference*. Rhodes University, Grahamstown. South Africa. August 2019.

**Goosen, E.D.**

**Goosen, E.D., Gambiza, J., Nakhooda, M., Joynt, C.M., Chuene, K.J. and Paxton, M.** Nurturing Student Capital. *7th Annual Research and Innovation in Teaching and Learning Conference (RITAL)* Cape Peninsula University of Technology. SARETEC, Bellville. South Africa. December 2019.

**Goosen, E.D., Gambiza, J., Nakhooda, M., Chuene, K.J., Joynt, C.M. and Paxton, M.** Nurturing Student Capital. *TAU Mini-conference*. Protea Hotel by Marriott Karridene Beach, Durban. South Africa. July 2019.

**Goosen, E.D.** Really, what does it mean to study? Getting to the heart of the matter. *TAU Mini Conference*. Protea Hotel by Marriott Karridene Beach, Durban. South Africa. July 2019.

**Goosen, E.D.** How do we study Pharmaceutical Chemistry? Hearing our students' voices. *Bridge the Gap. Towards convergence between the classroom, the laboratory and practice. An annual conference on pharmaceutical sciences, incorporating the 40th AGM of the Academy of Pharmaceutical Sciences*. Kleinkap Boutique Hotel, Centurion. South Africa. January 2019.



Left to right: Dr Seeprarani Rath and Professor Kanfer attended the American Association of Pharmaceutical Scientists conference in San Antonio, Texas, USA  
Credit: Faculty of Pharmacy



**Jowah, A., Walker, R.B. and Khamanga, S.M.**

**Jowah, A., Walker, R.B. and Khamanga, S.M.** A comparative qualitative study of the medicines registration policies and processes of some National Medicines Regulatory Authorities in the Southern African Development Community. *Bridge the GAP Conference on Pharmaceutical Sciences, incorporating the 40th Annual Congress of the Academy of Pharmaceutical Sciences*. Kleinkaap Boutique Hotel, Centurion. South Africa. October 2019.

**Khanye, S.D.**

**Mbaba, M., Edkins, A.L. and Khanye, S.D.** Ferrocenyl alpha-aminocresols: Investigating 1,3-benzoxazine side products as bioactive agents. *Workshop of Metals in Medicine*. Friedel Auditorium of Chimie ParisTech, Paris. France. November 2019.

**Khanye, S.D.** Design of Compounds Containing Iron and Boron Elements for Biological Evaluation Against Infectious Parasitic Diseases. *Advancing Research in the Eastern Cape Province: SAMRC Symposium*. East London International Convention Centre, East London. South Africa. September 2019.

**Zulu, A.I. and Khanye, S.D.** Synthesis of 2,5-diketopiperazine derivatives as antiparasitic agents. *Frank Warren Conference 2019*. Alpine Heath Resort, Drakensberg. South Africa. July 2019.

**Khanye, S.D.** From Molecules to Medicines: Science Behind Design and Development. *Science Café Public Lecture*. Café D'Vine, Grahamstown. South Africa. August 2019.

**Mbaba, M., Edkins, A.L. and Khanye, S.D.** Anticancer and antiplasmodial effects of incorporating ferrocene into novobiocin scaffold. *Frank Warren Conference 2019*. Alpine Heath Resort, Drakensberg. South Africa. July 2019.

**Maguire, K.A., Dawood, A.J., Komo, N.P., Naicker, V., Venter, A.K., Nhokodi, T. and Tandlich, R.**

**Maguire, K.A., Dawood, A.J., Komo, N.P., Naicker, V., Venter, A.K., Nhokodi, T. and Tandlich, R.** Culturing, isolating and identifying campylobacter in Rhodes University water sources. *7th Annual Science Research Conference - Global Climate Challenges: A SASC Cry on Water, Energy, Health & Food Security*. University of Namibia, Windhoek. Namibia. November 2019.

**Mazonde, P., Khamanga, S.M. and Walker, R.B.**

**Mazonde, P., Khamanga, S.M. and Walker, R.B.** Preparation, characterization and *in vitro* assessment of flaxseed oil nano-emulsions loaded with efavirenz. *Bridge the GAP Conference on Pharmaceutical Sciences, incorporating the 40th Annual Congress of the Academy of Pharmaceutical Sciences*. Kleinkaap Boutique Hotel, Centurion. South Africa. October 2019.

**Melamane, S., Walker, R.B. and Khamanga, S.M.**

**Melamane, S., Walker, R.B. and Khamanga, S.M.** Formulation optimization of smart thermosetting lamotrigine loaded hydrogels using Box-Behnken Design and Artificial Neural Networks. *Bridge the GAP*

*Conference on Pharmaceutical Sciences, incorporating the 40th Annual Congress of the Academy of Pharmaceutical Sciences*. Kleinkaap Boutique Hotel, Centurion. South Africa. October 2019.

**Rusere, J., Moloi, N.S., Srinivas, S. and Tandlich, R.**

**Rusere, J., Moloi, N.S., Srinivas, S. and Tandlich, R.** Menstruation in the social context: A look at menstruation and the significance of sociocultural factors and gendered discriminative norms that infringe on women's sexual and reproductive health rights in societies worldwide. *3rd Multi/interdisciplinary Research Conference*. University of Namibia, Windhoek. Namibia. July 2019.

**Rusere, J., Srinivas, S. and Tandlich, R.**

**Rusere, J., Srinivas, S. and Tandlich, R.** An ethical and disaster management approach to antimicrobial resistance in South Africa. *ECHO and Partners Disaster Preparedness Regional Workshop in Southern Africa and the Indian Ocean (SA IO)*. Premier Hotel, OR Tambo International Airport, Johannesburg. South Africa. November 2019.

**Sharma, S., Tandlich, R. and Srinivas, S.**

**Sharma, S., Tandlich, R. and Srinivas, S.** Development of a health information leaflet on antimicrobial resistance for low- to semi-literate community health workers. *ICPIC/International Conference on Prevention and Infection Control*. Centre International de Conférences, Geneva. Switzerland. September 2019.

**Tandlich, R.**

**Drager, K.H., Bologna, S., Knezic, S., Tandlich, R. and Robertson, T.** Emergency Management around the World: Lessons learned. *2019 Annual conference of the Disaster Management Institute of Southern Africa*. ATKV Resort and Conference Centre, Mossel Bay. South Africa. September 2019.

**Tandlich, R.** The history and the role of the military in the disaster management of infectious disease outbreaks on the African Continent. *International Conference on the Role of the Military Sectors in the Face of the Natural Disasters*. University of Rabat, Rabat. Morocco. December 2019.

**Tandlich, R., Nhokodi, T., Sharma, S. and Srinivas, S.**

**Tandlich, R., Nhokodi, T., Sharma, S. and Srinivas, S.** Adaptive capacity of public health systems in developing countries. XI. *Annual Conference of the Faculty of Health Sciences of the Technical University of Liberec*. Technical University of Liberec, Liberec. Czech. October 2019.

**Vhiriri, E.P., Maguire, K.A. and Tandlich, R.**

**Vhiriri, E.P., Maguire, K.A., Navidad, F.C., Moricova, V., Laubscher, R. and Tandlich, R.** On the role of pharmacists in disaster risk management in South Africa. *2019 Annual Conference of the Disaster Management Institute of Southern Africa*. ATKV Resort and Conference Centre, Mossel Bay. South Africa. September 2019.

**Walker, R.B.**

**Walker, R.B.** Inter-professional education in pharmacy. *3rd National Pharmacy Conference*. Sun City Convention Centre, Sun City Resort. South Africa. October 2019.

**Walker, R.B.** Innovation trends in pharmacy education. *3rd National Pharmacy Conference*. Sun City Convention Centre, Sun City Resort. South Africa. October 2019.



Professor Rod Walker wins Pioneer Pharmacy Award  
Credit: Faculty of Pharmacy



The Rhodes Philosophy Department once again had a solid year with respect to research, seeing a number of pivotal chapters in books as well as a range of article publications, workshop presentations and public lectures. Three (3) members of staff have to be singled out for exemplary contributions to our research profile: Professor Pedro Tabensky, Associate Professor Uchenna Okeja and Dr Lindsay Kelland.

Associate Professor Okeja continues to solidify his reputation as an African scholar of note, contributing to and authoring a range of publications in Political Philosophy and Philosophy of Religion, coming on the heels of the final stint of his prestigious STIAS fellowship.

Professor Tabensky has made numerous contributions to the growing literature on the moral and philosophical psychology of pedagogical motivation, and his innovative approach to the development of the ZoBomi course in the Allan Gray Centre for Leadership Ethics is steadily gaining international attention. In this task he is ably assisted by Dr Lindsay Kelland, who has contributed crucial insights into the formation and fostering of ethical leadership in a wide range of settings.

Special mention should be made of the ongoing research of Dr Tess Dewhurst who organised a symposium of the work of the University of Johannesburg (UJ)-based philosopher Veli Mitova and also edited and contributed a paper to a special volume on Mitova's work in *Philosophical Papers*.

Under the careful guidance of Professor Ward Jones, the Philosophy Departmental Seminar continues to thrive as a research hub in the life of the department and the university as a whole, with weekly seminars and presentations by members of staff, graduate students and a range of distinguished visitors.

We were pleased to host a Hugh Le May Fellow in the department Professor Derek Matravers from the Open University in the United Kingdom (UK), who was working on a number of projects during his visit, some of which came to fruition in publication under our auspices.

During Term Four (4) we were greatly enriched by the presence of a Professor Janine Jones from the University of North Carolina at Greensboro who was a Guest Lecturer in the Philosophy Department during this time. She not only taught a wonderful graduate course to our Postgraduate cohort but extended it to include senior Postgraduate students from Politics and other Humanities disciplines. Professor Jones was the Moderator of our Graduation Day presentations during Term Four (4), a research-intensive exercise during which our graduate students present research and read their papers to the assembled members of staff and graduate students.

*Former Deputy Vice-Chancellor: Teaching and Learning Dr Chrissie Boughey hands over the Oosthuizen Prize to Ms Bianca Phillips. Ms Phillips is currently completing a PhD in Philosophy at Rhodes.  
Credit: Department of Philosophy*



*ENGAGE awards ceremony (a course run by CHERTL for tutors). From left to right: Princess Noxolo Nonhlanhla Shabangu, Vimbai Zingoni, Nike Mes, Lindsay Kelland, Zoe Gabrielle Hector, Paige Cox, Nicole Mamphey*  
 Credit: Department of Philosophy

## Postgraduates / Graduations

Special mention should be made of Aderonke Ajiboro, one of our PhD candidates, who was invited to address the *Workshop on Epistemic Autonomy, Trust and Testimony* at the Autonomous University of Madrid, Spain, 17-18 September 2019. An excellent research publication has resulted from that effort.

Further mention should be made of Samantha van Heerden, one of our MA students, who was awarded a prestigious scholarship from the University of Edinburgh to pursue Postgraduate studies there. Joshua Kloppers who finished an Honours in Philosophy during 2019 and whose work on Environmental Ethics has attracted considerable attention.

## Distinguished Visitors / International Visits

- Professor Derek Matravers (Open University);
- Professor Janine Jones (University of North Carolina);
- Professor Doug Geivett (Biola University);
- Professor Andy Hamilton (Durham University);
- Professor Ann Cahill (Elon University).

Three (3) members of staff made international visits:

- Professor Pedro Tabensky read some of his work at a UNODC gathering in Vienna, Austria and;
- Dr Laurence Bloom was invited to attend the *Symposium Platonicum XII* in Paris in July 2019;
- Aderonke Ajiboro presented to the *Workshop on Epistemic Autonomy, Trust and Testimony* in Madrid in September 2019.

**Mr Francis Williamson**

*Head of Department*



*Service Learning Team and Prefects*  
 Credit: Department of Philosophy



## Books/Chapters/Monographs

**Alloggio, S.**

**Alloggio, S.** and Dyantyi, M. (2019) Black Autarchy/White Domination: Fractured Language and Racial Politics During Apartheid and Beyond via Biko and Lyotard. In: Hull, G. (ed.). *Debating African Philosophy Perspectives on Identity, Decolonial Ethics and Comparative Philosophy*. London: Routledge. p.118-129. ISBN: 9781138344952.

**Matravers, D.C.**

**Matravers, D.C.** (2019) The Object of an Empathetic Emotion. In: Matravers, D. and Waldow, A. (eds.). *Philosophical Perspectives on Empathy Theoretical Approaches and Emerging Challenges*. London: Routledge. p.1-14. ISBN: 9781138584334.

**Okeja, U.**

**Okeja, U.** (2019) Introduction. In: Okeja, U. (ed.). *Religion in the Era of Postsecularism*. London: Routledge. p.1-9. ISBN: 9781138339194.

**Okeja, U.** (2019) On Cultural Universals and Particulars. In: Hull, G. (ed.). *Debating African Philosophy Perspectives on Identity, Decolonial Ethics and Comparative Philosophy*. London: Routledge. p.1-12. ISBN: 9781138344952.

**Okeja, U.** (2019) Palaver and Consensus as metaphors for the Public Sphere in African philosophy. In: Jenco, J.K., Thomas, M.C. and Idris, M. (eds.). *The Oxford Handbook of Comparative Political Theory*. Oxford University Press. p.1-20. ISBN: 9780190253752.

## Concerts, Exhibitions, Performances, Workshops, Events

**Kelland, L.**

**Kelland, L.** Invited as consulting expert. Southern African Development Community Parliamentary Forum, Women's Caucus. *Gender-Based Violence Model Law Consultative Meeting*. Premier Hotel, OR Tambo, Johannesburg. South Africa. 27 - 28 September 2019.

**Tabensky, P.**

**Tabensky, P.** Module developer and workshops participation. Challenges to Ethical Living (originally published online in 2018, but it was revised in 2019). *UNODC E4J Integrity and Ethics, Module. 6* <https://www.unodc.org/e4j/en/integrity-ethics/module-6/index.html>. UNODC, Vienna (and Athens, Bogota and Ghana). Austria. 1 January 2019.

**Tabensky, P.** Plenary Lecture. Good Governance Academy (Headed by Mervyn King). *Corporate Social Responsibility*. Regenesys Business School, Johannesburg. South Africa. 28 November 2019.

**Tabensky, P.** Workshop Facilitator. Workshop on Ethical Leadership to UCTs top management (VC, DVCs, etc.). *Conversations about Life, Meaning and Community*. The Castle, Cape Town. South Africa. 26 February 2019.

**Tabensky, P.** Module Developer and Participant. UNODC E4J Workshop. *UNODC E4J Workshop*. University of Ghana, Accra. Ghana. 19 - 21 February 2019.

**Tabensky, P.** Participant in conversation. On Teaching Philosophy. *Philosophy as a Way of Life*. Notre Dame University, South Bend. USA. 18 - 20 June 2019.

**Tabensky, P.** Gave workshop. Ethical Leadership for young Entrepreneurs. *Allan and Gill Gray Philanthropy Ethics Workshop*. Strathmore Business School, Nairobi. Kenya. 18 - 24 May 2019.

**Tabensky, P.** Workshop Facilitator. Ethical Leadership for Young Entrepreneurs. *Allan and Gill Gray Philanthropy Ethical Leadership Workshop for Young Entrepreneurs*. Hotel Chez Lando, Kigali. Rwanda. 28 September - 4 October 2019.

**Williamson, F.X.**

**Williamson, F.X.** Public Talk. Does God Exist? *Public lecture given to the University of the 3rd Age*. Bowling Club Hall, Grahamstown. South Africa. 6 November 2019.

**Williamson, F.X.** Public Talk. The Time of Our Lives. *Public Talk to Friends of the Library*. Library Hall, Grahamstown. South Africa. 17 June 2019.

## Distinguished Visitors

**Tabensky, P.**

**P Tabensky.** UNODC, Vienna, Austria. *Workshop, collaboration*. October 2019.



## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Okeja, U.**

**Okeja, U.** (2019) Book Review: Race, Decolonization and Global Citizenship in South Africa, by Chielozone Eze. Rochester, NY: University of Rochester Press, 2018, 226pp., \$110.00 (Hardback), ISBN-13: 978-1-158046-933-3. *Journal of the African Literature Association*. 13 (3). p.347-349.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Ajiboro, A.A.**

**Ajiboro, A.A.** (2019) The Limits of Tolerance in Perfectionism. *Balkan Journal of Philosophy*. 11 (1). p.49-54.

**Dewhurst, T.**

**Dewhurst, T.** (2019) Believable Evidence: Veli Mitova. *Philosophical Papers*. 48 (2). p.321-333.

**Kelland, L.**

**Kelland, L.** (2019) Ambivalence: A Philosophical Exploration. *Philosophical Papers*. 48 (2). p.325-333.

**Okeja, U.**

**Okeja, U.** (2019) Justice Through Deliberation And The Problem of Otherness. *Angelaki - Journal of the Theoretical Humanities*. 24 (2). p.10-21.

**Okeja, U.** and Okeja, U. (2019) War by Agreement: A Reflection on the Nature of Just War. *Journal of Military Ethics*. 18 (3). p.189-203.

**Tabensky, P.**

**Tabensky, P.** (2019) Rebellion and Revolution. *Angelaki - Journal of the Theoretical Humanities*. 24 (2). p.116-129.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Kelland, L.**

**Kelland, L.** "You just don't get his sense of humour!" *Sixth Annual International Conference of the Centre for Phenomenology in South Africa*. Crawfords Beach Lodge, Chintsa. South Africa. June 2019.

**Tabensky, P.**

**Tabensky, P.** Intrinsic Motivation and Higher Education. *Reclaiming Study Practices*. Leuven. Belgium. September 2019.

**Tabensky, P.** Ethical Leadership for Chartered Secretaries Plenary Lecture. *Chartered Secretaries Conference*. Montecasino, Johannesburg. South Africa. September 2019.

# 2019

## DEPARTMENT OF PHYSICS AND ELECTRONICS



The vitality of research in the Department of Physics and Electronics was most evident in 2019. It is no cliché that what was thought impossible became just the opposite, when the first ever image of a black hole was published on 10 April 2019. The radio image was made possible by coordinating observations of radio telescopes around the world. Rhodes University was involved in this through the work of Rhodes University Visiting Research Fellow, Professor Roger Deane and Postdoctoral Research Fellow, Dr Iniyar Natarajan.

Before the black hole story, we were also in the news when President Ramaphosa referred to MeerKAT during his state of the nation address in February 2019. MeerKAT is a precursor to the Square Kilometre Array (SKA). He correctly pointed out that skills developed on MeerKAT and SKA are also being used to build Hydrogen Epoch of Reionization Array (HERA), a radio telescope designed to detect, for the first time, the distinctive radio signal from the very first stars and galaxies that formed early in the life of the universe. The Centre for Radio Astronomy Techniques and Technologies (RATT) in our department is the principle South African partner in the HERA project.

In other news, *Nature* published an article in February 2019 on outreach activities involving astronomers worldwide. The article singled out the work of Dr Sphehile Makhathini in promoting Astronomy using Hip Hop Science. Sphehile is a Postdoctoral Research Fellow in the department and works in the Centre for Radio Astronomy Techniques and Technologies.

Professor Maikaiko Chithambo received news in January 2019 that he had been awarded a B2 research rating by the National Research Foundation (NRF). This is a category for internationally acclaimed researchers described as researchers who enjoy considerable international recognition by their peers for the high quality and impact of their research outputs. Professor Chithambo also published a chapter in the book *Advances in Physics and Applications of Optically and Thermally Stimulated Luminescence* published by World Scientific. In professional service work, he started his term as Vice-President of the South African Institute of Physics and also served as a member of the Scientific Advisory Committee of the 19th International Conference on Solid State Dosimetry held in Hiroshima, Japan, in September 2019.

As the year drew to a close came news that Professor Justin Jonas had been given the Vice-Chancellor's Distinguished Achievement Award. This is a new award, which as its citation outlines, has been established to recognise a staff member who has made an

*Proud graduates in the Department of Physics and Electronics*  
Credit: Department of Physics and Electronics



*The Physics and Electronics Department celebrates International Day  
Credit: Department of Physics and Electronics*

extraordinary and distinguished contribution that builds and supports the intellectual work of the University, the sector, and the national and international community of scholars, thereby significantly advancing the reputation of the institution, and which is not adequately recognised by the existing set of Vice-Chancellor's awards.

Professor Jonas has made significant contributions to the design, concept development, engineering of the 64-dish MeerKAT radio telescope array at Carnarvon, Northern Cape. The MeerKAT is a precursor to the SKA which on completion will be one of the largest scientific instruments ever constructed. As the Vice-Chancellor, Dr Mabizela pointed out, the award is intended to be a prestigious award of the highest status in the university, awarded sparingly. It is with pride that I inform those who don't, and remind those who do that this is a second 'first' for the Department of Physics and Electronics. The first ever Vice-Chancellor's Teaching Award was also given to a physicist back in 1991.

Professor Makaiko Chithambo was awarded the Vice-Chancellor's Distinguished Senior Research Award for 2019. The senior award recognises an established staff member of indisputable academic status, whose work is of exceptional quality and proven achievement with a sustained record of scholarship.

The contribution of research students continues to be key to our output. The Department held its Postgraduate research seminars day on 13 and 14 March 2019. MSc students and PhD candidates presented papers on current work in areas of solid state physics, space science, radio astronomy and physics pedagogy.



*2019 South African Institute of Physics conference  
From left to right: Vuyo Matiwane (MSc student), Professor M Chithambo, Isabella Rammala (PhD candidate) and Research Associate, Dr Zama Katamzi-Joseph  
Credit: Department of Physics and Electronics*

Although less of research but more of a service work, we were pleased to team up with the South African Institute of Physics and the departments of Mathematics and Statistics in promoting physics, statistics and mathematics during Science Festival 2019. We mounted exhibits on various aspects of these three subjects aimed at high school students.

**Professor Makaiko Chithambo**

*Head of Department*



## Books/Chapters/Monographs

Chithambo, M.L.

Chithambo, M.L. (2019) Time-resolved Luminescence: Progress in Development of Theory and Analytical Methods. In: Chen, R. and Pagonis, V. (eds.). *Advances in Physics and Applications of Optically and Thermally Stimulated Luminescence*. Europe: WSPC. p.243-284. ISBN: 9781786345783.

## International Visits

Medved, A.J.M.

Medved, A.J.M. Ben Gurion University, Beer Sheva, Israel. *Collaboration in Theoretical High-Energy Physics*. 23 November - 3 January 2019.

Medved, A.J.M. Ben Gurion University, Beer Sheva, Israel. *Collaboration in Theoretical High-Energy Physics*. 6 June - 11 July 2019.

Nsengiyumva, S.

Nsengiyumva, S. Universite de Poitiers, Poitiers, France. *Research*. 5 June - 5 July 2019.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Abdalla, F.B.

Jennings, W.D., Watkinson, C.A., Abdalla, F.B. and McEwen, J.D. (2019) Evaluating machine learning techniques for predicting power spectra from reionization simulations. *Monthly Notices of the Royal Astronomical Society*. 483 (2019). p.2907-2922.

Loureiro, A., Cuceu, A., Abdalla, F.B., Moraes, B., Whiteway, L., McLeod, M., Balan, S.T., Lahav, O., Benoit-Levy, A., Manera, M., Rollins, R.P. and Xavier, H.S. (2019) Upper Bound of Neutrino Masses from Combined Cosmological Observations and Particle Physics Experiments. *Physical Review Letters*. 123 (8). p.1-7.

Baxter, E.J., Omori, Y., Chang, C., Giannantonio, T., Kirk, D., Krause, E., Blazek, J., Bleem, L., Choi, A., Abdalla, F.B. and et al. (2019) Dark Energy Survey Year 1 results: Methodology and projections for joint analysis of galaxy clustering, galaxy lensing, and CMB lensing two-point functions. *Physical Review D*. 99 (023508). p.1-22.

Banda-Huarcas, M.V., Camargo, J.I.B., Desmars, J., Ogando, R.L.C., Vieira-Martins, R., Assafin, M., da Costa, L.N., Bernstein, G.M., Carrasco Kind, M., Abdalla, F.B. and et al. (2019) Astrometry and Occultation Predictions to Trans-Neptunian and Centaur Objects Observed within the Dark Energy Survey. *Astronomical Journal*. 157 (3). p.1-25.

Dominguez Sanchez, H., Huertas-Company, M., Bernardi, M., Kaviraj, S., Fischer, L., Abbott, T.M.C., Abdalla, F.B., Annis, J., Avila, S., Brooks, D. and et al. (2019) Transfer learning for galaxy morphology from one survey to another. *Monthly Notices of the Royal Astronomical Society*. 484 (2019). p.93-100.

Abbott, T.M.C., Abdalla, F.B., Alarcon, A., Allam, S., Andrade-Oliveira, F., Annis, J., Avila, S., Banerji, M., Banik, N., Bechtol, K. and et al. (2019) Dark Energy Survey Year 1 results: measurement of the baryon acoustic oscillation scale in the distribution of galaxies to redshift 1. *Monthly Notices of the Royal Astronomical Society*. 483 (2019). p.4866-4833.

Jacobs, C., Collett, T., Glazebrook, K., McCarthy, C., Qin, A.K., Abbott, T.M.C., Abdalla, F.B., Annis, J., Avila, S., Bechtol, K. and et al. (2019) Finding high-redshift strong lenses in DES using convolutional neural networks. *Monthly Notices of the Royal Astronomical Society*. 484 (2019). p.5330-5349.

Kovacs, A., Sanchez, C., Garcia-Bellido, J., Elvin-Poole, J., Hamaus, D., Miranda, V., Nadathur, S., Abbott, T., Abdalla, F.B., Annis, J. and et al. (2019) More out of less: an excess integrated Sachs-Wolfe signal from supervoids mapped out by the Dark Energy Survey. *Monthly Notices of the Royal Astronomical Society*. 484 (2019). p.5267-5277.

Loureiro, A., Moraes, B., Abdalla, F.B., Cuceu, A., McLeod, M., Whiteway, L., Balan, S.T., Benoit-Levy, A., Lahav, O., Manera, M., Rollins, R.P. and Xavier, H.S. (2019) Cosmological measurements from angular power spectra analysis of BOSS DR12 tomography. *Monthly Notices of the Royal Astronomical Society*. 485 (2019). p.326-355.

Stern, C., Dietrich, J.P., Bocquet, S., Applegate, D., Mohr, J.J., Bridle, S.L., Carrasco Kind, M., Gruen, D., Jarvis, M., Abdalla, F.B. and et al.

(2019) Weak-lensing analysis of SPT-selected galaxy clusters using Dark Energy Survey Science Verification data. *Monthly Notices of the Royal Astronomical Society*. 485 (2019). p.69-87.

Frontera-Pons, J., Sureau, F., Moraes, B., Bobin, J. and Abdalla, F.B. (2019) Representation learning for automated spectroscopic redshift estimation. *Astronomy and Astrophysics*. 625 (A73). p.1-15.

Malyali, A., Rivi, M., Abdalla, F.B. and McEwan, J.D. (2019) Radio galaxy detection in the visibility domain. *Monthly Notices of the Royal Astronomical Society*. 486 (2019). p.2695-2704.

Abbott, T.M.C., Abdalla, F.B., Avila, S., Banerji, M., Baxter, E., Bechtol, K., Becker, M.R., Bertin, E., Blazek, J., Bridle, S.L. and et al. (2019) Dark Energy Survey year 1 results: Constraints on extended cosmological models from galaxy clustering and weak lensing. *Physical Review D*. 99 (123505). p.1-23.

Gruen, D., Zhang, Y., Palmese, A., Yanny, B., Busti, V., Hoyle, B., Melchior, P., Miller, C.J., Roza, E., Abdalla, F.B. and et al. (2019) Dark Energy Survey Year 1 results: the effect of intracluster light on photometric redshifts for weak gravitational lensing. *Monthly Notices of the Royal Astronomical Society*. 488 (2019). p.4389-4399.

Zhang, Y., Miller, C.J., Rooney, P., Bermeo, A., Romer, A.K., Vergara Cervantes, C., Rykoff, E.S., Hennig, C., Das, R., Abdalla, F.B. and et al. (2019) Galaxies in X-ray selected clusters and groups in Dark Energy Survey data - II. Hierarchical Bayesian modelling of the red-sequence galaxy luminosity function. *Monthly Notices of the Royal Astronomical Society*. 488 (2019). p.1-17.

Camacho, H., Kokron, N., Andrade-Oliveira, F., Rosenfeld, R., Lima, M., Lacasa, F., Sobreira, F., da Costa, L.N., Avila, S., Abdalla, F.B. and et al. (2019) Dark Energy Survey Year 1 results: measurement of the galaxy angular power spectrum. *Monthly Notices of the Royal Astronomical Society*. 487 (2019). p.3870-3883.

Costanzi, M., Roza, E., Simet, M., Zhang, Y., Evrard, A.E., Mantz, A., Rykoff, E.S., Jelteima, T., Gruen, D., Abdalla, F.B. and et al. (2019) Methods for cluster cosmology and application to the SDSS in preparation for DES Year 1 release. *Monthly Notices of the Royal Astronomical Society*. 488 (2019). p.4779-4800.

Abbott, T.M.C., Abdalla, F.B., Alarcon, A., Allam, S., Avila, S., Aylor, K., Banerji, M., Banik, N., Baxter, E.J., Bechtol, K. and et al. (2019) Dark Energy Survey year 1 results: Joint analysis of galaxy clustering, galaxy lensing, and CMB lensing two-point functions. *Physical Review D*. 100 (023541). p.1-21.

Prat, J., Baxter, E., Shin, T., Sanchez, C., Chang, C., Jain, B., Miquel, R., Alarcon, A., Bacon, D., Abdalla, F.B. and et al. (2019) Cosmological lensing ratios with DES Y1, SPT, and Planck. *Monthly Notices of the Royal Astronomical Society*. 487 (2019). p.1363-1379.

Omori, Y., Giannantonio, T., Porredon, A., Baxter, E., Chang, C., Crocce, M., Fosalba, P., Alarcon, A., Banik, N., Abdalla, F.B. and et al. (2019) Dark Energy Survey Year 1 Results: Tomographic cross-correlations between Dark Energy Survey galaxies and CMB lensing from South Pole Telescope + Planck. *Physical Review D*. 100 (043501). p.1-18.

Omori, Y., Baxter, E.J., Chang, C., Kirk, D., Alarcon, A., Bernstein, G.M., Bleem, L.E., Cawthon, R., Choi, A., Abdalla, F.B. and et al. (2019) Dark Energy Survey Year 1 Results: Cross-correlation between Dark Energy Survey Y1 galaxy weak lensing and South Pole Telescope + Planck CMB weak lensing. *Physical Review D*. 100 (043517). p.1-16.

Wang, M.Y., de Boer, T., Pieres, A., Li, T.S., Drlica-Wagner, A., Koposov, S.E., Vivas, A.K., Pace, A.B., Santiago, B., Abdalla, F.B. and et al. (2019) The Morphology and Structure of Stellar Populations in the Fornax Dwarf Spheroidal Galaxy from Dark Energy Survey Data. *Astrophysical Journal*. 881 (2). p.1-15.

Jeffrey, N. and Abdalla, F.B. (2019) Parameter inference and model comparison using theoretical predictions from noisy simulations. *Monthly Notices of the Royal Astronomical Society*. 490 (2019). p.5749-5756.

Bernardi, G.

Spinelli, M., Bernardi, G. and Santos, M.G. (2019) On the contamination of the global 21-cm signal from polarized foregrounds. *Monthly Notices of the Royal Astronomical Society*. 489 (2019). p.4007-4015.

Kerrigan, J.R., La Plante, P., Kohn, S.A., Pober, J.C., Aguirre, J.E., Abdurashidova, Z., Alexander, P., Ali, Z.S., Balfour, Y., Bernardi, G. and et al. (2019) Optimizing sparse RFI prediction using deep learning.

*Monthly Notices of the Royal Astronomical Society*. 488 (2019). p.2605-2615.

Govoni, F., Orru, E., Bonafede, A., Iacobelli, M., Paladino, R., Vazza, F., Murgia, M., Vacca, V., Giovannini, G., **Bernardi, G.** and *et al.* (2019) A radio ridge connecting two galaxy clusters in a filament of the cosmic web. *Science*. 364 (6444). p.981-984.

Carretti, E., Haverkorn, M., Staveley-Smith, L., **Bernardi, G.**, Gaensler, B.M., Kesteven, M., Poppi, S., Brown, S., Crocker, R.M., Purcell, C. and *et al.* (2019) S-band Polarization All-Sky Survey (S-PASS): survey description and maps. *Monthly Notices of the Royal Astronomical Society*. 489 (2019). p.2330-2354.

**Bernardi, G. and Nunhokee, C.D.**

Kolopanis, M., Jacobs, D.C., Cheng, C., Parsons, A.R., Kohn, S.A., Pober, J.C., Aguirre, J.E., Ali, Z.S., **Bernardi, G.**, **Nunhokee, C.D.** and *et al.* (2019) A simplified, lossless re-analysis of PAPER-64. *Astrophysical Journal*. 883 (2). p.1-28.

**Blecher, T., Deane, R. and Heywood, I.**

**Blecher, T., Deane, R., Heywood, I.** and Obreschkow, D. (2019) Towards the first detection of strongly lensed H I emission. *Monthly Notices of the Royal Astronomical Society*. 484 (2019). p.3681-3690.

**Bryan, K.L.H. and Medved, A.J.M.**

**Bryan, K.L.H. and Medved, A.J.M.** (2019) No Time for Isolated Clocks. *Journal of Physics: Conference Series*. 1275 (2019). p.1-7.

**Chithambo, M.L. and Folley, D.E.**

**Chithambo, M.L., Folley, D.E.** and Chikwembani, S. (2019) Phototransferred thermoluminescence from natural quartz annealed at 1000°C: Analysis of time-dependent evolution of intensity and competition effects. *Journal of Luminescence*. 216 (2019). p.1-9.

**Habarulema, J.B.**

Dugassa, T., **Habarulema, J.B.** and Nigussie, M. (2019) Longitudinal variability of occurrence of ionospheric irregularities over the American, African and Indian regions during geomagnetic storms. *Advances in Space Research*. 63 (2019). p.2609-2622.

Okoh, D., Seemala, G., Rabi, B., **Habarulema, J.B.**, Jin, S., Shiokawa, K., Otsuka, Y., Aggarwal, M., Uwamahoro, J., Mungufeni, P., Segun, B., Obafaye, A., Ellahony, N., Okonkwo, C., Tshisaphungo, M. and Shetti, D. (2019) A Neural Network-Based Ionospheric Model Over Africa From Constellation Observing System for Meteorology, Ionosphere, and Climate and Ground Global Positioning System Observations. *Journal of Geophysical Research - Space Physics*. 124 (2019). p.1-21.

Dugassa, T., **Habarulema, J.B.** and Nigussie, M. (2019) Investigation of the relationship between the spatial gradient of total electron content (TEC) between two nearby stations and the occurrence of ionospheric irregularities. *Annales Geophysicae*. 37 (2019). p.1161-1180.

Ssessanga, N., Kim, Y.H., **Habarulema, J.B.** and Kwak, Y.S. (2019) On Imaging South African Regional Ionosphere Using 4D-var Technique. *Space Weather - The International Journal of Research and Applications*. 17 (2019). p.1-21.

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**Tasse, C., Hugo, B., Smirnov, O.M., Bester, L. and Atemkeng, M.T.** Shimwell, T.W., Tasse, C., Hardcastle, M.J., Mechev, A.P., Williams, W.L., Best, P.N., Hugo, B., Smirnov, O.M., Bester, L., Atemkeng, M.T. and *et al.* (2019) The LOFAR Two-metre Sky Survey II. First data release. *Astronomy & Astrophysics*. 622 (A1). p.1-21.

**Uwamahoro, J.C. and Habarulema, J.B.**

**Uwamahoro, J.C., Habarulema, J.B. and Buresova, D.** (2019) Highlights about the performances of storm-time TEC modelling techniques for low/equatorial and mid-latitude locations. *Advances in Space Research*. 63 (2019). p.3102-3118.

**Williams, J.A.**

**Williams, J.A.** (2019) From Helicopter to Lighthouse: How My Teaching Aligns with My Parenting. *Physics Teacher*. 2019. p.1-3.



Professor Chithambo makes a point during a session at the 19th International Conference on Solid State Dosimetry held in September 2019 in Hiroshima, Japan  
Credit: Department of Physics and Electronics

## Peer-reviewed Proceedings

**Asad, K.M.B., Smirnov, O.M. and Jonas, J.L.**

de Villiers, D.I.L., Asad, K.M.B., Smirnov, O.M., Lehmensiek, R., De Villiers, M. and Jonas, J.L. Primary Beams of the Meer KAT Radio Telescope: Measurements and Simulations. *Antennas and Propagation Society International Symposium*. Hilton Atlanta, Atlanta, Georgia. USA. July 2019.

**Smirnov, O.M., Hugo, B., Asad, K.M.B., Bester, L. and Tasse, C.** Smirnov, O.M., Hugo, B., Asad, K.M.B., Bester, L. and Tasse, C. Imaging in the presence of direction-dependent effects with the MeerKAT radio telescope. *International Conference on Electromagnetics in Advanced Applications (ICEAA)*. Granada. Spain. September 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**De Villiers, D., Asad, K.M.B., Smirnov, O.M. and Jonas, J.L.**

De Villiers, D., Asad, K.M.B., Smirnov, O.M. and Jonas, J.L. Primary Beams of the Meer KAT Radio Telescope: Measurements and Simulations. *International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*. Atlanta, USA. July 2019.

**Smirnov, O.M., Hugo, B., Asad, K.M.B. and Tasse, C.**

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# 2019

DEPARTMENT OF  
POLITICAL AND  
INTERNATIONAL STUDIES



It was a tragic year for the Department of Political and International Studies. We lost one of our colleagues, Professor Alex Amtaika, due to a terrible car accident. Professor Amtaika was a keen researcher who had recently embarked with great enthusiasm on a number of research projects. We therefore open our research report with an acknowledgement of his contribution to promoting research about Africa and mentoring a new generation of African scholars.

The Department of Political and International Studies aims to be a place of vigorous scholarly enquiry and robust intellectual debate. Some of the ways in which we achieved this during 2019 were as follows:

- Our weekly Friday seminar series at which Visiting Scholars, as well as our own colleagues and Postgraduate students present papers.
- Public dialogues where invited guests deliberate on topics of pressing intellectual and more general public concern.
- Our annual week-long *Teach In*, which focused on opposition politics in South Africa.
- Regular Visiting Professors and Lecturers who teach on our Postgraduate programme.

## Distinguished Visitors / International Visits

In 2019, we were very happy to welcome several visitors to the department. Every year, we host three (3) Visiting Lecturers who teach on our Postgraduate course '*African Peace and Security*'. In 2019, the visitors were Dr Andrews Atta-Asamoah (Institute of Security Studies), Dr Ferdinand Kwesi Danso (Kofi Annan International Peacekeeping Training Centre) and Dr Paul-Simon Handy (Institute of Security Studies).

In 2019, our Nelson Mandela Visiting Professor was Professor Adam Ashforth from the University of Michigan in the United States of America. Professor Ashforth is a global authority on state formation and the political implications of spiritual uncertainty in southern Africa. He taught a course on the South African state to our Postgraduate students and also participated widely in department activities.

*Professor Alex Amtaika*  
Credit: Department of Political and International Studies



Staff and students at Professor Ashforth's Public Lecture  
Credit: Department of Politics and International Studies



Nelson Mandela Visiting Professor Adam Ashforth giving a public lecture  
Credit: Department of Political and International Studies

In July 2019, we welcomed Professor Ahmed Salem from Zayed University in the United Arab Emirates. Professor Salem came for the second time to teach a course on Critical and Non-Western International Relations Theory to our Postgraduate students. Our students really value learning about international relations from a truly global perspective.

**Associate Professor Sally Matthews**  
*Head of Department*

## Books/Chapters/Monographs

**Diaz, F.A.**

**Diaz, F.A.** (2019) Colombia: The twilight between war and peace. In: *South America, Central America and the Caribbean 2019*. London: Routledge. p.422-431. ISBN: 9781857439403.

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**Jordaan, E.**

**Jordaan, E.** (2019) Faith no More: Reflections on the Distinction between Traditional and Emerging Middle Powers. In: De Swielande, T.S., Vandamme, D. and Walton, D. (eds.). *Rethinking Middle Powers in the Asian Century: New Theories, New Cases*. London: Routledge. p.111-121. ISBN: 9781138614871.

**Magadla, S. and Cornell, N.L.**

**Magadla, S. and Cornell, N.L.** (2019) The foreign policy legacies of Nkosazana Dlamini-Zuma and Maite Nkoana-Mashabane: Institutionalising Pan-Africanist visions and economic diplomacy. In: Masters, L. and van Wyk, J. (eds.). *South African Foreign Policy Review: Foreign Policy, Change and the Zuma Years Vol. 3*. South Africa: Africa Institute of South Africa. p.40-54. ISBN: 9780798305273.

**Matthews, S.**

**Matthews, S.** (2019) Decolonising University Curricula: Reflections on an Institutional Curriculum Review Process. In: Quinn, L. (ed.). *Re-imagining Curriculum: Spaces for disruption*. Cape Town: African Sun Press. p.45-64. ISBN: 9781928480389.

**Souare, I.**

**Souare, I.** (ed.) (2019) *La lutte contre le terrorisme en Afrique Acte de bienveillance ou prétexte géostratégique?* Montreal, Canada: Les Presses de l'Université de Montréal. ISBN: 9782760640719.

## Distinguished Visitors

**Asamoah, A.**

**Dr A Asamoah.** Institute for Security Studies, Pretoria, South Africa. *African Peace and Conflict Visitor*. October 2019.



Ashforth, A.P.

**Professor AP Ashforth.** University of Michigan, Michigan, United States of America. *Nelson Mandela Visiting Professor.* July 2019.

Danso, F.K.

**Dr FK Danso.** Institute for Security Studies, Pretoria, South Africa. *African Peace and Conflict Visiting Lecturer.* May 2019.

Handy, P.S.

**Dr PS Handy.** Institute for Security Studies, Pretoria, South Africa. *African Peace and Conflict Visiting Lecturer.* October 2019.

Salem, A.A.A.

**Professor AAA Salem.** Zayed University, Dubai, United Arab Emirates. *Visiting Professor.* July 2019.

## Other Publications

Jordaan, E.

**Jordaan, E.** (2019) African States at the UN Human Rights Council in 2017. In: Jordaan, E.C. (ed.). *African States at the UN Human Rights Council in 2017.*

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Matthews, S.

**Matthews, S.** (2019) Partnerships and Power: Community Partners-Experiences of Service-Learning. *Africanus: Journal of Development Studies.* 49 (1). p.1-18.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Ashforth, A.P.

**Ashforth, A.P.** (2019) Book Review: The Finger of God: Enoch Mgijima, The Israelites, and the Bullhoek Massacre in South African. By Robert R. Edgar. Charlottesville: University of Virginia Press, 2018. Pp. 236. *International Journal of African Historical Studies.* 52 (2). p.338-339.

Bischoff, P.H.

Chipaika, R. and **Bischoff, P.H.** (2019) Chinese Engagement of Zimbabwe and the Limits of Elite Agency. *Journal of Asian and African Studies.* 54 (7). p.947-964.

Chiwandire, D.

**Chiwandire, D.** (2019) Universal Design for Learning and Disability Inclusion in South African Higher Education Curriculum. *Alternation: Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa (Formerly International Journal for the Study of Southern African Literature and Languages).* 27 (2019). p.6-36.

Chiwandire, D. and Vincent, L.

**Chiwandire, D. and Vincent, L.** (2019) Funding and inclusion in higher education institutions for students with disabilities. *African Journal of Disability.* 8 (2019). p.1-12.

Jordaan, E.

**Jordaan, E.** (2019) South Africa and Civil and Political Rights. *Global Governance.* 25 (1). p.171-197.

**Jordaan, E.** (2019) Elephants in the Room: Botswana and the United Nations Universal Period Review. *Nordic Journal of Human Rights.* 37 (1). p.42-62.

Lock, E.

**Lock, E.** (2019) History's Value to Conflict and Security Studies in Africa. *Historian.* 81 (4). p.654-670.

Magadla, S.

**Magadla, S.** (2019) Book Review: From the Outside In: Domestic Actors and South Africa's Foreign Policy. *The South African Journal of International Affairs.* 26 (2). p.307-309.

Vincent, L.

Idahosa, G. and **Vincent, L.** (2019) Enabling transformation through critical engagement and reflexivity: a case study of South African academics. *Higher Education Research & Development.* 38 (4). p.780-792.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Bischoff, P.H.

**Bischoff, P.H.** Reviving the Study of African Foreign Policy at a time of emerging multipolarity. *12th Global Studies Conference.* The Jagiellonian University, Krakow. Poland. June 2019.

Diakavu, S.B.D.

**Diakavu, S.B.D.** Recovering and (Re)remembering Ourselves: Examining the Political Activism of Black Women Leaders of the Economic Freedom Fighters. *Rhodes University Postgraduate Conference.* Rhodes University, Makhanda. South Africa. August 2019.

Jimlongo, G.N.

**Jimlongo, G.N.** When women have reached the end of their politics: Nakedness as resistance. *African Feminisms (Afems) Conference.* University of the Witwatersrand, Johannesburg. South Africa. September 2019.

Magadla, S.

**Magadla, S.** Informality and the Fourth Industrial Revolution: opportunities and challenges. *Inaugural Internationalisation Summit - SADC: imagining a borderless region.* Rhodes University International Office. Rhodes University, Makhanda. South Africa. May 2019.

**Magadla, S.** Nationalism and Pan-African Citizenry. *African Peer Review Mechanism - Africa Month Symposium on the role of young African leaders in Pan-Africanism and Regional Integration.* University of Cape Town, Cape Town. South Africa. May 2019.

Matthews, S.

**Matthews, S.** Post-Development Theorists and the Desire for Development. *Post-Development: Decolonial Alternatives to Development.* University of Kassel, Kassel. Germany. September 2019.

Mntambo, L.N.

**Mntambo, L.N.** All your faves are problematic: Understanding feminism in its contradictions. *African feminisms (Afems) conference.* University of the Witwatersrand, Johannesburg. South Africa. September 2019.

Onokwai, J.C.

**Onokwai, J.C.** Accountability, Globalization and the Shift to a Global Health Regime: A Study of the Global Fund for HIV/AIDS, Malaria and Tuberculosis Accountability Practices. *Workshop on Global governance and Accountability in Post-World War II Health Care.* University of Utrecht, Utrecht. Netherlands. July 2019.



*Dr Somadoda Fikeni speaks at Department Teach In on opposition politics*

*Credit: Department of Political and International Studies*



Staff, students and associated researchers continue to produce and present high-quality and relevant research in a wide range of academic journals, at local and internal conferences, and to researchers, students and psychological practitioners.

Topics, as one would expect in a broad discipline as psychology, are suitably diverse. These include:

- Forensic psychiatry,
- Teaching and learning,
- Research methodologies,
- Sexualities and reproductive health,
- Neuropsychological assessment,
- Head injuries,
- Psychosocial studies,
- Community engagement,
- Substance use,
- Mental health,
- Ecopsychology,
- Job satisfaction, and
- Clinical and counseling psychology professional practice.

It is encouraging to see a number of productive collaborations between academics, students and Research Associates, and also that a number of newly qualified academic staff are presenting and publishing their research.

The Critical Studies in Sexualities and Reproduction continues to be a global centre of excellence. Under the leadership of Professor Catriona Macleod, the research team continue to influence policy in a broad range of areas, including sexual violence, abortion, unintended pregnancies, contraception, alcohol use during pregnancy, and critical research methodologies.

**Professor Charles Young**

*Head of Department*

*Gathering of Honours students, caregivers and children with physical disabilities*

*All participated in the Service Learning course (SL) 'Childhood Disability and Mental Health'. The SL course has been the focus of research linked to the NRF Community Engagement grant, Professor Lisa Saville Young received in 2015 - 2018*

*Credit: Department of Psychology*



*International Conference of Industrial Engineering and Engineering Management 2019, Macau, China.*  
 From left to right: Ms Dineo Diale, Lecturer in Industrial and Organizational Psychology (Rhodes University), Dr Grace Kanakana-Katumba, Executive Dean of Science Engineering and Technology (UNISA)  
 Credit: Department of Psychology

## Books/Chapters/Monographs

Akhurst, J.

Akhurst, J., Olvitt, L.L. and Ward-Smith, C. (2019) Decolonising nature-based pedagogy: the importance of history, socio-cultural and socio-material context in mediating connectedness-with-nature. In: Cutter-Mackenzie, A., Malone, K. and Barratt Hacking, E. (eds.). *Research Handbook of Childhoodnature*. New York: Springer. p.1-27. ISBN: 9783319672878.

Akhurst, J. and Freeman, E. (2019) Walking through and being with nature: Meaning-making and the impact of being in UK wild places. In: McGrath, L. and Reavey, P. (eds.). *The Handbook of Mental Health and Space: Community and Clinical Applications*. London: Routledge. p.214-233. ISBN: 9781138643949.

Edwards, D.J.A.

Edwards, D.J.A. (2019) Systematic case study research in clinical and counselling psychology. In: Laher, S., Fynn, A. and Kramer, S. (eds.). *Transforming Research Methods in the Social Sciences: Case Studies from South Africa*. Johannesburg: Wits University Press. p.151-167. ISBN: 9781776142750.

Macleod, C.I. and Feltham-King, T.

Macleod, C.I. and Feltham-King, T. (2019) 'Adolescent pregnancy': Social problem, public health concern, or neither? In: Ussher, J.M., Chrisler, J.C. and Perz, J. (eds.). *Routledge International Handbook of Women's Sexual and Reproductive Health*. London: University of London - SOAS, Routledge, Taylor & Francis Group. p.253-265. ISBN: 9781138490260.

Macleod, C.I., Morison, T. and Lynch, I.

Macleod, C.I., Morison, T. and Lynch, I. (2019) Focus on the 'family'? How South African family policy fails queer families. In: Lynch, T. and Reddy, I. (eds.). *Queer kinship: South African perspectives on the sexual politics of family-making and belonging*. Pretoria: UNISA Press. p.22-32. ISBN: 9780367188023.

Mavuso, J.M.-J., Chiweshe, M. and Macleod, C.I.

Mavuso, J.M.-J., Chiweshe, M. and Macleod, C.I. (2019) Overcoming Essentialism in Community Psychology: The Use of a Narrative-Discursive Approach Within African Feminisms. In Boonzaier, F. and Van Niekerk, T. (eds.). *Decolonial Feminist Community Psychology*. p.11-23. Cham: Springer. ISBN: 9783030200008.

Olvitt, L.L. and Akhurst, J.

Ward-Smith, C., Olvitt, L.L. and Akhurst, J. (2019) Toward Decolonizing Nature-Based Pedagogies: The Importance of Sociocultural History and Socio-materiality in Mediating Children's Connectedness-with-Nature. In: Cutter-Mackenzie-Knowles, A., Malone, K. and Barratt Hacking, E. (eds.). *Research Handbook on Childhoodnature*. Switzerland: Springer International Publishing. p.1-27. ISBN: 9783319672854.

Pinto, P. and Macleod, C.I.

Pinto, P. and Macleod, C.I. (2019) *A Genealogy of Puberty Science: Monsters, Abnormals, and Everyone Else*. London: Routledge. ISBN 9781138295391.

Shuttleworth-Edwards, A.B.

Shuttleworth-Edwards, A.B. (2019) Using the WAIS-III to illustrate test norming strategies in multicultural contexts: A demographically stratified sampling design. In: Laher, S., Fynn, A. and Kramer, S. (eds.). *Transforming Research Methods in the Social Sciences: Case Studies from South Africa*. Johannesburg: Wits University Press. p.69-83. ISBN: 9781776142750.

## Concerts, Exhibitions, Performances, Workshops, Events

Bredenkamp, P.J., Young, C. and Macleod, C.I.

Bredenkamp, P.J., Young, C. and Macleod, C.I. Discussion and presentation. Alcohol use during pregnancy in the Eastern Cape: research in support of FASFacts intervention. Quantitative analysis. *Alcohol use during pregnancy in the Eastern Cape: research in support of FASFacts intervention. Quantitative analysis*. Arthur Lord Seminar Room, Makhanda. South Africa. 1 April 2019.

Truter, S.

Truter, S. Workshop. *Basics to beyond: Comprehensive Course in Neuropsychology*. Neuro-Network Centre, Somerset West, Cape Town. South Africa. 27-28 November 2019.

Truter, S. Workshop. *Basics to beyond: Comprehensive Course in Neuropsychology*. Neuro-Network Centre, Somerset West, Cape Town. South Africa. 7-8 August 2019.

Truter, S. Workshop. *Basics to beyond: Comprehensive Course in Neuropsychology*. Neuro-Network Centre, Somerset West, Cape Town. South Africa. 7-9 May 2019.

Truter, S. Workshop. *Basics to beyond: Comprehensive Course in Neuropsychology*. Lord Charles Hotel, Somerset West, Cape Town. South Africa. 6 February 2019.

## Distinguished Visitors

Akhurst, J.

J Akhurst. University of Brighton, Brighton, UK. *Collaboration regarding students Community Engagement and International placements*. January 2019.

J Akhurst. Birkbeck, University of London, London, UK. *To explore potential 3-country research collaboration*. August 2019.

J Akhurst. University of East London, London, UK. *To present seminar; plan collaborative research and explore students' Community Engagement*. July 2019.

Epprecht, M.

Professor M Epprecht. Professor Marc Epprecht, Queens, Canada. *Public lecture and Workshop*. March 2019.

Francis, D.

Professor D Francis. Professor Dennis Francis, Stellenbosch, South Africa. *Lecture and workshop*. October 2019.

Morison, T.

Dr T Morison. Professor Tracy Morison from Massey University, Wellington, New Zealand, Makhanda, South Africa. *Lecture, Workshop, Research collaboration*. November 2019.

## Other Publications

Du Plessis, U., Sofika, N.D.A., Macleod, C.I. and Mthethwa, T.

Du Plessis, U., Sofika, N.D.A., Macleod, C.I. and Mthethwa, T. (2019). *Assessing the impact of the extended Global Gag Rule in South Africa*. Makhanda, South Africa: International Women's Health Coalition.



Macleod, C.I.

Macleod, C.I. and Reynolds, J. (2019). In: *Strategic assessment of policies, programmes and research on unintended pregnancies, contraception, unsafe abortion and abortion services in Botswana*. Makhanda, South Africa: Botswana Department of Health, United Nations Population Fund (UNFPA) & World Health Organisation (WHO).

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Saville Young, L.

Saville Young, L. (2019) Psychosocial studies and the practice of psychology: A South African perspective. *Journal of Psychosocial Studies*. 12 (1-2). p.115-128.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Akhurst, J. and Wilbraham, L.

Van Der Riet, M., Akhurst, J. and Wilbraham, L. (2019) Promoting students' sexual and reproductive health in peer-led programmes at two South African universities: Emergent tensions and dilemmas. *South African Journal of Higher Education*. 33 (2). p.249-267.

Bobo, B. and Akhurst, J.

Bobo, B. and Akhurst, J. (2019) 'Most Importantly, It's Like the Partner Takes More Interest in Us': Using *Ubuntu* as a Fundamental Ethic of CE Partnerships at Rhodes University. *Alternation: Interdisciplinary Journal for the Study of the Arts and Humanities in Southern Africa* (Formerly *International Journal for the Study of Southern African Literature and Languages*). 27 (2019). p.88-110.

Collins, A.

De Jong, M., Collins, A. and Plug, S. (2019) "To be healthy to me is to be free": how discourses of freedom are used to construct healthiness among young South African adults. *International Journal of Qualitative Studies on Health and Well-Being*. 14 (2019). p.1-12.

Wentzel, D., Collins, A. and Brysiewicz, P. (2019) Describing compassion fatigue from the perspective of oncology nurses in Durban, South Africa. *Health SA Gesondheid: Journal of Interdisciplinary Health Sciences*. 24 (a1279). p.1-7.

Feltham-King, T. and Macleod, C.I.

Feltham-King, T. and Macleod, C.I. (2019) Multi-layered risk management in under-resourced antenatal clinics: a scientific-bureaucratic approach versus street-level bureaucracy. *Health Risk & Society*. 22(1), 31-52.

Fleischack, A., Macleod, C.I. and Bohmke, W.

Fleischack, A., Macleod, C.I. and Bohmke, W. (2019) The Conundrums of Counselling Women in Violent Intimate Partner Relationships in South Africa: Implications for Practice. *International Journal for the Advancement of Counselling*. 2019. 42(1), 65-80.

Jacobs, L.

Jacobs, L. (2019) Gender-sensitive training for substance use disorder treatment: Results and implications of a pilot health professionals needs assessment. *Journal of Psychology in Africa*. 29 (2). p.187-190.

Jearey-Graham, N.

Daivids, E.L., Tucker, L.A., Wambua, G.N., Fewster, D.L., Schlebusch, L., Karim, S.B.S., Attia, M., Nyoni, J., Bayouh, F.G., Jearey-Graham, N. and et al. (2019) Child and adolescent mental health in Africa: A qualitative analysis of the perspectives of emerging mental health clinicians and researchers using an online platform. *Journal of Child and Adolescent Mental Health*. 31(2), 93-107.

Kabungaidze, T.

Kabungaidze, T., Sibanda, M.B., Ndoro, T. and Chuchu, T. (2019) The Influence of Satisfaction on Job Outcomes among Foreign and local Academic Staff at a Selected International University. *African Journal of Hospitality, tourism and Leisure (AJHTL)*. 8 (3). p.1-12.

Kennedy, B. and Saville Young, L.

Kennedy, B. and Saville Young, L. (2019) Talk of whiteness: A psychosocial analysis of constructions of race amongst white novice clinical psychologists in South Africa. *Psycho-analytic Psychotherapy in South Africa*. 27 (2). p.7-33.

Lynch, I.

Essack, Z., Lynch, I., Kaunda, C. J., Stephenson, R., Darbes, L., & van Rooyen, H. (2020). Power relations in sexual agreements among male couples in Southern Africa. *Culture, Health & Sexuality*. 22(8), 904-919.

Macleod, C.I. and Feltham-King, T.

Macleod, C.I. and Feltham-King, T. (2019) Young pregnant women and public health: Introducing a critical reparative justice/care approach using South African case studies. *Critical Public Health*. 30(3), 319-329.



Fieldworker training at Rhodes University (31 August 2019). Shabnam Shaik, Lecturer in the Anthropology department presenting. From left to right: Maliviwe Mhlaba, Wongezwa August, Qhawekazi Mahlasela, Siphosethu Matiwana, Noludwe Makweta, Ncebakazi Makweta, Amanda Kepe, and CSSR Phd candidate, Agnes Sanyangore. Credit: Department of Psychology



*Fieldworkers arriving in site 1: Bulungula*

Fieldwork was conducted in four remote villages: Nqileni, Tshezi, Folokwe and Mgojweni. An estimated six thousand (6000) people live in these four (4) villages. Apart from the NGO Bulungula Incubator's health point in Nqileni which employs a nurse and provides basic primary health care services, there are no health services in the area. There are two (2) clinics in neighbouring villages Mkanya and Jalamba, and two (2) hospitals in Madwaleni and Zithulele.

Credit: Department of Psychology

**Macleod, C.I., Masuko, D. and Feltham-King, T.**

**Macleod, C.I., Masuko, D. and Feltham-King, T.** (2019) Why decolonialising feminist psychology may fail, and why it mustn't: The politics of signification and the case of 'teenage pregnancy'. *Psychology in Society (PINS)*. 58, 50-70.

**Macleod, C.I., Mavuso, J.M-J., Chiweshe, M. and Du Toit, R.D.**  
**Macleod, C.I., Mavuso, J.M-J., Chiweshe, M. and Du Toit, R.D.** (2019) Psychological knowledge production about abortion: The politics of location and representation. *BMJ Sexual & Reproductive Health*. 45(4), 290 - 295.

**Mavuso, J.M-J. and Macleod, C.I.**

**Mavuso, J.M-J. and Macleod, C.I.** (2020) Contradictions in womxn's experiences of pre-abortion counselling in South Africa: Implications for client-centred practice. *Nursing Inquiry*. 27(2), e12330.

**Mavuso, J.M-J. and Macleod, C.I.** (2019) Resisting abortion stigma in situ: South African womxn's and healthcare providers' accounts of the pre-abortion counselling healthcare encounter. *Culture Health & Sexuality*.

**Morison, T.**

**Morison, T. and Herbert, S.** (2019) Muted resistance: The deployment of youth voice in news coverage of young women's sexuality in Aotearoa New Zealand. *Feminism & Psychology*. 1-20.

**Nagdee, M.**

**Nagdee, M., Artz, L., Corral-Bulnes, C., Heath, A., Subramaney, U., de Clercq, H.G., Erlacher, H., Kotze, C., Lippi, G., Naidoo, S. and Sokudela, F.** (2019) The psycho-social and clinical profile of women referred for psycho-legal evaluation to forensic mental health units in South Africa. *South African Journal of Psychiatry*. 25 (a1230). p.1-8.

**Seutlwadi, L.**

**Makola, L., Mlangeni, L., Mabaso, M., Chibi, B., Sokhela, Z., Silimfe, Z., Seutlwadi, L., Naidoo, D., Khumalo, S., Mncadi, A. and Zuma, K.** (2019) Predictors of contraceptive use among girls and young women (AGYW) aged 15 to 24 years in South Africa: results from the 2012 national population-based household survey. *BMC Womens Health*. 19 (158). p.1-7.

**Shuttleworth-Edwards, A.B.**

**Naidoo, R., Shuttleworth-Edwards, A.B., Botha, R. and Pienaar, I.** (2019) The Tower of London-DX 2nd Edition test: Preliminary norms for educationally disadvantaged Xhosa-speaking individuals. *Journal of Psychology in Africa*. 29 (1). p.60-66.

**Tao, L. and Jacobs, L.**

**Tao, L. and Jacobs, L.** (2019) "Inbox me, please": Analysing comments on anonymous Facebook posts about depression and suicide. *Journal of Psychology in Africa*. 29 (5). p.491-498.

**Young, C. and Saville Young, L.**

**Young, C. and Saville Young, L.** (2019) Comparing clinical and counselling psychologists' practitioner demographics, key activities, theoretical orientations, values, and career satisfaction: a contribution to the Scopes of Practice debate. *South African Journal of Psychology*. 49 (4). p.505-517.

**Zoccola, D. and Shuttleworth-Edwards, A.B.**

**Zoccola, D., Shuttleworth-Edwards, A.B. and Radloff, S.E.** (2020<sup>(Ma11)</sup>) Signs of cognitive dysfunction in adult players of club level rugby. *South African Journal of Psychology*. 50 (1). p. 128-140.

## Peer-reviewed Proceedings

**Diale, C.D.**

**Diale, C.D., Kanakana-Katumba, G.M. and Maladzi, R.W.** Green Entrepreneurship Model Utilising the System Dynamics Approach: A Review. *IEEE IEEM 2019*. Parisian hotel, Macau. China. December 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Akhurst, J.**

**Akhurst, J.** An action research-based intervention to tackle inter-group conflict: A case study from a South African secondary school. *Conflict Research Society conference*. University of Sussex, Brighton. UK. September 2019.

**Akhurst, J. and Bobo, A.B.D.**

**Akhurst, J. and Bobo, A.B.D.** 'Okokuqala ngokuya ndandiqala kwakungekho easy': Feeling empowered to take collective action through community engagement. *5th Community Psychology Festival*. University of Brighton, Brighton. UK. September 2019.

**Diale, C.D.**

**Diale, C.D., Kanakana-Katumba, G.M. and Maladzi, R.W.** Ecosystem of renewable energy enterprises informed by sustainable development: A review. *1st annual French-South African Science and Innovation Days*. CSIR, Pretoria. South Africa. December 2019.



**Diale, C.D., Kanakana-Katumba, G.M. and Maladzi, R.W.** Innovation through environmental entrepreneurship as a social change: A review. *1st annual French-South African Science and Innovation Days*. CSIR, Pretoria. South Africa. December 2019.

**Diale, C.D.** Sense of innovation: Teaching with technology as an additional mechanism or a replacement in higher learning institution. *HELTASA*. Rhodes University, Makhanda. South Africa. December 2019.

**Feltham-King, T. and Macleod, C.I.**

**Feltham-King, T. and Macleod, C.I.** Responsibilisation of teenaged women within the antenatal healthcare nexus. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. January 2019.

**Feltham-King, T. and Macleod, C.I.** Risk and responsibility within the antenatal healthcare nexus. *11th Biennial Conference of the International Society of Critical Health Psychology*. Crowne Plaza, Bratislava. Slovakia. July 2019.

**Flannigan, R. and Saville Young, L.**

**Flannigan, R. and Saville Young, L.** My sibling's mental illness: The experience of having a sibling with a mental illness in semi-rural South Africa. *25th Annual PsySSA Congress*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Jones, M., Macleod, C.I. and Chiweshe, M.**

**Jones, M., Macleod, C.I. and Chiweshe, M.** The digital rhetoric of addressing rape culture: 'official' and 'unofficial' arguments at Rhodes University. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Kalyanaraman, Y. and Macleod, C.I.**

**Kalyanaraman, Y. and Macleod, C.I.** An intracategorical intersectional framework for understanding 'supportability' in womxn's narratives of their pregnancy. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Macleod, C.I.**

**Macleod, C.I.** Ethics in critical feminist research: Stories from the field. *11th Biennial Conference of the International Society of Critical Health Psychology*. Crowne Plaza Hotel, Bratislava. Slovakia. July 2019.

**Macleod, C.I.** Undoing inequities in public sexual and reproductive health. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Macleod, C.I.** Why feminist theory should be inserted into the juggernaut of psychologised public reproductive health research: an intersectional future. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Macleod, C.I., Matebese, S. and Tsetse, N.** Alcohol use during pregnancy: the stories of women and their partners/family members. *11th Biennial Conference of the International Society of Critical Health Psychology*. Crowne Plaza, Bratislava. Slovakia. July 2019.

**Marise, K.A., Macleod, C.I. and Chiweshe, M.**

**Marise, K.A., Macleod, C.I. and Chiweshe, M.** Analysing perceptions of the Sexual Violence Task Team at Rhodes University: A social systems perspective. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Masuko, D.**

**Masuko, D.** Experiences of teenage pregnancy and motherhood among two generations of teenage mothers. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Mavuso, J.**

**Mavuso, J.** Producing and resisting shame around abortion: Healthcare providers and womxn's experiences of waiting room and pre-abortion counselling interactions. *Shame Is Not Ours Colloquium*. Medical Research Council, Cape Town. South Africa. March 2019.

**Moore, S. and Macleod, C.I.**

**Moore, S. and Macleod, C.I.** Examining the positioning of queer youth within sexual and reproductive health policies in selected global South countries. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Morison, T.**

**Morison, T.** Period Power? Ideas for intervening in menstrual poverty. *International Society for Critical Health Psychology*. Crowne Plaza Hotel, Bratislava. Slovakia. July 2019.

**Morison, T. and Macleod, C.I.**

**Morison, T. and Macleod, C.I.** Starting early: Promoting younger



*Ms Dineo Diale, Lecturer in Industrial and Organisational Psychology (Rhodes University) Presenting her paper on Sense of Innovation: Teaching with technology as an additional mechanism or a replacement in higher learning institution at the Heltasa conference held at Rhodes University, November 2019*  
Credit: Department of Psychology

adolescents sexual and reproductive health through intimate partner violence intervention. *23rd IUHPE World Conference on Health Promotion*. Rotorua, Rotorua. New Zealand. April 2019.

**Robertson, C.A., Macleod, C.I. and Marx, J.**

**Robertson, C.A., Macleod, C.I. and Marx, J.** Bae's, mains, sides and f\*\*kboys Young adults sexual subjectivities. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Saville Young, L.**

**Saville Young, L.** Psychosocial Studies and the Practice of Psychology in South Africa: The potential for mutual enlivenment? *25th Annual PsySSA Congress*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Saville Young, L., Deane, T.A. and Young, C.**

**Saville Young, L., Deane, T.A. and Young, C.** The professional identity of clinical psychologists in South Africa. *25th Annual PsySSA Congress*. Emperor's Palace, Johannesburg. South Africa. September 2019.

**Shuttleworth-Edwards, A.B.**

**Shuttleworth-Edwards, A.B.** The validity of population versus demographically based IQ test norming strategies within the culturally diverse South African context. *Educational Psychology Society of South Africa (EPASSA) Annual Conference*. Garden Court OR Tambo, Johannesburg. South Africa. May 2019.

**Truter, S.**

**Truter, S.** Exploring the Development of Neuropsychology in Africa through an Investigation into the Application of Neuropsychological Tests in Africa. *International Neuropsychological Society (INS) Conference*. Marriot Marquis Hotel, Times Square, New York. USA. February 2019.

**Truter, S. and Shuttleworth-Edwards, A.B.**

**Truter, S. and Shuttleworth-Edwards, A.B.** Neuropsychological testing in a multi-lingual society: Normative data for South African adults in more than eight languages. *21st International Conference on Neurology and Cognitive Neuroscience (ICNCN)*. Amari Watergate Bangkok Hotel, Bangkok. Thailand. December 2019.

**Truter, S. and Shuttleworth-Edwards, A.B.** Adaptation of the Coin Rotation Test of hand motor functioning for educationally disadvantaged South African adults. *International Neuropsychological Society (INS)*. Marriot Marquis Hotel, Times Square, New York. USA. February 2019.

**Truter, S. and Shuttleworth-Edwards, A.B.** Cut-off scores for four effort tests for educationally disadvantaged South African Adults. *International Neuropsychological Society (INS)*. Marriot Marquis Hotel, Times Square, New York. USA. February 2019.

**Young, C., Macleod, C.I. and Molokoe, C.K.**

**Young, C., Macleod, C.I. and Molokoe, C.K.** Alcohol Usage during Pregnancy in an Eastern Cape Metropolitan Area. *25th PSYSSA Conference*. Emperor's Palace, Johannesburg. South Africa. September 2019.





This year was again a good year for the number of staff/student joint publications and conference papers.

An important milestone in our relationship with the Archbishop Thabo Makogba Development Trust (ATMDT) was reached, with our hosting of the fifth annual lecture on Values Based Leadership. There is no doubt that this annual lecture is a highlight of the Rhodes University calendar, with the speakers always addressing a full audience comprising students, learners, academics and citizens of Makhanda (Grahamstown).

The ATMDT states as its objectives, *In the face of global inequality, poverty and discord, promoting human development and fostering common goals in society are key to the Trust's aims. These are pursued through the Trust's support of education, health and development of entrepreneurial skills, as well as mentoring and encouraging dialogues in communities.* We have always strived to invite speakers who embody this.

Our 5th speaker in 2019, Dr Imtiaz Sooliman, of Gift of the Givers, through very powerful imagery and compelling story telling showed how giving transcends religions, cultures and race, in short anything that might be seen to be exclusionary or divisive. His calling to do it, confirmed the spirituality of leadership and in a poignantly humorous (with a deeply serious undertone) way showed how first contact intervention is critical in saving lives and how proudly South African we can be, given the reputation that South Africans have in mobilising and getting to where we are needed most, when circumstances demand it.

During the course of 2019, we ran twenty-one (21) short course programmes, with two hundred and ninety-six (296) Certificates of Competence and one hundred and ninety-seven (197) Letters of Attendance being issued. This in addition to a number of training workshops that we run for various organisations.

## Postgraduates / Graduations

Ten (10) Master of Business Administration (MBA) and fifty-two (52) of whom twenty-four (24) were part-time Postgraduate Diploma in Enterprise Management (PGDipEntMgt) students graduated. Keagan Halley, obtained the MBA and Kirsten Wise-Jarvis, the PGDipEntMgt, with distinction. The MBA Fellowship Award recipient as voted by class peers, was Charlene Donald. The FNB Economics Prize recipient was Matthew Shaw.

*(Left to right) Director of Rhodes Business School, Professor Skae, Founder of Gift of the Givers, Dr Imtiaz Sooliman, DVC of Academic and Student Affairs, Dr Mabokang Monnapula-Mapesela and Archbishop Thabo Makgoba.*

*The Rhodes Business School hosted its 5th Archbishop Thabo Makgoba Development Trust annual lecture on Values Based Leadership on 3 October 2019, with Gift of the Givers Foundation's Dr Imtiaz Sooliman as guest speaker. The lecture follows a succession of speakers including Professor Thuli Madonsela, Former President Kgalema Motlanthe, Former First Lady Mrs Graca Machel and Former MP Dr Makhosi Khoza*  
Credit: Rhodes Business School

## Distinguished Visitors

**Sooliman, I.**

**Dr I Sooliman.** Dr Imtiaz Sooliman, Grahamstown, South Africa. *Archbishop Thabo Makgoba Development Trust Lecture*. October 2019.

**Wainer, M.**

**Mr M Wainer.** The Mentorship Challenge, Grahamstown, South Africa. *The Mentorship Challenge*. March 2019.

## International Visits

**Knoesen, E.P.**

African business models and growth opportunities: Corporate and Investment Banking in Africa. 5-day seminar series for Nedbank Corporate and Investment Bank, Nairobi, Kenya.

**Skae, F.O.**

Association of MBAs (AMBA), Global Conference, Istanbul, Turkey, 13-15 May, 2019.

## MBA Students

Erica Isabel Tavares Da Silva Mbatha participated in Creativity, Innovation and New Business at CUOA Business School, Altavilla Vicentina, Italy; Daniel Gudu in Strategy and Marketing for Emerging Markets at Universidade Paulista (UNIP) - International Business Schools Americas (IBS), Sao Paulo, Brazil; and Ayanda Kenye-Duma in Managing Diversity, Digital Business Model, Design Thinking at Montpellier Business School, France.

**Professor Owen Skae**

*Director*



Young Professional Award winner, Cuma Dube Rhodes University Business School student, Cuma Dube, has been awarded the Young Professional's Award by the Black Management Forum (BMF). The Master's in Business Administration (MBA) 2019 class President received the award for his meaningful contribution to the development of young people.  
Credit: Rhodes Business School

## Books/Chapters/Monographs

**Pearse, N.J.**

**Amos, T., Pearse, N.J., Ristow, L. and Ristow, A.** (2019) *Human Resource Management*. 5th Ed. Cape Town: Juta & Co. ISBN: 9781485130413.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Skae, F.O.**

**Skae, F.O.** (2019) A meta model of fraud: Time to be front of mind. *The Corporate Report*. 9 (1). p.22-29.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Gavaza, M.A. and Pearse, N.J.**

**Gavaza, M.A. and Pearse, N.J.** (2019) Assessing the Social Media Maturity of a Community Radio Station: The Case of RMR in South Africa. *African Journal of Information Communication*. 24 (2019). p.1-21.

**Pearse, N.J.**

**Pearse, N.J. and Peterlin, J.** (2019) Artistic creative social entrepreneurs and business model innovation. *Journal of Research in Marketing and Entrepreneurship*. 21 (2). p.149-162.

**Pearse, N.J.** (2019) An Illustration of a Deductive Pattern Matching Procedure in Qualitative Leadership Research. *Electronic Journal on Business Research Methods*. 17 (3). p.143-154.

**Pearse, N.J.** (2019) Theorising in research in industrial psychology: Challenging an exclusively positivistic explanatory approach. *Management Dynamics*. 28 (1). p.23-28.

## Peer-reviewed Proceedings

**Blignaut, A.C. and Greyling, L.**

**Blignaut, A.C. and Greyling, L.** An Analysis of Six Capital Indicators Disclosed in the Integrated Annual Reports of Selected South African Retailers. *13th International Business Conference*. Africa Pride Arabella Hotel & Spa, Kleinmond, Hermanus. South Africa. September 2019.

**Cuthbert, C. and Skae, F.O.**

**Cuthbert, C. and Skae, F.O.** Institutional employability drivers in difficult times. *SHRE Annual Research Conference*. Celtic Manor, Newport, South Wales. UK. 11-13 December 2019.

**Pearse, N.J.**

**Pearse, N.J.** An Illustration of Deductive Analysis in Qualitative Research. *18th European Conference on Research Methodology for Business and Management Studies ECRM 2019*. Wits Business School, Johannesburg. South Africa. June 2019.

**Tessendorf, C. and Pearse, N.J.** A Critical Incident Exploration of an Artistic Entrepreneur who employs others. *13th International Business Conference*. African Pride Arabella Hotel and Spa, Kleinmond, Hermanus. South Africa. September 2019.

# 2019 SCHOOL OF LANGUAGES AND LITERATURES



The School of Languages and Literatures is a large academic department made up of seven (7) sections: African Language Studies, Afrikaans and Netherlandic Studies, Chinese Studies, Creative Writing, French Studies and German Studies, comprising more than one thousand (1000) students and over twenty (20) academic staff. A Model Confucius Institute is affiliated with the School and successfully contributes to the many cultures, languages and literatures in the School.

The School hosts a highly prominent and productive SARChI Chair for the Intellectualisation of African Languages, Multilingualism and Education.

2019 was a year with many conference attendances by staff, Research Associates, Postdoctoral Research Fellows and Postgraduates. Noteworthy is the record attendance of Classical Studies - all staff and Postgraduates attended the 33rd Biennial Conference of the Classical Association of South Africa at the Stellenbosch Institute for Advanced Studies, Stellenbosch University, in November 2019, presenting new research which has already been or will soon be published.

## Postgraduates / Graduations

The School of Languages and Literatures is proud to have produced a good number of MA and PhD theses in 2019. It certainly has been a bumper year for Creative Writing with twenty-three (23) graduates obtaining their MA in that discipline! Noteworthy, though, is the great variety of fields of research to which our graduates contribute, and the following are only a small segment of noteworthy contributions to their discipline - what can be seen, though, is a relevance to current questions transcending their field as well as a commitment to multilingualism:

- **ARMSTRONG, Imomotimi**, MA (Ibadan), PhD in African Languages, in the School of Languages and Literatures. Thesis: *Performance, functionalism and form in Izon Oral Poetry*. Supervisor: Professor RH Kaschula. Co-supervisor: Dr H Kunju.
- **DOCRAT, Zakeera**, MA (Rhodes), PhD in African Languages, in the School of Languages and Literatures. Thesis: *A critique of the language of record in South African courts in relation to selected university language policies*. Supervisor: Professor RH Kaschula.
- **NOSILELA, Bulelwa Balise**, MA (Stell), PhD in African Languages, in the School of Languages and Literatures. Thesis: *Making South African Tertiary Education Multilingual*.

(Left to right) Dr Mabizela, Vice-Chancellor, Professor Mwepu and Dr Monnapula-Mapesela, Deputy Vice-Chancellor: Academic and Student Affairs.

As per tradition, Rhodes University recently hosted the inaugural lecture of Professor Patrice Kabeya Mwepu, after he was conferred the status of full Professor by the University. Professor Mwepu arrived at Rhodes University as a Senior Lecturer in 2007. Currently he heads the University's School of Languages and is the Director of Rhodes University's Confucius Institute.

Credit: School of Languages and Literatures





*Women singing in celebration of Mqhayi Day*

Rhodes University's African Languages and Linguistics Department concluded its series of S.E.K Mqhayi tribute events on 2 August 2019. The Department commemorated Mqhayi Day at Soll Amphitheatre. Samuel Edward Krune Loliwe Ngxekengxeke Mqhayi was a Xhosa dramatist, essayist, critic, novelist, historian, biographer, translator and poet whose works are regarded as instrumental in standardising the grammar of isiXhosa and preserving the language in the 20th century. He was born on 1 December 1875 near Gqumahashe in Alice. Credit: School of Languages and Literatures

*The implementation, monitoring and evaluation of SANTED multilingualism projects 2007-2010.* Supervisor: Professor RH Kaschula. Co-supervisor: Professor P Maseko.

- **RASMENI, Nonqubela Evelyn**, MA in Creative Writing, with distinction, in the School of Languages and Literatures. Degree by coursework and thesis. Thesis: *Ingqokelela yeentsomi-mabali*. Supervisor: Dr H Kunju.

This colloquium as well as the School of Languages and Literatures Postgraduate conference, organised by Mr Msindisi Sam from African Language Studies and supported by the SARChI Chair, fostered a continued engagement with research culture and production in the School for new generations of researchers.

**Dr Undine Weber**

*Head of School*

## Distinguished Visitors / International Visits

Professor Nandini Pandey (University of Wisconsin) was a Hugh Le May Fellow in the Classical Studies Section in 2019, and her visit stimulated not only Postgraduate and to some extent undergraduate research, but sparked fruitful staff and Postgraduate interaction.

## Significant Research Aligned Events

Professor Russell Kaschula and Dr Zakeera Docrat successfully hosted the Second Forensic Linguistic Colloquium at Rhodes on New Courtroom Languages in October 2019, already bearing fruit with regard to publications. It addressed issues such as the role of emojis in forensics, the most recent xenophobic attacks in South Africa and the role that language can contribute to peace-building, language attitudes among jurists, Africanising the subject of Law in Higher Education, navigating cultural taboos in litigation, linking constitutional law to Christian law, and illuminating the legal situation around ear-witness testimonies and the role of legal interpreters.

## Books/Chapters/Monographs

**Docrat, Z.**

de Vries, A. and **Docrat, Z.** (2019) Multilingualism in the South African legal system: Attorneys' experiences. In: Ralarala, M., Kaschula, R.H. and Heydon, G. (eds.). *New Frontiers in Forensic Linguistics: Themes and Perspectives in Language and Law in Africa and Beyond*. Stellenbosch: SUN MeDIA. p.89-112. ISBN: 9781928480167.

**Docrat, Z. and Kaschula, R.H.**

**Docrat, Z. and Kaschula, R.H.** (2019) Monolingual language of record: A critique of South Africa's new policy directive. In: Ralarala, M., Kaschula, R.H. and Heydon, G. (eds.). *New Frontiers in Forensic Linguistics: Themes and Perspectives in Language and Law in Africa and Beyond*. Stellenbosch: SUN MeDIA. p.71-88. ISBN: 9781928480167.

**Kaschula, R.H., Ralarala, M.K. and Heydon, G. (ed.)** (2019) *New Frontiers in Forensic Linguistics: Themes and Perspectives in Language and Law in Africa and Beyond*. Stellenbosch: SUN MeDIA. ISBN: 9781928480167.

**Kaschula, R.H., Ralarala, M. and Heydon, G. (2019)** Introduction: Developments on the new frontiers of forensic linguistics. In: Kaschula, R.H., Ralarala, M., & Heydon, G. (Eds.) *New Frontiers in Forensic Linguistics: Themes and Perspectives in Language and the Law in Africa and Beyond*. Stellenbosch: SUN Press. pp. 1-11.

**Kaschula, R.H. and Kretzer, M.M.A.**

**Kaschula, R.H. and Kretzer, M.M.A.** (2019) The Politics of Language Education in Africa. In: Cheeseman+, N. (ed.). *Oxford Encyclopaedia of African Politics*. 10th Ed. Cape Town: Oxford Encyclopaedia of African Politics. p.13-750. ISBN: 9780190228637.

**Kaschula, R.H. and Nkomo, D.**

**Kaschula, R.H. and Nkomo, D.** (2019) Intellectualization of Africa Languages: Past, present and future. In: Ekkehard Wolff, H. (ed.). *The Cambridge Handbook of Africa Linguistics*. Cambridge: Cambridge University Press. p.601-602. ISBN: 9781108417983.

**Kretzer, M.M.A.**

**Kretzer, M.M.A.** (2019) Free education: Origins, achievements, and current situation. In: Filho, L. (ed.). *Quality Education*. Switzerland: Springer Nature Switzerland. p.1-10. ISBN: 9783319699028.

**Kretzer, M.M.A.** (2019) Malta. In: Dittmann, A. & Gieler, W. (Eds.): Europa-Lexikon. *Geographie, Geschichte, Kultur, Politik und Wirtschaft*. (Peter Lang) Frankfurt am Main. p.317-325.

**Kretzer, M.M.A.** (2019): Zypern. In: Dittmann, A. & Gieler, W. (Eds.): Europa-Lexikon. *Geographie, Geschichte, Kultur, Politik und Wirtschaft*. (Peter Lang) Frankfurt am Main. p.657-670.

**Kretzer, M.M.A. and Kaschula, R.H.**

**Kretzer, M.M.A. and Kaschula, R.H.** (2019) (Latent) Potentials to incorporate and improve environmental knowledge using Africa Languages in Agriculture lessons in Malawi. In: Kretzer, M. and Kaschula, R.H. (eds.). *Climate change and the role of deduction, climate change Management*. 10th Ed. Switzerland: Springer Nature Switzerland. p.401-408. ISBN: 9783030328986.

**Nkomo, D.**

**Hadebe, S. and Nkomo, D.** (2019) African Cultural Concepts and Their Influence on Management. In: Mayer CH., Louw L., Boness C. (eds.). *Managing Chinese-African Business Interactions*. Palgrave Studies in African Leadership. Palgrave Macmillan, Cham p.37-57. ISBN: 9783030251857.

**Opland, J.**

**Opland, J. (ed.)** (2019) *Robert Godfrey Lexicography*. 7th Ed. Durban: University of KwaZulu-Natal Press. ISBN: 9781869144043.

**Opland, J. and Mtuze, P.T.**

**Opland, J. and Mtuze, P.T. (ed.)** (2019) *limbalie Zamandulo*. 8th Ed. Durban: University of KwaZulu-Natal Press. ISBN: 9781869144401.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Mose, P. and Kaschula, R.H.**

**Mose, P. and Kaschula, R.H.** (2019) A case for the adoption of Swahili as a language for early school literacy instruction in Ekegusii-speaking areas of western Kenya. *Nordic Journal of African Studies*. 28(2): 1-25.



**Professor Russell Kaschula**

Rhodes University's Professor Russell Kaschula was invited to give the inaugural talk at the prestigious BB Mkonto lecture at Nelson Mandela University on 24 July 2019, as part of the University's commemoration of the International Year for Indigenous Languages. The event celebrated Professor Mkonto's corpus of work. Credit: School of Languages and Literatures

**Mukenge, A.N.**

**Mukenge, A.N.** (2019) Une écriture décentrée ou une écriture de la sexualité dans l'espace de l'entre-deux. *Les Cahiers du GRELCEF*. 32 (2019). p.35-50.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Kaschula, R.H.**

**Kaschula, R.H., Mostert, A. and Wolff, E.** (2019) Culture, Language and Productivity in the Workplace within the BRICS Nations. *Southern African Journal for Folklore Studies*. 29 (1). p.1-17.

**Kaschula, R.H. and Kretzer, M.M.A.**

**Kaschula, R.H. and Kretzer, M.M.A.** (2019) 'Hayi, they don't know Xhosa': Comparative isiXhosa teaching challenges in the Eastern Cape and Gauteng. *South African Journal of African Languages*. 39 (3). p.239-252.

**Kaschula, R.H. and Mose, P.**

**Kaschula, R.H. and Mose, P.** (2019) International book donors and public libraries as partners in primary school literacy development in Kenya: Literacy prospects and obstacles. *Library Management*. 2019. p.1-10.

**Mose, P. and Kaschula, R.H.** (2019) Developing Mother Tongues as Academic Languages in Primary Schools in Kenya: Extent and Indispensability. *Journal of Language Identity and Education*. 18 (2019). p.329-342.

**Kretzer, M.M.A. and Kaschula, R.H.**

**Kretzer, M.M.A. and Kaschula, R.H.** (2019) (Unused) potentials of educators' covert language policies at public schools in Limpopo, South Africa. *Current Issues in Language Planning*. 2019. p.1-25.

**Kretzer, M.M.A. and Kaschula, R.H.** (2019) Language policy and linguistic landscapes at schools in South Africa. *International Journal of Multilingualism*. 2019. p.1-23.

Lambert, M.

Lambert, M. (2019) Decolonizing the Classics Curriculum in South African Universities with Euripides' *Hippolytus*. *Akroterion: Journal for the Classics in South Africa*. 64 (2019). p.127-144.

Lenahan, H.M.

Lenahan, H.M. (2019) Apples and Acorns: Addressing a Problem in Theocritus 5.92-95. *Akroterion: Journal for the Classics in South Africa*. 64 (1). p.1-13.

Mazwi, N.R.M.

Mazwi, N.R.M. (2019) Reconsidering Mqhayi's literary canon in relation to his 19th and 20th century works. *South African Journal of African Languages*. 39 (1). p.96-101.

Mukenge, A.N.

Kayembe, E. and Mukenge, A.N. (2019) *Giambattista Vico* de Georges Ngala: une théorie clandestine du champ littéraire africain. *French Studies in Southern Africa*. 49 (2019). p.140-161.

Mwepu, P.K.

Mwepu, P.K. (2019) French Studies in Southern Africa (editor). *French Studies in Southern Africa*. 1 (49). p.1-262.

Nkomo, D.

Nkomo, D. (2019) Theoretical and Practical Reflections on Specialized Lexicography in African Languages. *Lexikos*. 29 (2019). p.96-124.

Nkomo, D. (2019) The translation and adaptation of Alice's Adventures in Wonderland into isiNdebele. *Southern African Linguistics and Applied Language Studies*. 37 (2). p.130-141.

Sithole, E.

Sithole, E. (2019) Is Ndaau a Dialect of Shona? *Language Matters*. 50 (2). p.29-49.

Tchokothe, R.A.

Tchokothe, R.A. (2019) Kiswahili literature in crisis. *South African Journal of African Languages*. 2019 (2019). p.1-10.

Von Lengeling, V.H.C.

Von Lengeling, V.H.C. (2019) The commemoration of 20 July 1944 and the contest for dominance of post-war memory regimes in Germany. *Acta Germanica, German Studies in Africa*. 47 (2019). p.42-54.

Weber, U.S.

Weber, U.S. (2019) Co-Editor of Journal. *Acta Germanica, German Studies in Africa*. 47 (1). p.1-196.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Benayo, X. and Mazwi, N.R.M.

Benayo, X. and Mazwi, N.R.M. An Analysis of African Humanism in Jolobe's selected works. *African Languages Association of Southern Africa*. University of Free State, Bloemfontein. South Africa. July 2019.

Christie, C.

Christie, C. Illo impetus ingens: Uxorial motion in Statius' *Silvae* and Thebaid. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.

Diko, M. and Mazwi, N.R.M.

Diko, M. and Mazwi, N.R.M. A Historical Biography of SEK Mqhayi. *African Languages Association of Southern Africa*. University of Free State, Bloemfontein. South Africa. July 2019.

Docrat, Z. and Kaschula, R.H.

Docrat, Z. and Kaschula, R.H. A Critique of the Monolingual Language of Record Policy for South African Courts in Relation to Selected University Language Policies. *Conference of the International Association of Forensic Linguists*. RMIT University, Melbourne. Australia. July 2019.

Docrat, Z. and Kaschula, R.H. The Linguistic Limits to Cross-Examination: The Case of State v Omotoso. *Conference of the International Association of Forensic Linguists*. RMIT University, Melbourne. Australia. July 2019.

Engelbrecht, N.

Engelbrecht, N. Non-place characterisation of GFL-courses and course books in South-African Higher Education. *SAGV 2019, German Studies in Southern Africa*. University of the Free State, Bloemfontein. South Africa. April 2019.

Fox, P.

Fox, P. A house accursed: Reconsidering Sophocles' sisters Antigone and Ismene. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.

Kaschula, R.H.

Kaschula, R.H. Language, Identity, Ideology and the Voice of Protest in Africa. *Keynote Address. Professor B.B. Mkonto Lecture*. Port Elizabeth: Nelson Mandela University.

Kaschula, R.H. and Docrat, Z.

Kaschula, R.H. and Docrat, Z. (Hosts). *Second Forensic Linguistic Colloquium at Rhodes: New Courtroom Languages*. October 2019.

Kaschula, R.H. and Docrat, Z. Navigating Cultural Taboos and the Linguistic Limitations of Cross-Examination in Courts of Law. *Second Forensic Linguistic Colloquium at Rhodes*. October 2019.

Kaschula, R.H. and Docrat, Z. A critique of the monolingual language of record policy for South African courts in relation to university language policies. *14th International Association of Forensic Linguists Biennial Conference*. RMIT, Melbourne, Australia. July 2019.

Kaschula, R.H. and Docrat, Z. The linguistic limits to cross-examination: The case of State versus Omotoso. *14th International Association of Forensic Linguists Biennial Conference*. RMIT, Melbourne, Australia. July 2019.

Kaschula, R.H., Docrat, Z. and Nyakambi, N.

Kaschula, R.H., Docrat, Z. and Nyakambi, N. Emojis as Evidence in Court Cases in Multilingual and Multicultural South Africa. *Second Forensic Linguistic Colloquium at Rhodes*. October 2019.

Kretzer, M.M.A.

Kretzer, M.M.A. Importance of Language Policy for a meaningful education according to the 4th SDG goal. *Multilingual and Multicultural Learning: Policies and Practices (MMLPP19) Conference* at the Charles University, Prague. Czech Republic. December 2019.

Kretzer, M.M.A. (Unused) Potentials of Multimodal Teaching in Multilingual Classrooms in South Africa. *Multilingual Awareness and Multilingual Practices (MAMP19) Conference at the Thomas Moore University*. Antwerp. Belgium. October 2019.

Kretzer, M.M.A. Language Policies at schools in increasingly mobile societies: Examples from Eastern Cape, Gauteng, Limpopo and North West. *DKG (German Congress for Geography) at the Christian-Albrechts-University, Kiel*. Germany. September 2019.

Kretzer, M.M.A. Language Policy and Linguistic Landscapes at schools in South Africa. *21st Biennial ALASA International Conference at the University of the Free State (UFS)*. Bloemfontein. South Africa. July 2019.

Kretzer, M.M.A. Science Education (Agriculture) in Malawi using English and its challenges at schools. *10th Department of English International Conference*. University of Botswana, Gaborone. Botswana. June 2019.

Kretzer, M.M.A. Hidden and unused potentials of teachers' covert Language Practices at public schools in Limpopo. *Multilingual Theories and Practices (MTP19)*. Ionian University, Corfu. Greece. May 2019.

Kretzer, M.M.A. (Latent) potentials to incorporate and improve environmental knowledge using African Languages in Agriculture lessons in Malawi. *International Symposium on Climate Change and the Role of Education*. Bishop Grosseteste University, Lincoln. United Kingdom. April 2019.

Kretzer, M.M.A. Language Policies in schools in Sub-Saharan Africa and its social consequences. *MuDD2019 - Multilingualism, Diversity and Democracy Conference*. Jönköping University, Jönköping. Sweden. April 2019.

Lambert, M.

Lambert, M. The sacred power of honey in San and ancient Greek myth and ritual. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.

Lenahan, H.

Lenahan, H. Apples and acorns: Addressing a problem in Theocritus 5. 92-95. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.



**MacKay, D.**

**MacKay, D.** Women in the wilderness: An analysis of Euripides' 'wild women' in the *Bacchae*. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies. Stellenbosch University, South Africa. November 2019.

**Malamis, D.**

**Malamis, D.** Formulaic correspondence in the Orphic Hymns. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.

**Molubo, R.G. and Mazwi, N.R.M.**

**Molubo, R.G. and Mazwi, N.R.M.** Unpacking the Xhosa myth Umfazi Uyanyamezela Emzini through Saule's female Character: Boniswa. *African Languages Association of Southern Africa (ALASA)*. University of Free State, Bloemfontein. South Africa. July 2019.

**Mukenge, A.N.**

**Mukenge, A.N.** L'entre-deux ou le tiers-espace: une zone d'ouverture à la multiplicité. *Race, Identity and Globalization in Southern Africa and Beyond*. University of Botswana (UOB), Gaborone. Botswana. February 2019.

**Mukenge, A.N.** Une représentation de l'autre ou la quête identitaire dans Black bazar d'Alain Mabankou. *Discours et représentations dans l'altérité dans le monde contemporain: l'ailleurs ou l'exil*. University Official of Bouake (UOB), Bouake. Cote d'Ivoire. December 2019.

**Mwepu, P.K.**

**Mwepu, P.K.** Le refus du terroir: négation de la norme ou rejet de l'être? *"Règles et dérèglements" (Making and Breaking Rules)*. University of New England, Sydney. Australia. December 2019.

**Nel, A.**

**Nel, A.** The domestication of Hermes in the Homeric Hymns: The cost of coming home. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University. South Africa. November 2019.

**Nkomo, D.**

**Nkomo, D.** The language question(s) and the role of the university in South Africa revisited. *3rd Biennial Language Research Symposium*. University of KwaZulu-Natal, Durban. South Africa. October 2019.

**Nkomo, D.** Specialised lexicography in African languages: Some fundamental theoretical issues. *24th International Conference of the African Association for Lexicography*. University of Namibia, Windhoek. Namibia. June 2019.

**Nkomo, D.** Language and Decolonisation of Higher Education in South Africa. *Language Indaba of the Cape Peninsula University of Technology*. CPUT, Cape Town. South Africa. July 2019.

**Nosilela, B.**

**Nosilela, B.** An Analysis of Some Problems in IsiXhosa Orthography. *African Languages Association of Southern Africa*. University of Free State, Bloemfontein. South Africa. July 2019.

**Nyakambi, N.**

**Nyakambi, N.** The Use of African Languages in Traditional Courts of Luyengweni. *African Languages of Southern Africa*. University of the Free State, Bloemfontein. South Africa. July 2019.

**Sulter, J.**

**Sulter, J.** Slave wives and bastard kings: Domestic legitimacy in Euripides' *Andromache*. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University, South Africa. November 2019.

**Van der Merwe, C.**

**Van der Merwe, C.** Extra-mural burial and the goddess Hecate: Hecate beyond the walls. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University, South Africa. November 2019.

**Van Schoor, D.**

**Van Schoor, D.** When at home do as the Romans do: Antiquity in the rhetoric of contemporary populism. *33rd Biennial Conference of the Classical Association of South Africa*. Stellenbosch Institute for Advanced Studies, Stellenbosch University, South Africa. November 2019.

**Weber, U.S.**

**Weber, U.S.** Warten, Lesen, Schreiben. Exophone Autoren im DaF-Unterricht. *SAGV 2019, German Studies in Southern Africa, "Warteräume - Afrikanische Germanistik und Prekariat"*. University of the Free State, Bloemfontein. South Africa. April 2019.



The Department had another remarkably successful year in terms of research outputs and Postgraduate throughput. While all staff members and Associates contributed to this success, special mention must be made of the outstanding contributions to the Department's research outputs by Professor Mike Rogan, Professor Lucien van der Walt, Dr John Reynolds, and Dr Laura Alfes, who authored and co-authored more than twenty (20) publications in 2019.

Meanwhile, the academic staff in the Department continued their extraordinary Higher Degree supervision with forty-three (43) Postgraduate students graduating in 2019.

## Postgraduates / Graduations

Twenty-five (25) Honours, seventeen (17) Masters students, and four (4) Doctoral candidates graduated. As always, the research conducted by our Doctoral candidates demonstrates the breadth of sociological interest as well as the ways in which the discipline contributes to understanding and improving our social world.

The theses of the four (4) Doctoral candidates, focused on different regions and included topics on depeasantisation in contemporary Nepal; child marriage in Mabvuku, Harare; climate change and small-scale farmer adaptation in Chivi District, Zimbabwe; and regional NGOs and HIV in Southern Africa.

## Distinguished Visitors / International Visits

Professor Lucien van der Walt presented papers on going beyond decent work, and on workers' education and union renewal at the *Employment Rights, Industrial Governance, and Humanization of the Workplace: Present Realities, Future Prospects* conference at the Michael Imoudu National Institute for Labour Studies (MINILS), Kwara state, Nigeria.

## Significant Research Aligned Events

The Governance and Development Unit (GDU) in the Department of Sociology and Industrial Sociology initiated a research and training programme to strengthen Municipal Public Accounts Committees (MPACs) in the Eastern Cape Province during 2019. The GDU developed research templates for analysing municipal annual reports (drawn from National Treasury's Circular 32 checklist) and for undertaking a financial performance analysis of South African municipalities (using Section 71 financial reports).

*Professor van der Walt undertook research on the history of trade unions in Lüderitz and Keetmanshoop, Namibia in May 2019*  
Credit: Department of Sociology and Industrial Sociology

In March 2019, the GDU interns conducted an analysis of the draft municipal annual reports of Inxuba Yethemba and Raymond Mhlaba local municipalities for the 2017/2018 financial year (using the GDU template based on the National Treasury Circular 32 checklist) and presented their findings to the relevant MPACs. In November and December 2019, both interns conducted a financial performance analysis of these local municipalities for the second quarter of the 2019/2020 financial year, and presented their findings to the relevant MPACs.

The Neil Aggett Labour Studies Unit (NALSU) relocated into the Department of Sociology and Industrial Sociology in 2019 following university processes. NALSU, is a major hub for labour studies at Rhodes University and has long worked closely with the Department. The relocation enables NALSU - which is based on third-stream income, with no university-funded posts - to build on these synergies and leverage the existing overlaps.

Lucien van der Walt, Professor of Economic and Industrial Sociology in the Department, was elected to the NALSU directorship portfolio for a three (3)-year term. The Department expresses its sincere gratitude to Dr John Reynolds, the founding Director of NALSU, for his leadership in previous years.

NALSU's extensive research and policy work expanded in 2019. The Unit ran ten (10) Labour Studies Seminars, including four (4) book launches. Professor Gilton Klerck and Professor Lucien van der Walt and Mr Kanyiso Ntikinca are part of the steering committee of the Labour Studies Seminar Series, an interdisciplinary programme between NALSU, and the departments of Economics and Economic History, History, and Sociology. The Seminars are amongst the largest at the university. Some involved events in East London, with the Eastern Cape Socio-Economic Consultative Council (ECSECC), and in Port Elizabeth with Nelson Mandela University. NALSU ran the Vuyisile Mini Winter School for trade unions and worker organisations.

In addition, NALSU and Sociology launched a new joint short-course programme *Policy, Theory and Research for Labour*

*Movements*. Coordinated by Professor van der Walt, this programme is directed at metal workers' unions in the Eastern Cape. The worker education projects, building on inclusive and non-sectarian collaborations with a wide range of unions, are also reflected in NALSU's Working Class Education Series of popular materials.

In 2019, NALSU and the History Workshop, of the University of the Witwatersrand, ran panels on the centenary of the Industrial and Commercial Workers Union of Africa (ICU). The panels were part of the biennial conference of the Southern African Historical Society, held at Rhodes University in June 2019. The ICU, formed in Cape Town in 1919, exploded across southern Africa: the largest mass political movement of its time, it remained active into the 1950s. Professors Noor Nieftagodien of Wits and Lucien van der Walt brought together a wide range of exciting new work on the ICU by South Africa and Zimbabwean scholars, and from Britain, Ireland and the United States.

Dr John Reynolds and Professor Lucien van der Walt edited a collection of texts arising from the 2019 Vuyisile Mini Winter School for trade unionists and worker organisers run by NALSU. Entitled *Strategy: Debating Politics Within and At a Distance from the State*, it was issued through NALSU's Working Class Education Series of popular materials. Exemplifying the collaborative spirit that NALSU embodies, the collection includes work by Laura Alfes (NALSU, WIEGO); Colm Allan (Governance and Development Unit), David Fryer (Economics and Economic History), Mazibuko Jara (Ntinga Ntaba kaNdoda movement), Ayanda Kota (Unemployed People's Movement), Gilton Klerck and Kanyiso Ntikinca (Sociology), Warren McGregor (Global Labour University, Wits), Lalitha Naidoo (East Cape Agricultural Research Project), and Nicole Ulrich (History).

Associate Professor Gilton Klerck

Head of Department



Professor van der Walt spoke at the Michael Imoudu National Institute for Labour Studies (MINILS) in Ilorin, Nigeria in November 2019, part of a larger process of building links between the MINILS and the Neil Aggett Labour Studies Unit (NALSU), at Rhodes.

Credit: Department of Sociology and Industrial Sociology



## Books/Chapters/Monographs

Alfers, L.

Alfers, L. (2019) Shaping society from below: social movements, social policy and development. In: Alfers, L., Midgley, J. and Surender, R. (eds.). *The Handbook of Social Policy and Development*. Cheltenham, UK: Edward Elgar. p.54-70. ISBN: 9781785368424.

Alfers, L. and von Broembsen, M. (2019) *Navigating a New Era of Business and Human Rights: Challenges and Opportunities for the UNGPs*. Bangkok: Mahidol University. ISBN: 9780578521176.

Alfers, L. and Rogan, M.

Alfers, L. and Rogan, M. (2019) Employment-based social protection: 'productivism', universalism and social citizenship. In: Alfers, L., Midgley, J. and Surender, R. (eds.). *The Handbook of Social Policy and Development*. Cheltenham, UK: Edward Elgar. p.265-282. ISBN: 9781785368424.

Chiweshe, M.K.

Chiweshe, M.K. (2019) *Globalization of football match-fixing: Experiences from Africa*. In: p.86-98.

Chiweshe, M.K. and Bhatasara, S.

Chiweshe, M.K. and Bhatasara, S. (2019) *Women in Agriculture in Contemporary Africa*. In: Yacob-Haliso, Y. and Falola, T. (eds.). Switzerland: Palgrave Macmillan. p.1-18.

Chiweshe, M.K., Bhatasara, S. and Muparamoto, N.

Chiweshe, M.K., Bhatasara, S. and Muparamoto, N. (2019) Stolen Childhood: Understanding Sexualization of young girls through 'Child Marriage' in Zimbabwe. In: Lamb, S. and Gilbert, J. (eds.). *The Cambridge Handbook of Sexual Development: Childhood and Adolescence*. Cambridge: Cambridge University Press. p.505-518. ISBN: 9781108116121.

Doyle, A.R.

Doyle, A.R., Conrad, N., Mutsvangwa, T.E.M., Saidi, T. and Douglas, T.S. (2019) User-Centred Design in a Health Innovation Course to Address Hearing Loss in the Elderly. In: *Biomedical Engineering for Africa*. Cape Town: University of Cape Town Libraries. p.65-75. ISBN: 9780799225440.

Drewett, M.

Drewett, M. (2019) Music and Fear in Night-Time Apartheid. In: Stahl, G. and Bottà, G. (eds.). *Nocturnes: Popular Music and the Night*. Switzerland: Palgrave Macmillan. p.129-144. ISBN: 9783319997858.

Hadebe, S.

Hadebe, S. and Nkomo, D. (2019) African Cultural Concepts and Their Influence on Management. In: Mayer, C., Louw, L. and Boness, C.M. (eds.). *Managing Chinese-African Business Interactions: Growing Intercultural Competence in Organizations*. Springer. p.37-57. ISBN: 9783030251840.

Holloway, J.P.

Holloway, J.P. (2019) *We are the crisis of capitalism*. ISBN: 9781629633305.

Holloway, J.P. (2019) The Grammar of Capital: Wealth in-against-and-beyond Value. In: Vidal, M., Smith, T., Rotta, T. and Prew, P. (eds.). *The Oxford Handbook of Karl Marx*. New York: Oxford University Press. p.1-12. ISBN: 9780190635545.

Jha, P.

Jha, P., Prasad, A., Verma, S. and Acharya, N. (2019) The Scramble for Africa's Agricultural Land: A Note on India's Excursus. In: Yeros, P., Jha, P. and Moyo, S. (eds.). *Reclaiming Africa*. p.73-94. ISBN: 9789811058394.

Jha, P. (2019) Labour, capital and state in neoliberal India: some reflections on recent developments. In: Shyam Sundar, K.R. (ed.). *Perspectives on Neoliberalism, Labour and Globalization in India*. p.209-224. ISBN: 9789811369711.

Klerck, G.

Klerck, G. (2019) Industrial relations and human resource management. In: Collings, D.G., Wood, G.T. and Szamosi, L.T. (eds.). *Human Resource Management: a critical approach*. 2nd Ed. London: Routledge. p.311-334. ISBN: 9781138237551.

Moyo, S.

Moyo, S., Yeros, P. and Chambati, W. (2019) Land and Natural Resources in Zimbabwe: Scramble and Resistance. In: Yeros, P., Jha, P. and Moyo, S. (eds.). *Reclaiming Africa*. p.225-253. ISBN: 9789811058394.

Moyo, S. and Jha, P.

Yeros, P., Moyo, S. and Jha, P. (2019) The scramble for land and natural

resources in Africa. In: Yeros, P., Jha, P. and Moyo, S. (eds.). *Reclaiming Africa*. p.3-30. ISBN: 9789811058394.

Jha, P., Moyo, S. and Yeros, P. (ed.) (2019) *Reclaiming Africa*. ISBN: 9789811058394.

Nardi, C.

Sordon, F., Nardi, C. and Dalle Piatte, A. (2019) Community music, benessere sociale e cittadinanza culturale in un'area urbana decentralizzata: un progetto dell'Azienda Servizi Sociali di Bolzano. In: *La community music in Italia: Cenni storici, modelli pedagogici, contesti sociali*. Roma: Carocci. p.97-125. ISBN: 9788843096848.

Park, Y.J.

Huynh, T.T. and Park, Y.J. (2019) Reflections on the Role of Race in China-Africa Relations. In: Alden, C. and Large, D. (eds.). *New Directions in Africa-China Studies*. London: Routledge. p.158-172. ISBN: 9781351668286.

Park, Y.J. and Huynh, T.T. (2019) Reflections on the Role of Race in China-Africa Relations. In: Alden, C. and Large, D. (eds.). *New Directions in Africa-China Studies*. London: Routledge. p.158-172. ISBN: 9781351668286.

Park, Y.J. (2019) Early Chinese Migrants in Sub-Saharan Africa: Contract Labourers and Traders. In: Giese, K. and Marfaing, L. (eds.). *Chinese and African Entrepreneurs*. Leiden: Brill. p.84-99. ISBN: 9789004387423.

Park, Y.J. (2019) Afro-Asian Solidarities to Afrasian Spaces and Identities: Exploring the Limits of Afrasia. In: Anthony, R. (ed.). *Reconfiguring Transregionalisation in the Global South*. New York: Springer. p.223-247. ISBN: 9783030283100.

Reynolds, J.

Reynolds, J. and Fine, B. (2019) Introduction: Revisiting Harold Wolpe in Post-apartheid South Africa. In: Reynolds, J.H., Fine, B. and Van Niekerk, R. (eds.). *Race, Class and the Post-apartheid Democratic State*. Durban: University of KwaZulu-Natal Press. p.1-28. ISBN: 9781869144197.

Reynolds, J. (2019) Challenging Hegemony within the South African State. In: Reynolds, J.H., Fine, B. and Van Niekerk, R. (eds.). *Race, Class and the Post-apartheid Democratic State*. Durban: University of KwaZulu-Natal Press. p.125-140. ISBN: 9781869144197.

Reynolds, J., Fine, B. and Van Niekerk, R. (ed.) (2019) *Race, Class and the Post-apartheid Democratic State*. Durban: University of KwaZulu-Natal Press. ISBN: 9781869144197.

Rogan, M.

Rogan, M. (2019) The post-school education and training landscape in South Africa: 'Massification' amidst inequality. In: Rogan, M.J. (ed.). *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. p.1-16. ISBN: 9780796924636.

Rogan, M. (2019) Reflections on post-school education and training: access and outcomes. In: Rogan, M.J. (ed.). *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. p.243-249. ISBN: 9780796924636.

Grapsa, E., Mncwango, B. and Rogan, M. (2019) Education and skills mismatch in the South African labour market. In: Rogan, M.J. (ed.). *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. p.223-241. ISBN: 9780796924636.

Rogan, M. (2019) Over-qualification and skills-utilisation in the graduate labour market: Evidence from two South African universities. In: Rogan, M.J. (ed.). *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. p.103-120. ISBN: 9780796924636.

Rogan, M. (ed.) (2019) *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. ISBN: 9780796924636.

Van Der Walt, L.

Van Der Walt, L. (2019) Syndicalism. In: Levy, C. and Adams, M. (eds.). *The Palgrave Handbook of Anarchism*. Switzerland: Palgrave Macmillan. p.249-263. ISBN: 9783319756196.

Xaba, M.B.

Xaba, M.B. and Mupambwa, G. (2019) The Land as Economy and Economy as Land: Towards a Re-appraisal of the Political Economy of Land Repossession in Contemporary South Africa. In: Warikandwa, T.V., Mpofu, N., Nhemachena, A. and Chitimira, H. (eds.). *Grid-locked African Economic Sovereignty: Decolonising the Neo-Imperial Socio-Economic and Legal Force-fields in the 21st Century*. Cameroon: Langaa Research & Publishing Common Initiative Group. p.113-136. ISBN: 9789956550302.

**Xaba, M.B.** and Mupambwa, G. (2019) 'Investors' or Looters? A Critical Examination of Mining and Development in Africa. In: Warikandwa, T.V., Mpofu, N., Nhemachena, A. and Chitimira, H. (eds.). *Grid-locked African Economic Sovereignty: Decolonising the Neo-Imperial Socio-Economic and Legal Force-fields in the 21st Century*. Cameroon: Langaa Research & Publishing Common Initiative Group. p.291-312. ISBN: 978995655 0302.

## Concerts, Exhibitions, Performances, Workshops, Events

**Van Der Walt, L.**

**Van Der Walt, L.,** Ulrich, N., McGregor, W., Sikwebu, D., Nieftagodien, N., Dee, H., Twala, C., van Heyningen, E. and Mkhize, S. Design, facilitation, presentation. The Industrial and Commercial Workers Union of Africa. *New Perspectives Workshop (History Workshop, University of the Witwatersrand & Neil Aggett Labour Studies Unit / (NALSU)*. Rhodes University, Grahamstown/Makhanda. South Africa. 27 June 2019.

**Van Der Walt, L. and Maisiri, L.J.**

**Van Der Walt, L.,** Fryer, D., Maisiri, L.J. and Hagemeyer, L. Design, facilitation, presentation. Political Economy, and Economic and Social Policy programme. *South African Political Economy and the Global Crisis (Neil Aggett Labour Studies Unit (NALSU), & Sociology Department)*. Rhodes University, Grahamstown/ Makhanda. South Africa. 25 - 30 August 2019.

**Van Der Walt, L.,** Naidoo, L., Reynolds, J., Ntinkinca, K.L., Allan, C.T., Klerck, G. and Alfes, L.

**Van Der Walt, L.,** Naidoo, L., Reynolds, J., Ulrich, N., Ntinkinca, K.L., Allan, C.T., Klerck, G., Alfes, L., Fryer, D., McGregor, W., Jara, M. and Kota, A. Design, facilitation, presentation. Vuyisile Mini Winter School 2019. *Politics Within and at a Distance from the State (Neil Aggett Labour Studies Unit (NALSU)*. Rhodes University, Grahamstown/ Makhanda. South Africa. 9 - 12 July 2019.

## Other Publications

**Reynolds, J.**

**Macleod, C.I. and Reynolds, J.** (2019) In: *Strategic assessment of policies, programmes and research on unintended pregnancies, contraception, unsafe abortion and abortion services in Botswana*. Makhanda, South Africa: Botswana Department of Health, United Nations Population Fund (UNFPA) & World Health Organisation (WHO).

**Macleod, C.I. and Reynolds, J.** (2019) In: Macleod, C.I. and Reynolds, J.H. (eds.). *Strategic assessment of policies, programmes, and research on unintended pregnancies, contraception, unsafe abortion and abortion services in Lesotho*. Makhanda, South Africa: Ministry of Health, Lesotho, World Health Organisation and UNFPA.

**Van Der Walt, L.**

**Van Der Walt, L.** (2019) In: *Beyond Decent Work: Fighting for Unions and Equality in Africa*. Berlin, Germany: Friedrich-Ebert-Stiftung.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Jha, P.**

**Jha, P.** and Yeros, P. (2019) Global agricultural value systems and the south: some critical issues at the current juncture. *Agrarian South: Journal of Political Economy*. 8 (1-2). p.14-29.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Alfers, L.**

**Alfers, L.** and Moussie, R. (2019) The ILO World Social Protection Report 2017-19: An Assessment. *Development and Change*. p.1-15.

Shezi, B., Naidoo, J.N., Mutoo, R., Mathee, A., **Alfers, L.**, Dobson, R., Ndlovu, P. and Street, R. (2019) Informal-sector occupational hazards: an observational workplace assessment of the traditional medicine trade in South Africa. *International Journal of Occupational Safety and Ergonomics*. p.1-8.

Horwood, C., Haskins, L., **Alfers, L.**, Masango-Muzindutsi, L., Dobson, R. and Rollins, N. (2019) A descriptive study to explore working conditions

and childcare practices among informal women workers in KwaZulu-Natal, South Africa: identifying opportunities to support childcare for mothers in informal work. *BMC Pediatrics*. 19 (382). p.1-11.

**Chiweshe, M.K.**

**Chiweshe, M.K.** (2019) Playing the odds: The rise of soccer betting houses as a livelihood option in Harare, Zimbabwe. *Soccer and Society*. p.1-12.

**Chiweshe, M.K.** and Chabata, T. (2019) The complexity of farm workers' livelihoods in Zimbabwe's Post-Fast Track Land Reform: Experiences from a farm in Chinhoyi, Zimbabwe. *Review of African Political Economy*. 46 (159). p.55-70.

Kapodogo, A.b.e.l., **Chiweshe, M.K.** and Muparamoto, N. (2019) Sex work-based livelihoods in post 2000 in Zimbabwe. *Africa Review*. 11 (2). p.137-151.

**Hadebe, S.**

**Hadebe, S.** (2019) Trapped in uncertainty: the existential challenges of the trade union movement in Zimbabwe after 2000. *Transformation*. 99. p.113-128.

**Jha, P.**

**Jha, P.** (2019) Prospects for Labour and Contemporary Capitalism: An Assessment With Reference to India. *Indian Journal of Labour Economics*. 62. p.319-340.

**Kwet, M.R.**

**Kwet, M.R.** (2019) Digital colonialism: US empire and the new imperialism in the Global South. *Race & Class*. 60 (4). p.3-26.

**Mwonzora, G.**

**Mwonzora, G.** and Mandikwaza, E. (2019) The Menu of Electoral Manipulation in Zimbabwe: Food Handouts, Violence, Memory, and Fear - Case of Mwenezi East and Bikita West 2017 by-elections. *Journal of Asian and African Studies*. 54 (8). p.1128-1144.

**Nyalungu, P.**

**Nyalungu, P.** (2019) Experiences of an Activist and ZACF Anarchist-Communist in Soweto, South Africa. *Anarchist Studies*. 27 (2). p.61-76.

**Rogan, M.**

Wildschut, A., **Rogan, M.** and Mncwango, B. (2019) Transformation, stratification and higher education: exploring the absorption into employment of public financial aid beneficiaries across the South African higher education system. *Higher Education*. p.1-19.

**Rogan, M. and Alfes, L.**

**Rogan, M. and Alfes, L.** (2019) Gendered Inequalities in the South African Informal Economy. *Agenda: a Journal about Women and Gender*. 121 (33.4). p.91-102.

**Rogan, M. and Reynolds, J.**

**Rogan, M. and Reynolds, J.** (2019) Trends in the working poverty rate (WPR) in post-apartheid South Africa, 1997-2012. *Development Southern Africa*. 36 (5). p.699-715.

**Sipungu, T.A.**

**Sipungu, T.A.** (2019) Gay Men's Identity Negotiation Strategies within the Methodist Church of Southern Africa in Grahamstown, South Africa. *South African Review of Sociology*. 50. p.51-64.

**Van Der Walt, L.**

**Van Der Walt, L.** (2019) Aspects of the history of anarchism and revolutionary syndicalism in South Africa, 1880s-1920s (Aspects de l'histoire de l'anarchisme et du syndicalisme révolutionnaire en Afrique du Sud, des années 1880 aux années 1920). *Actuel Marx*. 66. p.44-63.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Makwetu, N.**

**Makwetu, N.** The Forgotten History of Clarence Mlami Makwetu. *27th Biennial Conference: Southern African Historical Society*. Rhodes University, Grahamstown/ Makhanda. South Africa. June 2019.

**Van Der Walt, L.**

**Van Der Walt, L.** Beyond Decent Work: Fighting for Unions and Equality in Africa. *Employment Rights, Industrial Governance, and Humanization of the Workplace: Present Realities, Future Prospects*. Michael Imoudu National Institute for Labour Studies, Ilorin. Nigeria. November 2019.





*Student walking down tower path*

*Credit: Rhodes University Communications and Advancement Division*

**Van Der Walt, L.** Building the Union for the Future: Linking Workers Education to Union Revitalization. *Employment Rights, Industrial Governance, and Humanization of the Workplace: Present Realities, Future Prospects*. Michael Imoudu National Institute for Labour Studies, Ilorin. Nigeria. November 2019.

**Van Der Walt, L.** The Industrial and Commercial Workers Union in South West Africa: Syndicalism, Garveyism and Resistance in South African-ruled Namibia, 1920-1925. *27th Biennial Conference: Southern African Historical Society*. Rhodes University, Grahamstown/Makhanda. South Africa. June 2019.

**Wilson, J.K.**

**Wilson, J.K.** Striking from the Margins. *Border Regimes, Territorial Discourses, and Feminist Politics: NORA Conference*. University of Iceland, Reykjavik. Iceland. May 2019.





The staff and students of the Department of Statistics mourn the untimely passing of Mr Zanolhanyo Mazeka (March 2019). We miss the “Big Friendly Giant” who always had a huge beaming smile, positive attitude and was exceptionally passionate about his studies.

The Department of Statistics continued pursuing a broad range of research interests and activities during 2019. Professor Radloff’s research collaborations with the Departments of Entomology and Psychology resulted in one (1) peer-reviewed journal article. A number of articles have been accepted for publication in 2020.

In July 2019, Dr Correa joined the department from Universidade Estadual de Santa Cruz, Brazil. Dr Correa is a welcome addition to the department. It is hoped that the two (2) remaining vacancies within the department will be filled soon.

## Postgraduates / Graduations

Ms Lulama Gcakasi complete her Masters of Science. Her thesis was titled, *Default in payment, an application of statistical learning techniques*. Mr Hassan Mazengera completed his Masters of Science by course work and thesis. His thesis was titled *Stochastic Models in Finance*.

Four (4) students graduated with a Bachelor of Science Honours in Mathematical Statistics, three (3) with joint Bachelor of Science Honours in Mathematical Statistics and Mathematics, one (1) with a Bachelor of Business Science in Mathematical Statistics and one (1) with a Bachelor of Commerce Honours in Mathematical Statistics. Philip Mostert, Sisipho Hamlomo and Benjamin Strelitz attained distinctions.

Lusanda Makrwanana, Nicolas Thekiso and Vuyolwethu Zumani attained distinctions for Mathematical Statistics 3.

## Distinguished Visitors and Significant Research Aligned Events

Standard Bank and First National Bank each presented highly informative banking career seminars to the third year and Postgraduate students during the course of the year. Mr Jurie Schoeman and the BSG team discussed the BSG internship and graduate placement programs. Dr Julia Keddle took the students through a complete statistical analysis of a current BSG consulting project. This very interesting and highly informative seminar clearly demonstrated the practical application of the statistical concepts and theory that the students are learning in their courses. The BSG team strongly recommended that the students consider a career as a data scientist and provided many practical and useful tips and suggestions for the students with regards further study and career opportunities.

The Postgraduate students and staff of the Department of Statistics attended Dr Bruno Ebner’s highly informative seminar on analyzing point patterns by a threshold transformation to binary images at Nelson Mandela University (April 2019). The Postgraduate students then travelled to Bay West Mall where they had ice-skating lessons, with varying degrees of success! Mr Baxter attended the South African Statistical Association Annual Conference in Port Elizabeth, November 2019.

**Mr Jeremy Baxter**

*Head of Department*

*Mr Schoeman and Dr Keddle guide the students through an analysis done for a large corporate hospital group*  
Credit: Department of Statistics

## Peer Reviewed Subsidy-Earning Journal Research Publications

Radloff, S.E.

Zoccola, D., Shuttleworth-Edwards, A.B. and Radloff, S.E.

(2019) Signs of cognitive dysfunction in adult players of club level rugby. *South African Journal of Psychology*. 2019. p.1-13.



*Dr Bruno Ebner's highly informative seminar on analyzing point patterns by a threshold transformation to binary images*  
Credit: Department of Statistics



Despite considerable undergraduate teaching commitments, 2019 was another exceedingly productive year with all academic and research staff, Postdoctoral Research Fellows, Postgraduate students and Research Associates contributing to the research output of the Department of Zoology and Entomology.

In addition to eighty-seven (87) full-length papers published in both local and international ISI accredited peer-reviewed science journals, the staff also contributed to four (4) book chapters and numerous popular science articles covering a wide variety of topics. The high research publication output reflects the academic standing and strong research collaborations established by the academics and research staff with research institutes and universities locally, in Africa, Europe, the Americas, Asia and Australasia. In recognition of their academic excellence, a number of staff were successful in their applications for research funds and presented the findings of their research and keynote lectures at local and international conferences/workshops. Moreover, a number of staff were also invited to evaluate and review research programmes and articles both locally and internationally.

### Postgraduates / Graduations

The Department of Zoology and Entomology continues to have a vibrant Postgraduate school with a number of students publishing the findings of their research in both local and international peer review journals. Moreover, several students presented their findings at conferences both locally and internationally.

Mr Chad Keates, a PhD candidate was awarded the Rhodes Environmental Award (Individual Category) in September 2019 for his contribution towards the public awareness and conservation of reptiles in Makanda.

### Distinguished Visitors / International Visits

In addition to hosting colleagues from universities in South Africa, a number of international visitors were also hosted by the department. Distinguished Professor Christopher McQuaid, Director of the SARCHi Chair in Marine Ecology hosted Dr Katy Nicastro and Dr Gerardo Zardi from Aveiro in Portugal and Dr Laurent Seuront from Wimereux in France.

Dr Nokubonga Mqatsa hosted Professor Travis Perry from Furman University, America while Professor Andrew Cameron from the University of Regina, Canada, spent six (6) weeks (March to April 2019) in the department collaborating with Dr Ben Smit.

*Biocontrol Research Officer Dr Iain Paterson releases biological control agents into a cacti thicket*

*Rhodes University's Centre for Biological Control (CBC) recently released biological control agents to combat two invasive cacti species in Namibia. On 23 August, the CBC joined the Namibian Chamber of Environment (NCE) and the Botanical Society of Namibia, to help them fight two non-indigenous cacti species that have been causing environmental and agricultural damage in Namibia. Credit: Department of Zoology and Entomology*





*Dr Michelle Caputo readies the biopsy gun to collect dolphin tissue samples for feeding and genetic studies along the Wildcoast  
Credit: Michelle Caputo*

## Significant Research Aligned Events

Dr Nokubonga Mqatsa visited Furman University in the United States to establish teaching and research collaborations. Dr Shelley Edwards served as the chair of the organising committee for the Herpetological Association of Africa conference held in September 2019.

Dr Iain Paterson from the Centre for Biological Control (CBC), in collaboration with the Namibian Chamber for Environment (NCE) and the Botanical Society of Namibia obtained permission from all the relevant Namibian Ministries to release three (3) biological control agents against three invasive cactus weeds in Namibia.

Finally, Dr Ben Smit together with his Postgraduate students travelled to the Gobabeb Research Station in the Namib-Naukluft Park, Namibia, in July 2019 to participate in a research workshop on climate change and desert birds.

### Professor William Froneman

*Head of Department*



*Environmental Award recipient, Chad Keates  
Credit: Chad Keates*

## Books/Chapters/Monographs

**Froneman, P.W.**

**Froneman P.W.** (2019). The potential impact of global climate change on temporarily open/closed southern African estuaries. In: *Pour une approche pluridisciplinaire des risques induits par le changement climatique dans les milieux estuariens et littoraux*. (Eds) Dekyser I, Ducrottoy J.P. Union des oceanographes de France, Paris, pp 27-40.

**Hill, M.P. and Hussner, A.**

**Coetzee, J.A., Hill, M.P., Hussner, A., Nunes, A.L. and Weyl, O.L.F.** (2019) Invasive Aquatic Species. In: Hughes, J. (ed.). *Freshwater Ecology and Conservation: Approaches and Techniques*. Oxford: Oxford University Press. p.338-355. ISBN: 9780198766421.

**McQuaid, C.D.**

**McQuaid, C.D.** and Blamey, L.K. (2019) *Where Three Oceans Meet*. In: *Hawkins, S.J., Bohn, K., Firth, L.B. and Williams, G.A. (eds.). Cambridge University Press. p.333-359.*

**Villet, M.H.**

**Villet, M.H.** (2019) Insect biodiversity helps solve African conservation crimes. In: Primack, R. (ed.). *Conservation Biology in Sub-Saharan Africa*. Cambridge, UK: Open Book Publishers. p.442-443. ISBN: 9781783747511.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Acheampong, M.A.A., Hill, M.P., Moore, S.D. and Coombes, C.A.**

**Acheampong, M.A.A., Hill, M.P., Moore, S.D. and Coombes, C.A.** (2019) UV sensitivity of *Beauveria bassiana* and *Metarhizium anisopliae* isolates under investigation as potential biological control agents in South African citrus orchards. *Fungal Biology*. 2019. p.1-7.

**Aigbedion-Atalor, P.O.**

**Aigbedion-Atalor, P.O., Oke, A.O., Oladigbolu, A.A., Layade, A.A., Igbinsola, I.B. and Mohamed, S.A.** (2019) *Tuta absoluta* (Lepidoptera: Gelechiidae) invasion in Nigeria: first report of its distribution. *Journal of Plant Diseases and Protection*. 126 (2019). p.603-606.

**Aigbedion-Atalor, P.O. and Hill, M.P.**

**Aigbedion-Atalor, P.O., Hill, M.P., Zalucki, M.P., Obala, F., Idriss, G.E., Midingoyi, S.K., Chidege, M., Ekesi, S. and Mohamed, S.A.** (2019) The South America Tomato Leafminer, *Tuta absoluta* (Lepidoptera: Gelechiidae), Spreads Its Wings in Eastern Africa: Distribution and Socioeconomic Impacts. *Journal of Economic Entomology*. 112 (6). p.2797-2807.

**Aigbedion-Atalor, P.O. and Paterson, I.D.**

**Aigbedion-Atalor, P.O., Adom, M., Day, M.D., Uyi, O., Egbon, I., Idemudia, I., Igbinsola, I.B., Paterson, I.D., Braimah, H., Wilson, D. and Zachariades, C.** (2019) Eight decades of invasion by *Chromolaena odorata* (Asteraceae) and its biological control in West Africa: the story so far. *Biocontrol Science and Technology*. 29 (12). p.1215-1233.

**Bailey, L., Bringham, R.M., Bohn, S.J. and Smit, B.**

**Bailey, L., Bringham, R.M., Bohn, S.J., Boyles, J.G. and Smit, B.** (2019) An experimental test of the allotonic frequency hypothesis to isolate the effects of light pollution on bat prey selection. *Oecologia*. 190 (2019). p.367-374.

**Barnes, R.S.K.**

**Barnes, R.S.K.** (2019) Abundance/occupancy/patchiness relations in estuarine seagrass macrobenthos. *Estuarine Coastal and Shelf Science*. 228 (2019). p.1-9.

**Barnes, R.S.K.** (2019) Local patchiness of macrobenthic faunal abundance displays homogeneity across the disparate seagrass systems of an estuarine bay. *Marine Environmental Research*. 148 (2019). p.99-107.

**Bernard, A.T.F.**

**Heyns-Veale, E.R., Bernard, A.T.F., Gotz, A., Mann, B.Q., Maggs, J.Q. and Smith, M.K.S.** (2019) Community-wide effects of protection reveal insights into marine protected area effectiveness for reef fish. *Marine Ecology Progress Series*. 620 (2019). p.99-117.

**Parker, D., Winker, H., Bernard, A.T.F., Smith, M.K.S. and Gotz, A.** (2019) Spatial considerations when monitoring reef fishes. *African Journal of Marine Science*. 41 (1). p.93-101.

**Dames, V., Bernard, A.T.F., Floros, C., Mann, B.Q., Speed, C., Maggs, J.Q., Laing, S., Meekan, M. and Olbers, J.** (2019) Zonation and reef size significantly influence fish population structure in an established marine protected area, iSimangaliso Wetland Park, South Africa. *Ocean & Coastal Management*. 2019. p.1-12.

**Booth, J.M. and McQuaid, C.D.**

**Steinfurth, A., Booth, J.M., White, J., Bond, A.L. and McQuaid, C.D.** (2019) Sexual and geographic dimorphism in northern rockhopper penguins breeding in the South Atlantic Ocean. *Endangered Species Research*. 39 (2019). p.293-302.

**Chavalala, T.L. and Froneman, P.W.**

**Dalu, T., Cuthbert, R.N., Chavalala, T.L., Froneman, P.W. and Wasserman, R.J.** (2019) Assessing sediment particle-size effects on benthic algal colonisation and total carbohydrate production. *Science of the Total Environment*. 2019. p.1-6.

**Claassens, L.**

**Simon, C., du Toit, A.N., Smith, M.K.S., Claassens, L., Smith, F. and Smith, P.** (2019) Bait collecting by subsistence and recreational fishers in Knysna Estuary may impact management and conservation. *African Zoology*. 54 (2). p.91-103.

**Cole, M.L.**

**Cole, M.L.** (2019) Revision of *Chondrocyclops* s.l. (Mollusca: Cyclophoridae), with description of a new genus and twelve new species. *European Journal of Taxonomy*. 569 (2019). p.1-92.

**Collinson, W.J., Parker, D.M. and Bernard, R.T.F.**

**Collinson, W.J., Parker, D.M., Bernard, R.T.F., Reilly, B.K. and Davies-Mostert, H.T.** (2019) Factors influencing spatial patterns of vertebrate roadkill in South Africa: a case study of the Greater Mapungubwe transfrontier Conservation Area. *African Journal of Ecology*. 57 (2019). p.552-564.

**Compton, S.G.**

**Compton, S.G., Stavrinides, M., Kaponas, C. and Thomas, P.J.** (2019) No escape: most insect colonisers of an introduced fig tree in Cyprus come from the plant's native range. *Biological Invasions*. 2019. p.1-6.

**Deng, J.Y., van Noort, S., Compton, S.G., Chen, Y. and Greeff, J.M.** (2019) The genetic consequences of habitat specificity for fig trees in southern African fragmented forests. *Acta Oecologica - International Journal of Ecology*. 2019. p.1-8.

**Craig, A.J.F.K.**

**Hausberger, M., Giacalone, A., Harmand, M., Craig, A.J.F.K. and Henry, L.** (2019) Calling rhythm as a predictor of the outcome of vocal interactions: flight departure in pale-winged starling pairs. *Science of Nature*. 2019 (2019). p.1-7.

**Craig, A.J.F.K. and Hulley, P.E.**

**Craig, A.J.F.K. and Hulley, P.E.** (2019) Montane forest birds in winter: do they regularly move to lower altitudes? Observations from the Eastern Cape, South Africa. *Ostrich*. 90 (1). p.89-94.

**De Villiers, N.M., Barker, C., Claassens, L. and Hodgson, A.N.**

**De Villiers, N.M., Barker, C., Claassens, L. and Hodgson, A.N.** (2019) Conservation value of *Codium tenue* habitat for the endangered Knysna seahorse *Hippocampus capensis*. *Journal of Fish Biology*. 95 (2019). p.1457-1464.

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**Deschodt, C.M., Davis, A.L.V. and Daniel, G.M.** (2019) The endemic Southern African genus *Epirinus* Dejean, 1833 (Coleoptera: Scarabaeidae: Scarabaeinae) revisited: five new species and two new synonyms. *Zootaxa*. 4603 (2). p.327-340.

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**Cuthbert, R.N., Dalu, T., Wasserman, R.J., Weyl, O.L.F., Froneman, P.W., Callaghan, A., Coughlan, N.E. and Dick, J.T.A.** (2019) Alternative prey impedes the efficacy of a natural enemy of mosquitos. *Biological Control*. 2019. p.1-10.

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*Pod of common dolphins observed in the shallow inshore waters of the Wildcoast*  
Credit: Thibaut Bouveroux

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Silvestri, L., Sosa, A., McKay, F., Vitorino, M.D., **Hill, M.P.**, Zachariades, C., Hight, S., Weyl, P., Smith, D., Djedbour, D. and Mason, P.G. (2019) Implementation of access and benefit-sharing measures has consequences for classical biological control of weeds. *Biocontrol*. 2019. p.1-17.

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Branch, W.R., Baptista, N., **Keates, C. and Edwards, S.** (2019) Rediscovery, taxonomic status, and phylogenetic relationships of two rare and endemic snakes (Serpentes: Psammophiinae) from the southwestern Angolan plateau. *Zootaxa*. 45900 (3). p.342-366.

**Keates, C., Conradie, W., Greenbaum, E. and Edwards, S.** (2019) A snake in the grass: Genetic structuring of the widespread African grass snake (*Psammophylax* Fitzinger 1843), with the description of a new genus and a new species. *Journal of Zoological Systematics and Evolutionary Research*. 57 (2019). p.1039-1066.

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Early morning boat launch during dolphin surveys along the Wildcoast  
Credit: Michele Caputo

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## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Acheampong, M.A.A., Hill, M.P., Moore, S.D. and Coombes, C.A.** **Acheampong, M.A.A., Hill, M.P., Moore, S.D. and Coombes, C.A.** Suitability of entomopathogenic fungal isolates for microbial control of citrus pests: biological traits and importance of formulation. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

**Albertyn, S., Marsberg, T., Hill, M.P. and Moore, S.D.**

**Albertyn, S., Mwanza, P., Marsberg, T., Hill, M.P., Dealtry, G.B., Lee, M.E. and Moore, S.D.** Influence of orchard age on the efficacy of a granulovirus: architecture trumps biochemistry. *52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests"*. Valencia, Spain. Spain. July 2019.

**Baso, N.C., Coetzee, J.A. and Hill, M.P.**

**Baso, N.C., Coetzee, J.A., Hill, M.P. and Ripley, B.S.** The future of biological control in South Africa: Effects of elevated CO<sub>2</sub>. *15th conference on Ecology and Management of Plant Invasions (EMAPI)*. Czech university of Life Sciences, Prague. Czech Republic. September 2019.

**Chari, L.D., Coetzee, J.A. and Hill, M.P.**

**Chari, L.D., Coetzee, J.A. and Hill, M.P.** A potential biological control agent for the control of *Iris pseudacorus* L. (Iridaceae) in South Africa. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

**Edwards, S.**

**Edwards, S.** Phylogenetic relationships in the slug-eater snakes, Duberia (Lamprophiidae). *14th Herpetological Association of Africa*. Cape St Francis Resort, Cape St Francis. South Africa. September 2019.

**Evlambiou, A.A.**

**Evlambiou, A.A.** A morphometric study on legless skinks (Acontias) to determine link between head shape and environment. *14th Herpetological Association of Africa*. Cape St Francis Resort, Cape St Francis. South Africa. September 2019.

**Froneman, P.W.**

**Froneman, P.W.** Emergent effects of predator diversity regulate predator-prey interactions: evidence from mesocosm experiments. *39th ZSSA Congress*. Skukuza, Kruger National Park, July 2019.

**Cuthbert, R.N., Dalu, T., Wasserman, R.J., Weyl, O.L.F., Callaghan A., Froneman P.W., and Dick J.T.A.** Towards improved quantifications of interaction strengths in temporary ponds. *39th ZSSA Congress*. Skukuza, Kruger National Park. 2019.

**Wasserman, R.J., Weston, M., Weyl, O.L.F., Froneman, P.W., Welch, R.J., Vink, T.J.F., and Dalu, T.** Sacrificial males: the potential role of copulation and predation in contributing to copepod sex-skewed ratios. *39th ZSSA Congress*. Skukuza, Kruger National Park, July 2019.

**Hill, M.P.**

**Hill, M.P.** Insects working for water. *The role of biological control in the fight against invasive weeds*. Science Cafe, Grahamstown. South Africa. February 2019.





Professor Ryan Wasserman, measuring the seawater temperatures of the incoming tide into an Eastern Cape estuary  
Credit: Ryan Wasserman

Hill, M.P. and Moore, S.D.

Jukes, M.D., Knox, C., Hill, M.P. and Moore, S.D. The susceptibility of a novel cell line derived from *Thaumotobia leucotreta* eggs to various alpha and beta baculoviruses. *The 52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests"*. Palau de congressos de València, Valencia. Spain. August 2019.

Keates, C.

Keates, C. Genetic structuring in *Psammophylax* (Fitzinger 1843), a widespread African snake genus. *14th Herpetological Association of Africa*. Cape St Francis Resort, Cape St Francis. South Africa. September 2019.

McQuaid, C.D.

McQuaid, C.D. Lawless ecology: pattern, process and prediction in marine ecosystems. Invited key note talk. *International Temperate Reef Symposium*. Hong Kong, China, 2019.

McQuaid, C.D. The black box of marine connectivity. Invited key note talk. *International Symposium on Marine Connectivity*. Aveiro, Portugal, 2019.

Barker, C., Monaco, C.J. and McQuaid, C.D. Carry-over effects of sublethal temperatures: oxygen consumption in two lineages of the intertidal mussel, *Perna perna*. *39th ZSSA Congress*. Skukuza, Kruger National Park, July 2019.

Dyanty, S.B., Patrick, P., McQuaid, C.D. and Porri, F. Mesoscale Alongshore and Cross-shore Transport and Settlement of Invertebrate Larvae on the South East Coast of South Africa. *WIOSA*. Mauritius, October 2019.

Moore, S.D. and Hill, M.P.

Knox, C., Jukes, M.D., Moore, S.D. and Hill, M.P. Characterisation of novel baculovirus isolates for potential development and application as biopesticides against agricultural pests in South Africa. *52nd Annual Meeting of the Society for Invertebrate Pathology & 17th Meeting of the IOBC-WPRS Working Group "Microbial and Nematode Control of Invertebrate Pests"*. Valencia, Spain. July 2019.

Mostert, E.A., Martin, G.D., Coetzee, J.A. and Hill, M.P.

Mostert, E.A., Morgan, L.W., Martin, G.D., Coetzee, J.A. and Hill, M.P. Creating a more accessible database platform: introducing the new CBC Data Portal. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

Mphephu, T.E., Coetzee, J.A. and Hill, M.P.

Mphephu, T.E., Coetzee, J.A. and Hill, M.P. Parasitic alga, *Helicosporidium* sp. (Chlorophyta; Trebouxiophyceae) threatens effective biological control of the aquatic invasive, *Salvinia molesta* D.S. Mitchell (Salviniaceae) in South Africa. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

Mushore, T.G., Coombes, C.A. and Hill, M.P.

Mushore, T.G., Coombes, C.A. and Hill, M.P. Life history ecology and control of the Keurboom moth, *Leto venus* in cultivated Honeybush. *21st Congress of the Entomological Society of the Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

Prinsloo, S.L., Hill, M.P., Coombes, C.A. and Moore, S.D.

Prinsloo, S.L., Hill, M.P., Coombes, C.A., Malan, A. and Moore, S.D. Synergistic effect of entomopathogenic nematodes and entomopathogenic fungi for false codling moth management. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

Reid, M.K., Coetzee, J.A. and Hill, M.P.

Reid, M.K., Coetzee, J.A., Hill, M.P., Gettys, L., Diaz, R., Cuda, J. and Reid, C. Surveys for potential biological control agents for *Nymphaea mexicana* Zuccarini in the United States. *21st Congress of the Entomological Society of the Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

Trivella, C.

Trivella, C. Assessing the habitat specificity of the endemic Knysna Dwarf Chameleon (*Bradypodion damaranum*). *14th Herpetological Association of Africa*. Cape St Francis Resort, Cape St Francis. South Africa. September 2019.

Weaver, K.N.

Davy, J., Weaver, K.N., Todd, A. and Paphitis, S. "Ergonomics on the ground": a case study of service learning in ergonomics education. *20th Congress of the International Ergonomics Association (IEA 2018)*. Florence. Italy. August 2018.

Upfold, J.K., Hill, M.P., Coombes, C.A. and Moore, S.D.

Upfold, J.K., Joubert, F., Hill, M.P., Coombes, C.A. and Moore, S.D. A comparison of sex pheromones, sexual attraction and mating compatibility between false codling moth population. *21st Congress of the Entomological Society of Southern Africa*. Umhlanga, Durban. South Africa. July 2019.

# 2019 RHODES UNIVERSITY Affiliates, Institutes & Units



*Yonela Sithole (NRF-SAIAB PhD candidate) and other trainees examine specimens at the Royal Museum for Central Africa, Tervuren, Belgium.*

*Credit: Muriel Van Nuffel (RMCA)*





Although the **Albany Museum** is a relatively small museum, its enthusiastic researchers make up for this with their determination to make the most of all opportunities. Headed by Mr Manzi Vabaza and a small team of administration staff, the museum is funded by Department of Sport Recreation Arts and Culture (DSRAC), and overseen by an independent Board of Trustees.

The natural science research staff complement consists of five (5) scientists. Dr Phumlani Cimi is a botanist, and with Mr Tony Dold, a Rhodes University staff member, oversees the herbarium. Dr Terence Bellingan is now in his third year as the appointed head of Entomology and Arachnology. Dr Helen James runs the Department of Freshwater Invertebrates, with Dr Musa Mlambo the Assistant Curator, and Dr Alex Holland continues in a Postdoctoral position. Dr Rose Prevec is head of the Department of Earth Sciences and Dr Robert Gess is now a full-time researcher in the department, externally funded by the Millennium Trust and the Centre for Excellence in Palaeosciences. Emeritus researchers include Dr Ferdy de Moor, Dr Billy de Klerk and Dr Sarah Gess.

Dr Bellingan, Dr James and Dr Mlambo are Research Associates of the Department of Zoology and Entomology, Dr Prevec of the Department of Botany, and Dr Robert Gess of the Department of Geology at Rhodes University, and all engage in collaborative research, contribute research publications, supervise students and lecture courses at the University.

All of the Museum scientists are registered with the South African Council for Natural Scientific Professions (SACNASP).

The Humanities section has two (2) historians, Ms Gcobisa Zomelele and Ms Zekhaya Gxotelwa, one (1) archaeologist, Ms Celeste Booth and one (1) anthropologist, Ms Phumeza Mntonintshi, and Ms Fleur Way-Jones is an Emeritus historian.

Ms Phumeza Mntonintshi (Anthropology Department) has collaborated with RU-School of Languages doing lessons on traditional healing methods for Pharmacy 101 students. This is hosted annually during Heritage Month to promote cultural indigenous knowledge systems. She also hosts individuals seeking heritage information.

The staff make considerable effort to source additional research funding to support their outputs. This includes funding from National Geographic, the South African National Biodiversity Institute (SANBI), and the National Research Foundation (NRF). Dr Prevec obtained funding from the NRF (African Origins

*The Fossil hunting team near Sutherland  
Credit: Albany Museum*



Platform) for research costs as well as salaries for three technicians, and international student travels, as well as a Knowledge, Interchange and Collaboration (KIC) grant to host an international researcher.

Contributions are also made by several of the staff as peer reviewers of journal articles and of international funding grants, as well as being external examiners of PhD theses from other universities.

Thus the researchers at the Albany Museum had another productive year in 2019.

## Postgraduates / Graduations

Ms Ina Ferreira has continued with her PhD research on Leptophlebiidae mayflies in the Department of Freshwater Invertebrates. She has discovered several previously unknown species and is unravelling their biogeography to explain their current distributions and ecological preferences.

Ms Aviwe Matiwane continued with her PhD research in the Department of Earth Sciences, on the *Glossopteris* floras of South Africa and remains a vibrant promoter of palaeobotany on social media and other public platforms.

Ms Naadiya Hoosen completed an Honours cum laude in the Rhodes Geology Department, with a project co-supervised by Dr Gess on the geochemistry of cyclical sediments at the Coombs Hill Devonian fossil site east of Makhanda.

Mr Ben Kirkaldy, jointly supervised by staff in the Departments of Earth Science and Freshwater Invertebrates, made significant progress with his ground-breaking MSc, linking Permian fossil stoneflies with their modern relatives. A highlight was his NRF-funded visit to Stuttgart Museum in Germany to work with Dr Arnold Staniczek.

Mr Chris Harris was co-supervised by Dr Gess writing his MSc at the Evolutionary Studies Institute at The University of the Witwatersrand. His dissertation provides descriptions for three (3) formerly undescribed lycopod taxa from the Late Devonian Coombs Hill locality as well as one from the Waterloo Farm locality. It additionally provides rigorous analysis of new fertile material of Africa's oldest known woody tree, *Archaeopteris notosaria*, originally described from Waterloo Farm.

## Distinguished Visitors / International Visits

Dr Arnold Staniczek (Stuttgart Museum, Germany) visited between 17 - 28 March 2019, working collaboratively with the Department of Earth Sciences and the Department of Freshwater Invertebrates (FWI) on a joint project. He gave a lecture to the Rhodes University Department of Zoology & Entomology titled *The Fossil History of Paleopterous Insects with Emphasis on Mayflies*.

Dr Romain Garrouste (National Museum of Natural History, Paris, France) visited the Department of Earth Sciences to work on Permian fossil insects and to participate in fieldwork with Dr Prevec.

Dr. Bárbara Cariglino from the Museo Argentino de Ciencias Naturales "B. Rivadavia", Buenos Aires, Argentina, visited the Department of Earth Sciences to work on Permian fossil plants and to participate in fieldwork with Dr Prevec.

Dr Tetsuto Miyashita (from the University of Chicago) visited the Department of Earth Sciences between 2 - 13 March 2019 to collaborate with Dr Gess re-examining the Waterloo Farm lamprey (*Priscomyzon*) ontogenetic series and examining new

finds. These are to be incorporated into a paper on palaeozoic lamprey ontogeny. This paper will challenge current understanding of lampreys. He presented a talk to the Rhodes Zoology Department on ancient hagfish and lampreys.

Dr Cyrille Prestianni visited the Department of Earth Sciences between 29 March - 25 April 2019 to study Devonian plants with Dr Gess and Mr Harris.

Dr Matt Bird from University of Johannesburg visited FWI for a week to work on identifying mayflies (Ephemeroptera), under the guidance of Dr Helen James.

Mr Gerhard Diedricks, a leading expert in dragonfly nymph ecology and identification, visited FWI for two (2) weeks in October to identify dragonflies collected from Kruger Park and Angola, hosted by Dr Helen James.

Ms Zanele Nyamende from Walter Sisulu University visited FWI to work on the identification of freshwater pond invertebrates, hosted by Dr Musa Mlambo.

Mr Ben Kirkaldy, a Master of Science candidate under the supervision of Dr James, Dr Rose Prevec and Dr Alex Holland, went to Dr Staniczek's laboratory in Stuttgart for further training 4-20 May 2019.

Ms Ina Ferreira, a PhD candidate under the supervision of Dr Helen James, went to the Natural History Museum, London, 25 August - 8 September 2019 to study mayfly specimens for her PhD.

## Significant Research Aligned Events

The Albany Museum is part of the South African National Biodiversity Institute (SANBI) run Natural Science Collection Facility (NSCF), a national umbrella group which contributes to the funding of natural history collections in all of the major museums in South Africa. Dr James and Mr Vabaza are both on the NSCF coordinating committee. Dr Gess serves on the Outreach and Communications working group. Dr Bellingan and Dr Cimi serve on the Collection Management committee.

Dr Prevec served on the Executive Committee of the Palaeontological Society of Southern Africa, was appointed to the SACS (South African Council for stratigraphy) National Committee, and continues to serve as Chair of the Biostratigraphy task group. Dr Gess continues to serve on the SACS task group for Cape Stratigraphy as well as the (international) Subcommission on Devonian Stratigraphy.

Dr Prevec and Dr James, and a team of students, international researchers and technicians, spent a hugely productive two (2) weeks excavating two fossil localities near Sutherland in the Northern Cape. Hundreds of fossil plants and insects were collected, many of them new to science.

Dr Bellingan and Dr Cimi are on the National Museum Collections Management committee of the NSCF, Dr Alex Holland is on the Data Working Group of the NSCF, and Dr Mlambo has continued to be part of the Alien Species Risk Analysis Review Panel (ASRAP).

Dr Bellingan was awarded a bursary from the Royal Museum for Central Africa, funded via the Belgian Development Cooperation and the JRS Biodiversity Foundation, to attend the Second International Training Course on African Pollinating Diptera. The two (2) week course was held at Sokoine University Pest Management Centre in Morogoro, Tanzania, and permitted the transfer of valuable skills in identification and collection of

pollinating flies. It also afforded excellent opportunities to network with museum and collections staff across Africa, and opened up international collaborations with the experts that facilitated the training.

Dr James was invited in June 2019 to be a member of the IUCN Species Survival Commission (SSC). Dr James was once again invited to be part of the National Geographic Okavango Wilder-ness Project research team for three (3)-week survey of aquatic ecosystems in remote parts of Angola during November - December, to record previously undocumented species and contribute to the conservation management plans to develop protected areas. She continues to serve on the Board of the Freshwater Working Group of the Society for Conservation Biology.

Dr Alex Holland continued with Postdoctoral research on Trichoptera, working towards the description of thirty (30) previously unknown caddisfly species. Some of this is a continuation from the Kruger National Park Rivers species biodiversity program run by Dr James between 2015 - 2018, when Dr Holland collected seven (7) new caddis species as part of that project.

## Outreach

FWI joined up with the Institute for Water Research, Rhodes University, of the SciFest WaterWorld 2019 outreach stall at the Monument 6 - 12 March 2019. The Earth Sciences Department also participated in Scifest, contributing a display and mini-workshop to the DST-NRF Centre of Excellence in Palaeosciences exhibition.



Dr Robert Gess excavating fossils in China  
Credit: Albany Museum

Dr Bellingan lectured Rhodes University Entomology students at a second and third year level, teaching a two (2) week course on the collection and curation of insects, and a three (3) week course on insect biodiversity conservation respectively.

Dr James taught a three (3) week course on aquatic entomology to the second year students, and one (1) week on biodiversity conservation to the third year students.

Dr Bellingan, Dr James and Dr Holland also attended two (2) Rhodes University facilitated Entomology field trips, to maximise contact time with the students while engaging in the practical matters of being an entomologist.

Dr Gess also gave a number of public lectures including:

- *Makhanda's Late Devonian heritage* fieldtrip, talk and demonstration to Makhanda WESSA branch, Waterloo Farm and Albany Museum Devonian lab, 26 October 2019;
- *Waterloo Farm and the Late Devonian* fieldtrip, talk and demonstration to Knysna U3A, Waterloo Farm and Albany Museum Devonian lab, 10 October 2019;
- *Waterloo Farm: A high latitude Late Devonian (Famennian) Lagerstätten* Talk to visiting Leeds University Students, Albany Museum, Makhanda, 4 September 2019;
- and *The Origin of Tetrapods* Rhodes Zoology Seminar Series, Rhodes Zoology Department, 4 September 2019.

Dr Prevec and her team ran a hands-on workshop on human evolution for Grade 12 learners, as well as providing multiple tours of the palaeontology gallery to local school groups. Dr Prevec presented a talk and laboratory demonstration on the new fossil plants and insects from Sutherland, to the Knysna U3A in October 2019. She also joined the Honours class from the Evolutionary Studies Institute, University of the Witwatersrand for a week in Victoria West to teach palaeobotanical field techniques for palaeontological impact assessments.

Each department also contributed to the museum education department's focus weeks, with outreach programs themed on the specialities of those departments.

### Dr Rose Prevec

*Albany Museum: Curator and Head of Department of Earth Sciences*

## RU Research Associates

**Dr Helen James:** Department of Zoology and Entomology.

**Dr Terence Bellingan:** Department of Zoology and Entomology.

**Dr Musa Mlambo:** Department of Zoology and Entomology.

**Dr Robert Gess:** Department of Geology.

**Dr WJ de Klerk:** Department of Geology.

**Dr Ferdy de Moor:** Department of Zoology and Entomology.





Fossil leaves found by Dr Prevec's team  
Credit: Albany Museum

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Barber-James, H.M.**

Januchowski-Hartley, S., Mantel, S.K., **Barber-James, H.M.**, Celi, J., Olden, J.D., Piccolo, J.J. and Hermoso, V. (2019). Perceptions of a curriculum vitae clinic for conservation science students. *Conservation Science and Practice*. e37 (2019). p.1-7.

**Barber-James, H.M.** and **Ferreira, I.S.** (2019). The Mayflies (Ephemeroptera) of Angola - new species and distribution records from previously uncharted waters, with a provisional species checklist. *Zoosymposia*. 16: 124-138.

Hamer, M., Ribeiro, S. and **Barber-James, H.M.** 2019. The role of the Natural Science Collections Facility (NSCF) in supporting museum collections in South Africa. *Samantics*. Special Edition, SAMA conference 2018. pp. 8-10.

**de Moor, F.C.**

Mey, W. and **de Moor, F.C.** (2019) The Trichoptera (Insecta) of the lower Kunene River in Namibia and Angola (Proceedings of the 15th International Symposium on Trichoptera). *Zoosymposia*. 14 (2019). p.134-150.

**de Moor, F.C.** and **Bellingan, T.A.**

**de Moor, F.C.** and **Bellingan, T.A.** (2019) Evaluation of the conservation requirements of Trichoptera from the Tsitsikamma Mountain streams in South Africa (Proceedings of the 15th International Symposium on Trichoptera). *Zoosymposia*. 14 (2019). p.151-164.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Barber-James, H.M.**

Pereira da Conceicao, L.L., **Barber-James, H.M.** and Benitez, H.A. (2019) Disentangling wing shape evolution in the African mayfly, Teloganodidae (Ephemeroptera). *Zoologischer Anzeiger*. 280 (2019). p.30-41.

Bird, M.S., **Mlambo, M.C.**, Wasserman, R.J., Dalu, T., **Holland A.J.**, Day, J.A., Villet, M.H., Bilton D., **Barber-James, H.M.** and Brendonck, L. (2019). Deeper knowledge of shallow waters: reviewing the invertebrate fauna of southern African temporary wetlands. *Hydrobiologia*. 827: 89-121.

**Bellingan, T.A.**

**Bellingan, T.A.**, Hugo, S., Woodford, D.J., Gouws, J., Villet, M.H. and Weyl, O.L.F. (2019) Rapid recovery of macroinvertebrates in a South African stream treated with rotenone. *Hydrobiologia*. 834 (2019). p.1-11.

**De Klerk, W.J.**

Marchetti, L., Klein, B., Buchwitz, M., Ronchi, A., Smith, R.M.H., **De Klerk, W.J.**, Sciscio, L. and Groenewald, G.H. (2019) Permian-Triassic vertebrate footprints from South Africa: Ichnotaxonomy, producers and biostratigraphy through two major faunal crises. *Gondwana Research*. 72 (2019). p.139-168.

**Gess, R.**

Fontanarrosa, G., Abdala, F., Kummell, S. and **Gess, R.** (2019) The Manus of *Tetracynodon* (Therapsida: Therocephalia) provides Evidence for Survival Strategies following the Permo-Triassic Extinction. *Journal of Vertebrate Palaeontology*. 38 (4). p.1-13.



Gess, R. and Clement, A.M. (2019) A high latitude Devonian lungfish, from the Famennian of South Africa. *PeerJ*. 7 (e8073). p.1-15.

#### Mlambo, M.C.

Blanckenberg, M., Mlambo, M.C., Parker, D. and Reed, C. (2019) The negative impacts of fire on the resurrection ecology of invertebrates from temporary wetlands in Cape Flats Sand Fynbos in the Western Cape, South Africa. *Austral Ecology*. 44 (2019). p.1225-1235.

Bilton, D.T. and Mlambo, M.C. (2019) Two new *Mesocera* Janssens, 1967 from the Piketberg, South Africa (Coleoptera, Hydraenidae). *Zootaxa*. 4555 (2). p.268-274.

Meyer-Milne, E. and Mlambo, M.C. (2019) A tale of records from Hakskeen Pan, the first record of *Pumilibranchipus deserti* Hamer and Brendonck, 1995 (Anostraca, Branchiopoda) from South Africa and the pursuit of a new world land speed record. *African Journal of Aquatic Science*. 44 (4). p.409-413.

von Schiller, D., Datry, T., Corti, R., Foulquier, A., Tockner, K., Marce, R., Garcia-Baquero, G., Odriozola, I., Obrador, B., Mlambo, M.C. and et al. (2019) Sediment Respiration Pulses in Intermittent Rivers and Ephemeral Streams. *Global Biogeochemical Cycles*. 33 (2019). p.1251-1263.

Shumilova, O., Zak, D., Datry, T., von Schiller, D., Corti, R., Foulquier, A., Obrador, B., Tockner, K., Allan, D.C., Mlambo, M.C. and et al. (2019) Simulating rewetting events in intermittent rivers and ephemeral streams: A global analysis of leached nutrients and organic matter. *Global Change Biology*. 25 (2019). p.1591-1611.

De Mazancourt, V., Castelin, M., Renneville, C., Mlambo, M.C., Marquet, G. and Keith, P. (2019) Revalidation of *Caridina natalensis* De Man, 1908 (Crustacea: Decapoda: Atyidae) in the South Western Indian Ocean. *Zootaxa*. 4543 (3). p.375-387.

Mlambo, M.C., Paavola, R., Fritze, H., Louhi, P. and Muotka, T. (2019) Leaf litter decomposition and decomposer communities in streams affected by intensive forest biomass removal. *Ecological Indicators*. 101 (2019). p.364-372.

#### Prevec, R.

McLoughlin, S. and Prevec, R. (2019) The architecture of Permian glossopterid ovuliferous reproductive organs. *Alcheringa*. 43 (4). p.480-510.

Dietrich, P., Franchi, F., Setlhabi, L., Prevec, R. and Bamford, M. (2019) The Nonglacial Diamictite of Toutswe Mogala Hill (Lower Karoo Supergroup, Central Botswana): Implications of the extent of the Late Paleozoic Ice Age in the Kalahari - Karoo Basin. *Journal of Sedimentary Research*. 89 (2019). p.875-889.

Sonamzi, B., Mlambo, M.C. and Barber-James, H.M.

Sonamzi, B., Mlambo, M.C., Appleton, C.C. and Barber-James, H.M. (2019) The importance of museum collections in determining biodiversity patterns, using a freshwater mussel *Unio caffer* (Krauss 1848) as an example. *Bothalia*. 49 (1). p.1-7.

## Conference / Symposium / Workshop presentations

Barber-James, H.M., Pereira da Conceicao, L.L., Sithole, H. and Holland, A.J. (2019). Using the aerial stage of aquatic insects as a freshwater biomonitoring tool - a new approach to biomonitoring in dangerous rivers. *17th Savanna Science Network Meeting*. 3-8 March 2019, Mdluli Conference Centre, Skukuza.

Dietrich, P., Franchi, F., Setlhabi, L., Prevec, R. and Bamford, M.K. (2019). The on-glacial diamictite of Toutswe Mogala Hill (Lower Karoo Supergroup, Central Botswana): implications on the extent of the Late Paleozoic Ice Age in the Kalahari Karoo Basin. *European Geosciences Union General Assembly 2019*. 7-12 April 2019, Vienna, Austria.

Ferreira, I.S. and Barber-James, H.M. (2019). Discovering the elusive nymphs of a prong-gilled mayfly in Western Cape Mountain streams. *ESSA 21 Congress*. Umhlanga, 8-12 July 2019. Program p. 6.

Gess, R.W. (2019) The Palaeoenvironment of the high latitude Devonian tetrapods from Waterloo Farm, South Africa. *15th International Symposium on Early and Lower Vertebrates*. Qujing, Yunnan Province, China, August 8th - 13th 2019. Ichthyolith Issues Special Publication 14.

Holland, A.J., Barber-James, H.M. and Sithole, H. (2019). A snapshot in time: Freshwater insect diversity in rivers of the Kruger National Park. *17th Savanna Science Network Meeting*. 3-8 March 2019, Mdluli Conference Centre, Skukuza.

Holland, A.J., de Moor, F.C. and Barber-James, H.M. (2019). Help us to name a new species of caddisfly (Trichoptera) from rivers in the Kruger National Park, South Africa. *17th Savanna Science Network Meeting*. 3-8 March 2019, Mdluli Conference Centre, Skukuza.

Holland, A.J., de Moor, F.C. and Barber-James, H.M. (2019). Interactive identification key to species of Leptoceridae (Trichoptera). *ESSA 21 Congress*. Umhlanga, 8-12 July 2019.

Miyashita, T. and Gess, R.W. (2019). Ontogeny of Palaeozoic stem lampreys as a test for the ammonoete-based model of the vertebrate ancestry. *15th International Symposium on Early and Lower Vertebrates*. Qujing, Yunnan Province, China, 8-13 August 2019.

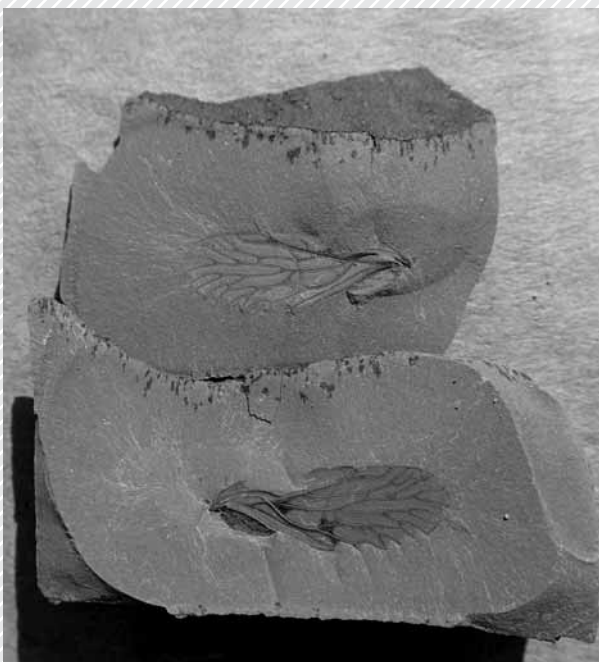
Pereira da Conceicao, L.L., Elbrecht, V., Barber-James, H.M. and Price, B.W. (2019). River biomonitoring in South Africa: Comparing morphology with DNA methods. *IBOL conference*. Trondheim, Norway. June 2019.

Trinajstić, K. and Gess, R.W. (2019) The palaeoecology of Placoderm neonate and juveniles from the Late Devonian of South Africa. *15th International Symposium on Early and Lower Vertebrates*. Qujing, Yunnan Province, China, 8-13 August 2019. Ichthyolith Issues Special Publication 14.

## Research Reports

Barber-James H.M. and de Moor F.C. (2019). The freshwater insects of the Lungue-Bungo Rivers system, Eastern Angola. *Preliminary findings of the NGOWP April 2018 Expedition*. National Geographic Okavango Wilderness project, Wild Bird Trust, South Africa. 46 pp.

Fossilised insect wing  
Credit: Albany Museum



# INSTITUTE FOR 2019 ENVIRONMENTAL BIOTECHNOLOGY (EBRU)



Institute for Environmental Biotechnology, Rhodes University (EBRU) targets research and development in environmental biotechnology at the interface between the fundamental and applied sciences.

Environmental biotechnology is defined as the branch of biotechnology that addresses environmental problems, such as the removal of pollution, renewable energy generation, biomass production, by exploiting biological processes (Nature.com 2020). As such, environmental biotechnology may be regarded as the cornerstone of a circular economy which is an economic system aimed at minimising waste and making the most of resources. Rather than the more traditional 'take, make, waste' model of production, environmental biotechnology has a regenerative approach to resources. Focus areas thus include: wastewater treatment and beneficiation, renewable energy derivation and implementation (e.g. biomass-to-biogas), biological systems; land rehabilitation and decontamination technology (e.g. post-mining, hydrocarbon spillages, etc.), natural products, agricultural, and microalgae biotechnology. Basic activities are supported by a strong emphasis on technology transfer from laboratory to full-scale commercial/industrial process application and implementation. In brief, use of natural products/microbes to perform industrially important tasks in an environmentally sustainable way is the focus of attention.

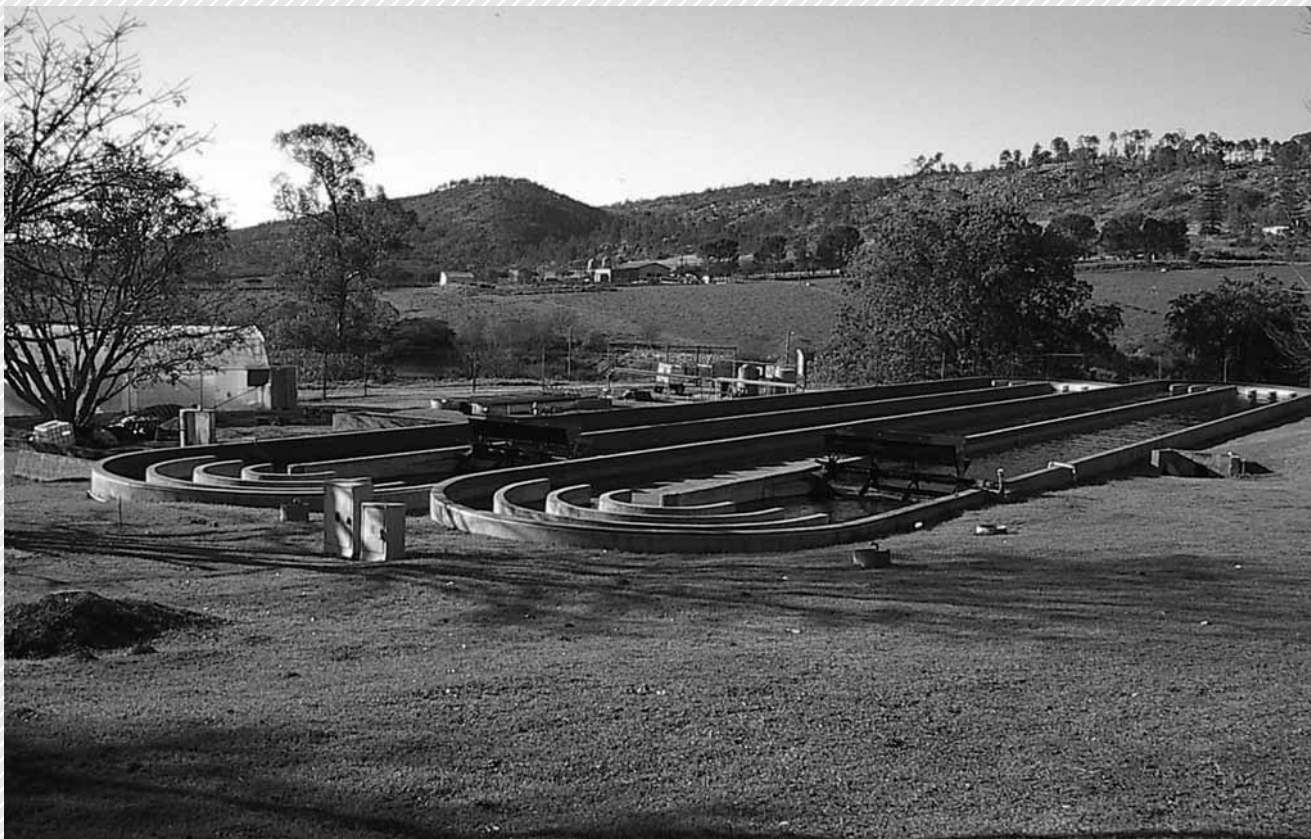
Potable water is a scarce resource in many parts of the world and there is increasing pressure on food production systems. Also, increasing pressure to obtain energy from sources other than fossil fuels is being exerted. At EBRU, we have been exploring integration of microalgae-based bioprocess technologies to achieve wastewater treatment, water recycle and re-use, energy production, and biomass utilisation. Efforts to establish a fully operational solar-driven microalgae bio-refinery for use not only in wastewater remediation but to transform waste and biomass to energy, fuels, and other useful materials (valorisation), with particular focus on environmental quality and sustainability goals remains challenging.

## Postgraduates / Graduations

In 2019 EBRU welcomed Dr Yinka Titilawo, recipient of a Rhodes University Postdoctoral Research Fellowship. Dr Titilawo brings substantial experience in the isolation and molecular characterization of bacterial/fungal biocatalysts. More broadly he boasts excellent publications in several areas that intersect with EBRU's core mandate, including: wastewater treatment, enzymology, natural products, microbial cultivation and beneficiation. His demonstrated skill in molecular biology and in broader aspects of microbiology and chemistry were used to concentrate efforts initially on the molecular characterization of manganese oxidizing bacteria in environmental samples collected from both mine soils and wastewater in a collaboration with Professor Tsikos (Geology). However, so dire was the need for molecular technology skills within the EBRU Postgraduate cohort that Dr Titilawo was inundated with requests from MSc students and PhD candidates at EBRU for intensive assistance with

*PhD candidate Keshy Keshinro harvesting root exudate from maize seedlings*  
Credit: EBRU





EBRU-developed the IAPS wastewater treatment system in Belmont Valley  
Credit: EBRU

various metagenomic studies. This has led to the molecular identification of several new biocatalysts, confirmation of some underlying mechanisms in remedial processes for reclamation of soil damaged through coal mining related activity and in the treatment of wastewater. Aspects of this work were drafted for publication and were presented at the 9th International Conference on Biotechnology and Environmental Management (ICBEM 2019), Madrid, Spain from 10 - 12 September 2019. Fortunately the fellowship has been extended into 2020 which has allowed EBRU to become more directly involved in examining wastewater for the presence, retention and as a source of antibiotic resistance genes.

Some detail of this work was presented at the Eastern Cape Medical Research Council (MRC)-sponsored conference at the East London ICC in late August 2019. Unfortunately the outbreak of the global pandemic caused by the SARS-CoV-2 virus prevented us from pursuing this vigorously. Nevertheless, antibiotic resistance genes in surface and wastewaters in the Makhanda region of the Eastern Cape Province remain a focus of our research effort and several Postgraduate students are continuing to explore this area. The research is expected to contribute to management of the flux of antibiotic resistance genes and will allow us to establish a baseline for Makhanda in terms of community behaviour, biology, and health; and open a new front in the battle to understand and combat antibiotic resistance.

Additionally, three (3) MSc degrees by research on aspects of the Rhodes University/EBRU developed IAPS sewage treatment technology, part of the Water Research Commission K1/7164 project were successfully concluded.

## Distinguished Visitors / International Visits

Professor Cowan was invited to visit the Department of Chemistry and the Plant Science Centre, Umeå University, Sweden as a guest of Professor Christiane Funk where he presented a seminar for staff and students on algae-based wastewater treatment titled *"Water repair: the essence of biotechnology for a circular economy"*.

In addition, a number of discussions were held with various staff and research students from Umeå University and the Swedish University of Agricultural Sciences on aspects related to contemporary biotechnological solutions to address water treatment and reuse, renewable energy and biomass production through exploitation of microalgae.

## Significant Research Aligned Events

Research papers by staff and Postgraduate students were presented at several international conferences including the 9th International Conference on Biotechnology and Environmental Management (ICBEM 2019) held at the Technical University of Madrid, Spain in September and, ALGAEUROPE 2019, which was held at the UIC-P Espaces Congrès, Paris, France in November. Also, EBRU was an active participant in the Medical Research Council (MRC) Research Symposium *"Advancing research in the Eastern Cape Province"*, held in East London International Convention Centre between 29 - 30 August, 2019.

**Professor Ashton Keith Cowan**

*Director*



## International Visits

Cowan, A.K.

Cowan, A.K. Department of Chemistry, Umeå University, Umeå, Sweden. *Water repair and microalgal biotechnology*. 2 - 5 June 2019.

## Patents

Cowan, A.K., Edeki, O.G., Igbinigie, E.E. and Isaacs, M.

Cowan, A.K., Edeki, O.G., Igbinigie, E.E. and Isaacs, M. (2019) *Treatment of a hydrocarbon component*. South Africa. 2019. 2017/07232.

Cowan, A.K., Edeki, O.G., Madikiza, L., Sekhohola, L.M. and Isaacs, M.

Cowan, A.K., Edeki, O.G., Madikiza, L., Sekhohola, L.M. and Isaacs, M. (2019) *Treatment of a coal component*. South Africa. 2019. 2017/07229.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Cowan, A.K. and Laubscher, R.

Cowan, A.K. and Laubscher, R. (2019) Wastewater solutions go to waste! *Water, Sewage and Effluent*. 39 (2). p.14-19.

Cowan, A.K., Jimoh, T.A., Laubscher, R.

Cowan, A.K., Jimoh, T.A., Laubscher, R., and Askew, D. 2019. Golden Ponds peroxonated - for water, energy, and food. *Water Sewage and Effluent*. 39 (1). p. 28-33.

Jimoh, T.A., Keshinro, M.O. and Cowan, A.K.

Jimoh, T.A., Keshinro, M.O. and Cowan, A.K. (2019) Microalgal-Bacterial Flocs and Extracellular Polymeric Substances: Two Essential and Valuable Products of Integrated Algal Pond Systems. *Water, Air, & Soil Pollution*. 230 (95). p.1-18.

Van Breugel, Y. and Cowan, A.K.

Van Breugel, Y., Cowan, A.K. and Tsikos, H. (2019) Geochemical Study of Weathered Coal, a Co-Substrate for Bioremediation of South African Coal Discard Dumps. *Minerals*. 9 (772). p.1-15.

## Peer-reviewed Proceedings

Laubscher, R.

Madikizela, P., Madondo, R., Odume, N.O., Laubscher, R. and Tandlich, R. Disaster management and land use policy in Sarah Baartman District Municipality. *2019 CRISON: Crisis Management and the solutions for Crisis Situations*. University of Tomáa, Uherské Hradité. Czech Republic. September 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Cowan, A.K., Jimoh, T.A., Sibelo, L. and Laubscher, R.

Cowan, A.K., Jimoh, T.A., Sibelo, L. and Laubscher, R. Elaboration of an algae-to-energy system. *AlgaEurope2019*. UIC-P Espaces Congrès, Paris. France. December 2019.

Jimoh, T.A. and Cowan, A.K.

Jimoh, T.A. and Cowan, A.K. Microalgal-bacterial flocs: biotechnological significance. *AlgaEurope2019*. UIC-P Espaces Congrès, Paris. France. December 2019.

Laubscher, R.

Vhiriri, E.P., Maguire, K.A., Navidad, F.C., Moricova, V., Laubscher, R. and Tandlich, R. On the role of pharmacists in disaster risk management in South Africa. *2019 Annual Conference of the Disaster Management Institute of Southern Africa*. ATKV Resort and Conference Centre, Mossel Bay. South Africa. September 2019.

Titilawo, O. and Cowan, A.K.

Titilawo, O. and Cowan, A.K. Genetic relatedness of bacteria with coal-degrading potential isolated from coal slurry and diesel-contaminated soil: implication for bioremediation. *9th International Conference on Biotechnology and Environmental Management (ICBEM 2019)*. Technical University of Madrid, Madrid, Spain, September 2019.



2019 was a significant year for the Institute for the Study of the Englishes (ISEA) on a number of fronts. In March 2019, long-standing Professor of poetry and WordFest founder, Professor Chris Mann, received a Gold Medal from the English Academy of Southern Africa for distinguished service to English over a lifetime. This prestigious award is in recognition, primarily, of his contribution in both written and performance poetry, as well as his pivotal role in the multicultural festival of writing that is WordFest.

In terms of publications, award winning poet, Mangaliso Buzani's, anthology entitled *A Naked Bone* was launched in April 2019. In May 2019, a volume written by colleagues in the ISEA, Rhodes University Mathematics Education Project (RUMEP) and Centre for Social Development (CSD) and edited by Monica Hendricks and Giulietta Harrison, on the research conducted in the Northern Cape, entitled *Lessons from the Kalahari: Tracking teachers' professional development* was published.

Also in May 2019, the triennial congress of the Shakespeare Society of Southern Africa took place at the Fugard Theatre in Cape Town.

From February to November 2019, the ISEA hosted Dr Qiana Gray, an English Language Fellow-in-Residence, kindly sponsored by the United States Information Service. Dr Gray assisted with the BEd in English Language Teaching and conducted workshops for the Eastern Cape English Educators' Association in Queenstown. She also injected fresh energy and much-needed expertise into shifting our teaching towards becoming more online and digital.

## Postgraduates / Graduations

A total of twenty-three (23) BEd in English Language Teaching students graduated on 11 April 2019. Twenty-two (22) were English teachers and Subject Advisers, funded by the Eastern Cape provincial Basic Education Department, and one a teacher of the Northern Cape who had repeated a third year module. Two (2) graduated with distinction.

At Postgraduate level, there were two (2) graduates: one (1) MEd in English Language Teaching graduate, supervised by Dr Madeyandile Mbelani; and ISEA financial administrator, Carol Leff, who was awarded her PhD in Literary Studies supervised by Professor Sam Naidu of the Department of Literary Studies in English.

### *The English Academy of Southern Africa awards function*

*From left to right: Professor Laurence Wright, Professor Mbongeni Malaba - President of English Academy of Southern Africa, Mr Bruce Bushula who received the Gwen Knowles-Williams bursary award, Professor Chris Mann who received a gold medal award for distinguished service to English over a lifetime, and Julia Skeen*

*Credit: ISEA*

## Distinguished Visitors / International Visits

Dr Qiana Gray.

Dr Madeyandile Mbelani.

Dr Brian Willan.

Professor Laurence Wright.

## Significant Research Aligned Events

A volume written by colleagues in the ISEA, RUMEP and CSD and edited by Monica Hendricks and Giulietta Harrison was published in May, *Lessons from the Kalahari: Tracking teachers' professional development*. This book was a collaborative effort based on research conducted by the three (3) units in the Northern Cape.

Dr Rethabile Mawela received a University capacity development grant for 2019 - 2020. The purpose of this research is to run workshops in the Komani, Willowvale and Adelaide districts and to establish reading clubs in order to encourage reading for pleasure. This research project is already underway.

Professor Monica Hendricks was on sabbatical from March to December 2019, during which time she worked on a Professional Master of Education curriculum. She also spent a three (3)-week study visit at the Zurich University of Teacher Education in May and gave a lecture entitled *Nothing but the Truth about Teaching and Learning a Play in a Multicultural Environment* to a combined Bachelor and Master's group on Thursday 9 May 2019.

Honorary Research Associate, Dr Brian Willan presented a series of lectures, seminars and conference papers from January to September 2019. He presented three (3) lectures at the University of Cape Town (UCT) Summer School, 8 - 10 January 2019: *Sol Plaatje: a biographical introduction*; *Leader of his people: Plaatje as political spokesman*; *A pioneer in literature? Plaatje's writings in English and Setswana*. He also presented a public lecture, *Remembering Sol Plaatje: restoring Mahikeng to the narrative* as well as two (2) seminars, *Sol Plaatje's journalism and Mhudi and its Critics* and to Humanities Department, North West University, Mahikeng, 25 - 27 April 2019. The latter seminar was also presented at the Humanities Department, Sol Plaatje University, Kimberley, 30 April 2019.

He presented *Isaiah Bud-M'belle (1870-1947): some biographical reflections* at Rhodes University, Makhanda. Southern African Historical Society, 24 - 26 June 2019, and in September 2019 he participated in a lecture/discussion on Sol Plaatje, via Skype to History students of the University of the Western Cape, 16 September 2019.

Ms Fulani participated in two (2) conferences. She presented a paper entitled *Poetry teaching: Providing access and enjoyment* at the Literacy Association of South Africa (LITASA), University of Cape Town, Cape Town, 13 July 2019, and she also presented a paper entitled *Translanguaging: Providing a voice to diverse identities* Africa Tesol International Conference, Abuja, Nigeria, 10 August 2019.

Dr Leff presented a paper entitled *Treading Water: Ecological Concerns in Helon Habila's Oil on Water*, Literature and Ecology Colloquium, Amazwi South African Museum of Literature, Grahamstown/Makhanda, 26 - 28 September 2019.

Dr Mawela presented two (2) conference papers. One, entitled *Storytelling: an Exciting Pedagogic Approach to the Acquisition of Reading and Writing skills* was presented at the Literacy Association of South Africa (LITASA), University of Cape Town, 14 July 2019. While the other *Using Indigenous Pedagogy to Teach English in Multicultural Africa* was presented at the Africa Tesol International Conference, Abuja, Nigeria. Dr Mawela was the Featured Speaker at the conference on 9 August 2019.

### Professor Monica Hendricks

Director



(above) Students at graduation  
(left) Mrs Ntombekhaya Fulani (centre) with, Mr Mlamli Piko and Ms Xolela Ntकिनca, the two students who graduated with distinction  
Credit: ISEA



## Books/Chapters/Monographs

Hendricks, M.

Hendricks, M. and Johanson Botha, L. (2019) What are the dominant sites of teachers' early literacy acquisition? Insights from Northern Cape teachers' narratives. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle on Tyne: Cambridge Scholars Publishing. p.49-74. ISBN: 9781527531710.

Hendricks, M. and Harrison, G.D. (2019) Introduction to a programme of teacher development in Northern Cape. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle on Tyne: Cambridge Scholars Publishing. ISBN: 9781527531710.

Hendricks, M. and McCarthy, K.A.

Hendricks, M., Fulani, N.L. and McCarthy, K.A. (2019) Making poetry enjoyable and accessible: Towards excellent teaching. In: Newcastle on Tyne: Cambridge Scholars Publishing. p.180-200.

Mann, C.M.

Mann, C.M. (2019) Elegiac Ballads: a Triptych. In: de Lange, J. (ed.). *I wish I'd said Vol 2*. 2nd Ed. Pretoria: Naledi. p.34-37. ISBN: 9781928426950.

## Concerts, Exhibitions, Performances, Workshops, Events

Mann, C.M.

Mann, C.M. Guest writer. Poems from South Africa. *Incroce di Civilita International Festival of Poetry*. University of Ca Foscari, Venice. Italy. 5 - 7 April 2019.

Mann, C.M. Guest writer. Poems from South Africa. *Vicenza International Poetry Festival*. Teatro Olimpico, Vicenza. Italy. 7 - 9 April 2019.

Mann, C.M. Writer/performer. Sweet is the Fruit of the Prickly Pear. *Spiritfest National Arts Festival*. Cathedral, Makhanda. South Africa. 5 July 2019.

Mann, C.M. Author/performer. Sweet is the Fruit of the Prickly Pear. *South African Ecology Literature Conference*. Auditorium: Amazwi Literature Museum, Makhanda. South Africa. 28 September 2019.

Mann, C.M. Author/performer. The Deep Deep Sweet of Love. *Wedding*. Crystal Barn, Natal Midlands. South Africa. 8 - 1 October 2019.

Mann, C.M. Author/performer. Sweet is the Fruit of the Prickly Pear. *McGregor Poetry Festival*. Shrine, McGregor. South Africa. 25 September - 27 January 2019.

Mann, C.M. Guest writer and guest of honour. Introduction to Creative Writing. *Centre for Creative Writing, Durban University of Technology*. Botanical Gardens Conference Venue, Durban. South Africa. 2 October 2019.

Mann, C.M. Author/performer. Anglican Deans of South Africa Colloquium. *Sweet is the Fruit of the Prickly Pear*. Kingswood College, Makhanda. South Africa. 13 November 2019.



Ms Ruth Woudstrar conducting a workshop in Kuruman, Northern Cape  
Credit: ISEA

## Peer Reviewed Subsidy-Earning Journal Research Publications

Hendricks, M.

Johanson Botha, L. and Hendricks, M. (2019) Identity Agency and Imagination in Literacy Acquisition Narratives of Northern Cape Teachers. *Education as Change*. 23 (2019). p.1-24.

Leff, C.

Leff, C. (2019) Book Review: The Routledge Diaspora Studies Reader. *Scrutiny* 2. 24 (1). p.104-109.

Mann, C.M.

Mann, C.M. (2019) The Poetry of Belonging: Episodic Memory and the Shades. *Current Writing*. 31 (2). p.141-154.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

Leff, C.

Leff, C. Treading Water: Ecological Concerns in Helon Habila's *Oil on Water*. *Literature and Ecology Colloquium 2019*. Amazwi South African Museum of Literature, Makhanda. South Africa. September 2019.



From left to right: Dr Qiana Gray, Rethabile Mawela and Ntombekhaya Fulani ran the ECEEA workshops  
Credit: ISEA



## Books/Chapters/Monographs

**Fine, B.**

**Reynolds, J. and Fine, B.** (2019) Introduction: Revisiting Harold Wolpe in Post-apartheid South Africa. In: Reynolds, J.H., Fine, B. and Van Niekerk, R. (eds.). *Race, Class and the Post-apartheid Democratic State*. Durban: University of KwaZulu-Natal Press. p.1-28. ISBN: 9781869144197.

**Fine, B. and Van Niekerk, R.**

**Reynolds, J., Fine, B. and Van Niekerk, R.** (ed.) (2019) *Race, Class and the Post-apartheid Democratic State*. Durban: University of KwaZulu-Natal Press. ISBN: 9781869144197.

**Grapsa, E.**

**Grapsa, E., Mncwango, B. and Rogan, M.** (2019) Education and skills mismatch in the South African labour market. In: Rogan, M.J. (ed.). *Post-School Education and the Labour Market in South Africa*. Cape Town: HSRC Press. p.223-241. ISBN: 9780796924636.

## Other Publications

**Moller, V.**

**Moller, V. and Roberts, B.J.** (2019) . In: *Online Appendix: The Best and Worst Times of Life for South Africans: Evidence of universal reference standards in evaluations of personal well-being using Bernheim's ACSA*. Grahamstown: Rhodes University.

Graham, L., Stuart, L., Richards, R., Mthembu, S. and **Moller, V.** (2019). In: *Youth transitions in South African communities*. South Africa: University of Johannesburg.

## Peer Reviewed Subsidy-Earning Journal Research Publications

**Cottle, E.**

**Cottle, E.** (2019) Competing Marxist Theories on the Temporal Aspects of Strike Waves: Silver's Product Cycle Theory and Mandel's Long Wave Theory. *Global Labour Journal*. 10 (1). p.37-50.

**Grapsa, E.**

Sanye-Mengual, E., Specht, K., **Grapsa, E.**, Orsini, F. and Gianquinto, G. (2019) How Can Innovation in Urban Agriculture Contribute to Sustainability? A Characterization and Evaluation Study from Five Western European Cities. *Sustainability*. 11 (4221). p.1-31.

**Hoffmann, N.**

**Hoffmann, N.** (2019) When are experiments corrupt? *Journal of Contemporary African Studies: JCAS*. 36 (4). p.532-552.

**Hoffmann, N. and Hendricks, F.**

**Hoffmann, N. and Hendricks, F.** (2019) African perspectives on corruption. *Journal of Contemporary African Studies: JCAS*. 36 (4). p.425-432.





In 2019 the Institute for Water Research (IWR) had a most rewarding year. The IWR has been a leading research institute at Rhodes University for twenty-eight (28) years, with sustained national and international reputation, research excellence and financial sustainability.

The most recent evidence of this is our success in becoming the African Research Universities' Alliance (ARUA) Water Centre of Excellence (CoE), in a competitive process. Professor Tally Palmer is the Water CoE Director. Dr Jane Tanner (IWR) and Professor Zerihun Woldu (Addis Ababa University, Ethiopia) are co-Directors. The CoE comprises nine (9) university-based nodes in seven (7) countries: Addis Ababa University, Ethiopia; University Rwanda, Rwanda; University Cheikh Anta Diop, Senegal; Dar es Salaam University, Tanzania; Makerere University, Uganda; University Lagos, Nigeria; University Cape Town, University of KwaZulu-Natal, and Rhodes University (the CoE hub), South Africa. Delegates from all the nodes attended an Inception workshop 26-30 May 2019, at Rhodes university, and a strong, vibrant network emerged from the process.

Postdoctoral Research Fellow, Dr Matthew Weaver successfully nominated Professor Tally Palmer for the 2019 Vice-Chancellors Distinguished Award for Community Engagement. The IWR engaged research team worked together with the Division of Community Engagement to facilitate an engaged research event rather than the traditional award lecture. IWR hosted a public meeting *Water: Clean, Reliable, Fair* at the Makhanda City Hall, attended by one hundred and fifty (150) residents including municipal leaders and officials, government departments, civil society organisation and local business leaders, who each had the chance to learn and share their knowledge, about how water in Makana and its catchments, can become reliable, clean and fairly distributed.

We have also welcomed Tony Palmer as an Honorary Professor in the IWR. Tony leads research in Eco-Hydrology.

## Postgraduates / Graduations

The IWR celebrated Graduation with three (3) Doctoral degrees: Dr Bukho Gusha, Dr Matthew Weaver, and Dr Notiswa Libala; and six (6) Master's degrees: Mateboho Ralekhetla, Qawekazi Mkabile, Frank Akamagwuma, Kyle Smetherham, Caitlin Smith and Margaret Wolff. Ms Caitlin Smith achieved a Distinction for her work on palmiet wetlands.

In 2020 Masters' graduate Mateboho Ralekhetla will begin her doctoral studies, and all three (3) Doctoral graduates will remain in the Institute as Postdoctoral Research Fellows in 2020.

*Group discussions by participants at Water: Clean, Reliable, Fair public meeting held in Makhanda City Hall*  
Credit: IWR



## Distinguished Visitors / International Visitors

The ARUA Water CoE was formally launched by Dr Ernest Aryeetey, ARUA Secretary General, at an event hosted by Rhodes University Vice-Chancellor, Dr Sizwe Mabizela.

The IWR was visited by representatives from the Oldenburgisch-Ostfriesischer Wasserverband (OOWV), a German public utility that supplies drinking water in Germany, and from the Technical University of Braunschweig on 27 March 2019. The visit has resulted in a number of proposals being submitted with the Hydrology group as well as a publication, and resulted in PhD candidate, Mr David Gwapedza spending three (3) months (September to November 2019) on an exchange at the Technical University of Braunschweig in Germany. This visit involved setting up a detailed hydrological model for the Buffalo City Municipality.

## Significant Research Aligned Events

The ARUA launch was followed by a strong co-operative effort to develop a proposal for a UKRI:GCRF Capacity Development Grant entitled *Water for African SDGs*, which has been awarded. The first activity will be a training course for three (3) participants from each of the CoE nodes: a senior-/mid-career, an early

career researcher and a Postgraduate student. The course will be presented and facilitated by Professor Tally Palmer and will focus on applying the newly developed Adaptive Systemic Approach to engaged, transdisciplinary research.

The ARUA Water CoE was well represented at the ARUA biennial conference in Nairobi. We hosted an early career research workshop on Systems Thinking, focussed on land and water and the UN Sustainable Development Goals (SDGs). Dr Tanner, Dr Kabenge and Professor Faye presented papers in the Water parallel session, and Professor Palmer spoke in the final plenary panel.

Another highlight of the year was the funding news for the Intra-Africa Mobility grant. Through the grant, a consortium of five (5) African Universities and one (1) European University will be established. Rhodes is the lead, and the partners include: University of Kinshasa, Democratic Republic of Congo; Federal University of Technology, Minna, Nigeria; Makerere University, Uganda; National School of Hydraulic Engineering, Algeria; and TuDelft Netherlands (European, Technical partner). The European Union Commission-funded Intra-Africa mobility scheme is aimed at strengthening capacity for research and teaching, promoting internationalisation, multiculturalism, and multilingualism among African Universities.



*A white stinkwood tree was planted on Mountain Drive in remembrance of Emeritus Professor Jay O'Keeffe of the Institute for Water Research (IWR), who passed away last year*

*Left to right: Professor Christopher McQuaid, Jay's son, Max, Lesley McQuaid and Colin Meyer*

*Credit: IWR*

Dr Odume co-organised and facilitated the first ever special African session at the 2019 Society for Freshwater Science (SFS) Conference in Salt Lake City, USA. The special session attracted African delegates from most regions (East, South, North, West) of Africa.

Dr Nelson Odume was invited to participate as a panellist on water governance challenges in the Eastern Cape, during a water colloquium organised by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). In 2017, Dr Odume and Professor Tally Palmer were invited to participate in a transformational learning workshop by the Institute of Environmental Systems Research at the University of Osnabruck, Germany. Following this invitation, in 2018 a collaborative consortium from Universities across Germany and South Africa secured competitive funding from the Volkswagen Foundation and the first workshop was co-hosted at Rhodes University by the Environmental Learning Research Centre (ELRC) and the IWR.

Ms Khaya Mgaba presented an invited talk at the 2019 Water Research Commission Symposium, while Dr Weaver presented a paper at the 37th Annual Conference of the Environmental Education Association of Southern Africa. Mr Fry presented a poster at the Society for Ecological Restoration Conference.

Several community engagement initiatives led by Ms Khaya Mgaba, the IWR Senior Technical Officer, continue to flourish. UCEWQ took learners from Kingswood College on a mini-SASS5 demonstration in the Palmiet River just outside Makhanda. UCEWQ also participated in the Round Square conference hosted by St Andrew's College. The theme of the conference was *Embracing our realities, growing our opportunities*. During the conference, Ms Mgaba, demonstrated

water quality testing, freshwater invertebrate adaption and water quality assessment using mini-SASS.

Rhodes University applied to host one (1) of the Centres of the Africa Multiple Clusters of Excellence on African Studies. The clusters are funded by the University of Bayreuth. Dr Nelson Odume, Director of the Unilever Centre for Environmental Water Quality within the IWR, is part of the Rhodes university Cluster of Excellence, opening up further opportunities for Postdoctoral and Doctoral student funding as well as opportunities for trans-disciplinary research.

Hydrology researchers within the IWR had an eventful year with significant media coverage of contributions to local drought relief activities. In February 2019, the Gift of the Givers requested information on Makhanda's groundwater supplies. The IWR hydrology group has data on local groundwater over a number of years, and was in the best position to provide technical support for the citing of boreholes for drought relief efforts. Sixteen (16) boreholes were sunk in total and were located in key areas (schools, Rhodes University, the 1820 Settler Monument) or in locations where the boreholes could be linked into the water reticulation system. The IWR played an active role in the citing of these boreholes.

Dr Jane Tanner spent two (2) weeks in Montpellier with the IRSTEA research group learning Agent Based Modelling (ABM) with IRSTEA Director Dr Olivier Barreteau. Subsequently Mr David Gwapedza, a hydrology PhD candidate was sponsored by IRSTEA to attend a two (2)-week course on ABM in Montpellier in October 2019. One of the outcomes of this collaboration was an invitation to Dr Tanner to speak at the recent French-South Africa Science and Innovation days held



*Water: Clean, Reliable, Fair public meeting*

*From left to right: Mr Mzukisi Mpahlwa, Makhanda Mayor; Professor Tally Palmer, Dr Sizwe Mabizela, Rhodes University Vice-Chancellor; and Mr Ramie Xonxa, Makhanda Councillor*

*Credit: IWR*



in Pretoria on 3 - 4 December 2019. Dr Tanner and Dr Sukhmani Mantel attended the innovation days and are actively pursuing increased collaboration with French researchers. IRSTEA Director Dr Olivier Barreteau has recently been appointed as a board member on the ARUA CoE Water advisory board.

Dr Jane Tanner was invited to be part of the technical advisory group of the newly established Environmental Freshwater and Terrestrial Environmental Observation Network (EFTEON). This seems to be an exciting initiative which will form new instrumented research catchments in South Africa.

**Professor CG (Tally) Palmer**  
*Director*



Ms Diana Hornby (left) with Professor Tally Palmer (right), recipient of the Vice-Chancellors Distinguished Award for Community Engagement, at the 2019 Graduation Ceremony  
Credit: IWR

## Books/Chapters/Monographs

De Wet, C.

De Wet, C. (2019) Assessing country safeguards as a protection/benefit for those who are displaced by development projects: The case of democratic South Africa. In: Price, S. and Singer, J. (eds.). *Country Frameworks for Development Displacement and Resettlement: Reducing Risk, Building Resilience*. London: Routledge Studies in Development, Mobilities and Migration. p.133-152. ISBN: 9781138491892.

Slinger, J.H.

Slinger, J.H. (2019) The interdisciplinary challenge. In: Liujendijk, A. and Van Oudenhoven, A. (eds.). *The Sand Motor: A nature-based response to climate change. Findings and reflections of the interdisciplinary research programme NatureCoast*. Delft Netherlands: Delft University Publishers. p.192-193. ISBN: 9789463840217.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

Edegbene, O.A.

Edegbene, O.A., Elakhame, L.A., Arimoro, F.O. and Osimen, E.C. (2019) Qualitative Habitat Evaluation Index and some selected macro-invertebrate taxa metrics as a diagnostic tool for assessing pollution loads in a Municipal River in North Central Nigeria. *Tropical Freshwater Biology*. 28 (1). p.1-16.

Mantel, S.K.

Januchowski-Hartley, S., Mantel, S.K., Barber-James, H.M., Celi, J., Olden, J.D., Piccolo, J.J. and Hermoso, V. (2019) Perceptions of a curriculum vitae clinic for conservation science students. *Conservation Science and Practice*. e37 (2019). p.1-7.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Akamagwuna, F.C., Mensah, P., Nnadozie, C.F. and Odume, N.O.

Akamagwuna, F.C., Mensah, P., Nnadozie, C.F. and Odume, N.O. (2019) Evaluating the responses of taxa in the orders *Ephemeroptera*, *Plecoptera* and *Trichoptera* (EPT) to sediment stress in the Tsitsa River and its tributaries, Eastern Cape, South Africa. *Environmental Monitoring and Assessment*. 191 (664). p.1-15.

Akamagwuna, F.C., Mensah, P., Nnadozie, C.F. and Odume, N.O.

(2019) Trait-based responses of *Ephemeroptera*, *Plecoptera*, and *Trichoptera* to sediment stress in the Tsitsa River and its tributaries, Eastern Cape, South Africa. *River Research and Applications*. 35 (2019). p.999-1012.

Choruma, D.J. and Odume, N.O.

Choruma, D.J., Balkovic, J. and Odume, N.O. (2019) Calibration and Validation of the EPIC model for Maize production in the Eastern Cape, South Africa. *Agronomy Journal*. 9 (494). p.1-16.

Choruma, D.J. and Odume, N.O. (2019) Exploring Farmers? Management Practices and Values of Ecosystem Services in an Agroecosystem Context? A Case Study from the Eastern Cape, South Africa. *Sustainability*. 11 (6567). p.1-22.

Wolff, M.G., De Wet, C., Weaver, M.J.T., Ralekhetla, M.M., Libala, N., Mabile, Q., Odume, N.O. and Palmer, C.G.

Wolff, M.G., Cockburn, J., De Wet, C., Carlos Bezerra, J., Weaver, M.J.T., Finca, A., De Vos, A., Ralekhetla, M.M., Libala, N., Mabile, Q., Odume, N.O. and Palmer, C.G. (2019) Exploring and expanding transdisciplinary research for sustainable and just natural resource management. *Ecology and Society*. 24 (4). p.1-10.

Edegbene, O.A. and Odume, N.O.

Edegbene, O.A., Arimoro, F.O. and Odume, N.O. (2019) Developing and applying a macroinvertebrate-based multimetric index for urban rivers in the Niger Delta, Nigeria. *Ecology and Evolution*. 2019. p.1-17.

Edegbene, O.A., Elakhame, L.A., Arimoro, F.O., Osimen, E.C. and Odume, N.O.

(2019) Development of macroinvertebrate multimetric index for ecological evaluation of a river in North Central Nigeria. *Environmental Monitoring and Assessment*. 191 (274). p.1-18.

Ezenne, G.I. and Tanner, J.L.

Ezenne, G.I., Obalum, S.E. and Tanner, J.L. (2019) Physical-hydraulic properties of tropical sandy-loam soil in response to rice-husk dust and cattle dung amendments and surface mulching. *Hydrological Sciences Journal - Journal Des Sciences Hydrologiques*. 64 (14). p.1746-1754.

Ezenne, G.I., Mantel, S.K. and Tanner, J.L.

Ezenne, G.I., Jupp, L., Mantel, S.K. and Tanner, J.L. (2019) Current and potential capabilities of UAS for crop water productivity in precision agriculture. *Agricultural Water Management*. 218 (2019). p.158-164.

Hughes, D.A.

Hughes, D.A. (2019) A simple approach to estimating channel transmission losses in large South Africa river basins. *Journal of Hydrology: Regional Studies*. 25 (2019). p.1-15.



**Hughes, D.A.** (2019) Facing a future water resources management crisis in sub-Saharan Africa. *Journal of Hydrology: Regional Studies*. 23 (2019). p.1-11.

**Libala, N., Odume, N.O. and Palmer, C.G.**

**Libala, N., Odume, N.O. and Palmer, C.G.** (2019) Using a trait-based approach for assessing the vulnerability and resilience of hillslope seep wetland vegetation cover to disturbances in the Tsitsa River catchment, Eastern Cape, South Africa. *Ecology and Evolution*. 2019. p.1-15.

**Lidzhegu, Z. and Mantel, S.K.**

**Lidzhegu, Z., Ellery, W.N. and Mantel, S.K.** (2019) Incorporating Geomorphic Knowledge in the Management of Wetlands in Africa's Drylands: a Rapid Assessment of the Kafue Wetland. *Wetlands*. 2019. p.1-15.

**Lidzhegu, Z., Mantel, S.K. and Hughes, D.A.**

**Lidzhegu, Z., Ellery, W.N., Mantel, S.K. and Hughes, D.A.** (2019) Delineating wetland areas from the cut-and-fill method using a Digital Elevation Model (DEM). *South African Geographical Journal*. 2019. p.1-19.

**Mantel, S.K., De Wet, C. and Palmer, A.R.**

**Murata, C., Mantel, S.K., De Wet, C. and Palmer, A.R.** (2019) Lay Knowledge of Ecosystem Services in Rural Eastern Cape Province, South Africa: Implications for Intervention Program Planning. *Water Economics and Policy*. 5 (2). p.1-5.

**Mensah, P.**

**Nondlazi, S., Ngqwala, N., Zuma, B.M., Mensah, P. and Tandlich, R.** (2019) Effect of fly ash-lime treatment on the acute toxicity of greywater towards *Daphnia magna*. *Nova Biotechnologica et Chimica*. 18 (1). p.59-65.

**Nnadozie, C.F.**

**Gasa, N.P., Nnadozie, C.F., Kosgey, K., Bux, F. and Kumair, S.** (2019) Effect of ammonium to nitrite ratio on reactor performance and microbial population structure in anammox reactors. *Environmental Technology*. 2019. p.1-16.

**Nnadozie, C.F. and Odume, N.O.**

**Nnadozie, C.F. and Odume, N.O.** (2019) Freshwater environments as reservoirs of antibiotic resistant bacteria and their role in the dissemination of antibiotic resistance genes. *Environmental Pollution*. 254 (2019). p.1-15.

**Odume, N.O.**

**Odume, N.O.** (2019) Searching for urban pollution signature and sensitive macroinvertebrate traits and ecological preferences in a river in the Eastern Cape of South Africa. *Ecological Indicators*. 2019. p.1-10.

**Odume, N.O. and De Wet, C.**

**Odume, N.O. and De Wet, C.** (2019) A Systemic-Relational Ethical Framework for Aquatic Ecosystem Health Research and Management in Social-Ecological Systems. *Sustainability*. 11 (5261). p.1-17.

**Palmer, C.G. and Preston, I.R.**

**Le Maitre, D., Blignaut, J.N., Louw, L., Palmer, C.G. and Preston, I.R.** (2019) The aliens have invaded! *Water, Sewage and Effluent*. 39 (3). p.21-23.

**Ramatsabana, P.P., Tanner, J.L., Mantel, S.K., Palmer, A. and Ezenne, G.I.**

**Ramatsabana, P.P., Tanner, J.L., Mantel, S.K., Palmer, A. and Ezenne, G.I.** (2019) Evaluation of Remote-Sensing based Estimates of Actual Evapotranspiration over (Diverse Shape and Sized) Palmiet Wetlands. *Geosciences*. (Switzerland). 9 (491). p.1-17.

**Slinger, J.H.**

**Janssen, S., Vreugdenhil, H., Hermans, L. and Slinger, J.H.** (2019) On the nature based flood defence dilemma and its Resolution: A game theory based analysis. *Science of the Total Environment*. 2019. p.1-9.

**de Boer, W.P., Mao, Y., Hagenaaars, G., de Vries, S., Slinger, J.H. and Vellinga, T.** (2019) Mapping the sandy beach evolution around seaports at the scale of the African continent. *Journal of Marine Science and Engineering*. 7 (151). p.1-26.

**de Boer, W.P., Slinger, J.H., wa Kangeri, A.K., Vreugdenhil, H.S.I., Taneja, P., Appeaning Addo, K. and Vellinga, T.** (2019) Identifying Ecosystem-Based Alternatives for the Design of a Seaport's Marine Infrastructure: The Case of Tema Port Expansion in Ghana. *Sustainability*. 11 (6633). p.1-19.

**McEvoy, S., van de Ven, F.H.M., Santander, A.G. and Slinger, J.H.** (2019) The Influence of context on the use and added value of Planning Support Systems in workshops: An exploratory case study of climate adaptation planning in Guayaquil, Ecuador. *Computer Environment and Urban Systems*. 77 (101353). p.1-12.

**Weaver, M.J.T., O'Keeffe, J.H., Hamer, N.G. and Palmer, C.G.** **Weaver, M.J.T., O'Keeffe, J.H., Hamer, N.G. and Palmer, C.G.** (2019) A civil society organisation response to water service delivery issues in South Africa drives transformative praxis. Part 2: Knowledge building, learning and active citizenship. *Geoforum*. 107 (2019). p.14-23.

**Weaver, M.J.T., O'Keeffe, J.H., Hamer, N.G. and Palmer, C.G.** (2019) A civil society organisation response to water service delivery issues in South Africa drives transformative praxis, Part 1: Emergence and practice. *Geoforum*. 107 (2019). p.1-13.

## Peer-reviewed Proceedings

**Nnadozie, C.F.**

**Tandlich, R., Angala, A.N., Vhiriri, E.P., Ngqwala, N., Zuma, B.M. and Nnadozie, C.F.** Scoping the WASH vulnerability of the population in Southern African Development Community: Angola and Namibia. *24th International Scientific Conference - Solutions for crisis situations in specific environments*. University of Zilina, Zilina. Slovakia. May 2019.

**Odume, N.O.**

**Madikizela, P., Madondo, R., Odume, N.O., Laubscher, R. and Tandlich, R.** Disaster management and land use policy in Sarah Baartman District Municipality. *2019 CRISON: Crisis Management and the solutions for Crisis Situations*. University of Tomáa, Uherské Hradite. Czech Republic. September 2019.

# 2019

RHODES UNIVERSITY

## MATHEMATICS EDUCATION PROJECT (RUMEP)



The Rhodes University Mathematics Education Project (RUMEP) experienced another productive year with three (3) groups of BEd (in-service) mathematics students totalling eighty-two (82) registered for the year. Although there has been a decrease in funding for teacher development in South Africa, RUMEP has still been supported by dedicated funders who recognise the quality of their work with teachers.

On the research front, a book was published tracking teachers' professional development was the culmination of work done in teacher education in the Northern Cape Province by a consortium at Rhodes University. Three (3) staff members Mr Haywood, Mr Matlala and Mr Penlington contributed chapters to the book, a first for RUMEP.

The first conference held outside the borders of South Africa was attended by a staff member, Ms Nobongoza-Mkhwane in December. The paper dealt with the RUMEP Collegial Cluster Professional Development Model.

### Postgraduates / Graduations

Two (2) RUMEP staff members, Mr Ronald Griqua (with distinction) and Mr Philani Mhlongo completed their MEd theses during the year. Mr Silence Balele completed his Postgraduate Diploma in Higher Education and will register next year for his Masters.

At the April graduation ceremony, thirty-seven (37) students graduated with the BEd (in-service) degree. There were three (3) distinctions, namely Ms Joalane Phirimana, Mr Farai Nyamavuvu and Ms Tania Bothma.

### Distinguished Visitors / International Visits

Dr Trevor van Louw, Project Manager: SIOC visited RUMEP to discuss the progress of the Northern Cape cohort of BEd students.

RUMEP was privileged to have Ms Elsie Bulawa from Inclusive Education South Africa in Cape Town give a workshop to staff members on understanding and identifying barriers to learning and development with special reference to mathematics.

Ms Carol van der Rheede, General Manager and Mr Malusi Ntoyapi, Community Projects Manager from the HCI Foundation visited schools with the Collegial Cluster co-ordinator and facilitator.

*First year group  
Credit: RUMEP*

## Significant Research Aligned Events

Dr Kangela presented a poster at the *PME 43 Conference* in Pretoria in July 2019.

Mrs Nobongoza-Mkhwane represented RUMEP and presented a paper at the 17th Conference on *Mathematics, Science and Technology Education in Africa. COMSTEDA 17*. Centre for Mathematics, Science and Technology Education in Africa (CEMASTE), Nairobi. Kenya. December 2019.

Three (3) staff members Mr Haywood, Mr Penlington and Mr Matlala completed chapters for the book, *Lessons from the Kalahari: Tracking Teachers' Professional Development*.

Mr Penlington wrote two (2) short articles for a non-subsidy journal, *Learning & Teaching Mathematics*, on recognising patterns using the one hundred (100) grid and using different representations to compare and order fractions.

**Mr Thomas Penlington**  
*Director*



Three final year RUMEP BEd students - Ms A. Lunika, Mr L. Christian, Ms Z. Gos  
Credit: RUMEP

## Books/Chapters/Monographs

**Haywood, T.**

**Haywood, T.** (2019) Learners' Autonomous Learning of Mathematics by Engaging in Vitalmaths Video Clips. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle upon Tyne: Cambridge Scholars Publishing. p.98-120. ISBN: 9781527531710.

**Matlala, S.J.**

**Matlala, S.J.** (2019) Secondary Mathematics Teachers' Efforts in Promoting Classroom Interaction. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle upon Tyne: Cambridge Scholars Publishing. p.121-137. ISBN: 9781527531710.

**Penlington, T.H.**

**Penlington, T.H.** (2019) Shifts in Teaching Practice of Secondary School Mathematics Teachers through Professional Development. In: Hendricks, M. and Harrison, G. (eds.). *Lessons from the Kalahari: Tracking Teachers' Professional Development*. Newcastle upon Tyne: Cambridge Scholars Publishing. p.76-97. ISBN: 9781527531710.

## Concerts, Exhibitions, Performances, Workshops, Events

**Balele, S.**

**Balele, S.** Workshop: Exponents in the Senior Phase. *Provincial AMESA Congress*. Teachers Centre, Queenstown. South Africa. 19 October 2019.

**Kangela, N.C.**

**Kangela, N.C.** Event: Mathematics Teaching Framework. Wits Mathematics Connect Secondary Project. University of Witwatersrand, Johannesburg. South Africa. 5 - 6 March 2019.

## Peer Reviewed Non-Subsidy-Earning Journal Research Publications

**Penlington, T.H.** (2019) Using Different Representations to Compare and Order Fractions. *Learning and Teaching Mathematics*. 1 (26). p.3-6.

**Penlington, T.H.**

**Penlington, T.H.** (2019) Recognising Patterns Using the 100 Grid. *Learning and Teaching Mathematics*. 1 (27). p.3-7.

## Peer Reviewed Proceedings

**Penlington, T.H. and Nobongoza-Mkhwane, F.F.**

**Penlington, T.H. and Nobongoza-Mkhwane, F.F.** The Collegial Teacher Professional Development Model. *17th Conference on Mathematics, Science and Technology Education in Africa. COMSTEDA 17*. Centre for Mathematics, Science and Technology Education in Africa (CEMASTE), Nairobi. Kenya. December 2019.

## Research Papers Presented at Academic/Scientific Conferences (Non-peer-reviewed Proceedings)

**Balele, S.**

**Balele, S.** Using Mathematical Games in the Mathematics Classroom. *25th Annual National Congress of the Association for Mathematics Educators of South Africa*. University of KwaZulu-Natal, Pinetown. South Africa. July 2019.

**Kangela, N.C.**

**Kangela, N.C.** The Extent to which Mathematics Teachers Enable or Constrain Deep Conceptual Understanding. *Psychology of Mathematics Education. PME43*. Burger's Park Hotel, Pretoria. South Africa. July 2019.



# 2019 SOUTH AFRICAN INSTITUTE FOR AQUATIC BIODIVERSITY (SAIAB)



The South African Institute for Aquatic Biodiversity (SAIAB) serves as a hub for national and international scientific research into the country's most precious resource - water - and the diversity of life supported by our marine, coastal and inland freshwater ecosystems. SAIAB's mandate is to undertake research for the sustainability of Africa's marine and freshwater environments. To this end, SAIAB provides research platforms and infrastructure which enable a wide range of multi-disciplinary and multi-institutional research into inland fisheries and freshwater ecology, constantly changing coastal systems and the movement of marine fisheries species.

All the research undertaken at SAIAB contributes knowledge about how water-based ecosystems function: this includes up-to-date information on the movement of fisheries species along the coast and the impact of societal demands on the coastal, estuarine and freshwater resources of the country. This information is crucial for understanding and managing these essential natural resources for the long-term benefit of South Africa's people.

SAIAB's unique research platforms are available to the broader research community in the National System of Innovation (NSI). These platforms include the aquatic biodiversity collections, associated specialist laboratories and services which integrate modern molecular and bio-banking systems, a community-driven marine flagship programme (the African Coelacanth Ecosystem Programme - ACEP); and marine platform provision - coastal craft, *in situ* instrumentation, Remotely Operated Vehicle (ROV), Remote Video Systems and the Acoustic Tracking Array Platform (ATAP). In line with its status as a National Facility, all platforms are available to the broader research community.

SAIAB hosts the Department of Science and Innovation (DSI)/National Research Foundation (NRF) Research Chair in Inland Fisheries and Freshwater Ecology and provides a regional research platform for freshwater African aquatic biodiversity research through research and project management with a number of sub-Saharan countries.

*A Zambezi shark in a state of tonic immobility, ready to be surgically equipped with a longlife acoustic transmitter*  
Credit: Barry Skinstad

SAIAB interacts with a broad range of universities and local and national governments regarding current environmental issues, which require the integration of science with management, and providing scientific evidence that policy makers can apply in the formulation of national environmental policy. Areas of national concern in which SAIAB is involved are socio-economic development, water security issues, ecosystem degradation and the influence of climate change on food security.

Rhodes University is an important partner institution for SAIAB with researchers interacting across disciplines, but mostly with the Departments of Ichthyology and Fisheries Science, Environmental Science, Microbiology and Zoology. All SAIAB scientists are members of the Faculty of Science at Rhodes and, as a result, the majority of supervised students are hosted at Rhodes University.

## Postgraduates / Graduations

Of the fifty-six (56) Postgraduate students supervised by SAIAB researchers, forty-two (42) are registered at Rhodes University. In 2019 this comprised one (1) BSc (Hons), twenty (20) MSc students and twenty-one (21) PhD candidates.

Transformation is a critical performance area for SAIAB and eight-three percent (83%) of Rhodes students supervised by SAIAB researchers were South African, of which fifty-four percent (54%) were black and sixty percent (60%) were women. Eight (8) students registered through Rhodes graduated in 2019.

Student	Degree	Institute Supervisor /Co-supervisor
Gayiza, M.	Hons	Bernard, A.
Somana, Z.	MSc	Porri, F. (co-supervisor); Gouws, G. (co-supervisor)
Sifundza, D.	MSc	Chakona, A.
Matomela, N.	MSc	Chakona, A.
Mazungula, D.N.	MSc	Chakona, A.
Mutizwa, T.	MSc	Chakona, A.
Van Wyk, A.	MSc	Weyl, O., Bernard, A.
van der Walt, K.A.	PhD	James, N.; Porri, F.

## Distinguished Visitors to SAIAB and International Visits

The SAIAB fish collection is an internationally acclaimed research resource. In 2019 international visitors to the platform included Dr Dave Ebert from Moss Landing (USA), Dr Irit Zohar (University of Haifa, Mount Carmel, Israel), Dr Peter Psomadakis (FAO, Rome, Italy), Dr Jay Stauffer (Pennsylvania State University, USA) and Dr Franz Uiblein (Institute of Marine Science, Bergen, Norway).

Postdoctoral Research Fellow, Dr Josie South was awarded a Transnational Access EU2020 AQUACOSM grant to take a South African cohort to study microplastics and pharmaceuticals in The Netherlands. Collaborators included Postdoctoral Research Fellow, Dr Josephine Pegg and PhD candidates Mr Dumisani Khosa and Mr Lubabalo Mofu.

Dr Ant Bernard was appointed as a member of the Global Oceans Observing System (GOOS) Biology and Ecosystems Panel to further the development of the essential ocean variables for fishes and subsequently attended the GOOS BioEco panel meeting in Santa Barbara, California.

Dr Albert Chakona visited the Royal Museum for Central Africa (MRAC, Belgium), Bavaria State Collections (ZSM, Germany) and Cornell University Museum of Vertebrates (CUMV, USA) to work with collaborators on fish taxonomy and gain expertise in next generation sequences techniques, and analysis of electric organ discharges (EODs) which are integral to the systematics of weakly electric fishes (Mormyridae) endemic to Africa.

Dr Gavin Gouws undertook a research visit to the Western Australian Museum (Perth) to advance several taxonomic projects, and undertook an extended roadshow in Australia, presenting seminars at the Indian Ocean Centre (University of Western Australia), Murdoch University and the University of Queensland to explore collaborative opportunities. Dr Gouws attended the FSBI Advances in eDNA for Fisheries and Management Conference in Hull, UK. He also visited and presented a seminar at the Institute for Biological, Environmental and Rural Sciences, University of Aberystwyth (Penglais Campus), Wales, to develop and continue collaborations.

Dr Paul Cowley travelled to Arendal, Norway to attend the 5th International Conference on Fish Telemetry (ICFT), where he presented on the long-term acoustic monitoring of juvenile bull sharks and gave a talk to introduce the global acoustic telemetry exchange (GATE) programme.

ATAP Instrument Technician, Matt Parkinson, attended the annual Ocean Tracking Network's International Data Management Committee Meeting in Halifax, Canada on behalf of ATAP, maintaining strong ties with the international acoustic telemetry community.

Professor Olaf Weyl hosted a research collaboration workshop in South Africa to develop continued collaboration with Jaimie Dick (Queens University, Belfast), Tony Ricciardi (McGill University, Montreal, Quebec) and with Hugh MacIsaac (Windsor University, Windsor, Ontario) on future collaboration and approaches in invasion ecology. Professor Weyl gave a presentation at the Idaho Department of Fish and Game Eagle Fish Genetics Laboratory to an audience of research scientists on alien fish research in South Africa and participated at the small scale fisheries advisory roundtable on the development of new assessment tools for small scale fisheries at FAO in Rome.

## Significant Research Aligned Events

The productivity of SAIAB research staff, students, Postdoctoral Research Fellows and Honorary Research Associates continued at a high level during 2019, with one hundred and two (102) ISI rated scientific papers being published. The majority of these papers were by SAIAB affiliates of Rhodes University. It was also a bumper year in terms of conference and symposium papers, with seventy-four (74) being delivered at a wide variety of national and international venues.

SAIAB's Acoustic Tracking Array Platform (ATAP) monitors more than six hundred and fifty (650) tagged animals (thirty-three (33) species) for more than thirty (30) researchers from fourteen (14) institutions around the country.

Data collected over 2019 highlighted the remarkable journey of a Zambezi shark that undertook return migration from the Breede Estuary to Mozambique. The platform was highlighted



ATAP data scientist Taryn Murray downloading an estuarine receiver  
Credit: SAIAB

during several presentations at the 5th International Conference on Fish Telemetry held in Norway and the 5th South African Marine Linefish Symposium, where Professor Cowley gave a plenary talk entitled *A century of fish tagging in South Africa: what have we learnt?*

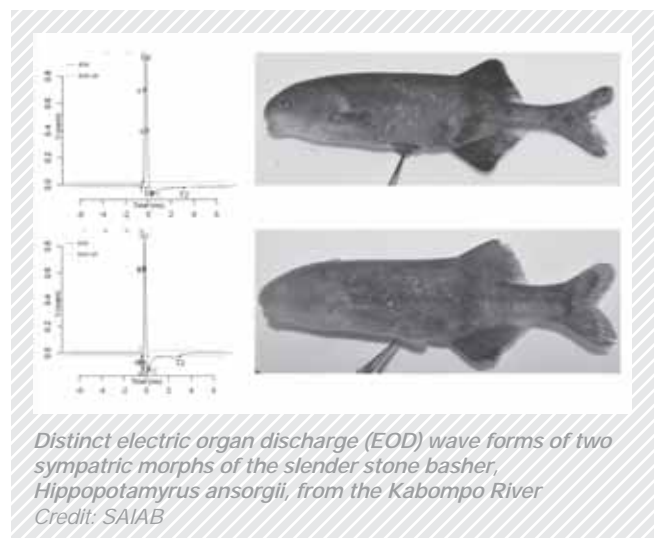
During 2019, Dr Nikki James and her research team focussed on the relative value of different coastal nursery habitats for marine and estuarine fish species as well as the impact of climate change on fish species within these habitats. A highlight for the year was initiating an NRF Marine and Coastal Research Grant programme to further explore the connectivity of coastal and estuarine nursery habitats.

Dr Ant Bernard initiated a research project looking into the potential of environmental DNA (eDNA) to survey photic and mesophotic benthic reef fishes. This project, which is funded through the NRF Marine and Coastal Research Grant, will develop field and laboratory protocols for the collection and analysis of eDNA, validate the technique against other benthic sampling methods, and establish a eDNA laboratory at SAIAB and Rhodes University.

The 2019 research highlights for the Coastal and Ocean Sciences Team (COST) led by Dr Francesca Porri underlined important outputs that link to maintenance of biodiversity and discoveries. These features include research carried out in African mangroves, with the description of a new of decapod, *Parasesarma capensis* and an analysis of patterns of recruitment of crab larvae in the East African mangroves which has revealed the tight link between fauna and trees in these unique and endangered systems.

Dr Gavin Gouws's research group is expanding its research footprint to include behavioural ecology and evolutionary biology as research themes through a focus on reproductive behavior of and sexual selection in clinid fishes.

The focus of Dr Albert Chakona's research group is to advance revisionary taxonomy and systematics of freshwater fishes in



Distinct electric organ discharge (EOD) wave forms of two sympatric morphs of the slender stone basher, *Hippopotamyrus ansorgii*, from the Kabompo River  
Credit: SAIAB

southern Africa. A key publication from his research group in 2019 explored the use of molecular data as a novel approach for reconstructing the historical distribution ranges of freshwater taxa fragmented by human-mediated impacts.

Professor Olaf Weyl's research group continues to engage at multiple levels with key research contributions including comment on long-term sustainable fisheries in the African Great Lakes; an evaluation of the current extent and potential spread of black bass invasions in South Africa; thermal tolerances of native freshwater fishes in South Africa's Cape Fold Ecoregion; assessments of predator-prey interactions in a chemically altered aquatic environment; and a global review and meta-analysis of applications of the freshwater Fish Invasiveness Screening Kit.

**Professor Olaf Weyl**

**Chief Scientist: SAIAB**



## Books/Chapters/Monographs

Weyl, O.L.F.

Coetzee, J.A., Hill, M.P., Hussner, A., Nunes, A.L. and Weyl, O.L.F. (2019) Invasive Aquatic Species. In: Hughes, J. (ed.). *Freshwater Ecology and Conservation: Approaches and Techniques*. Oxford: Oxford University Press. pp. 338-355. ISBN: 9780198766421.

## Peer Reviewed Subsidy-Earning Journal Research Publications

Baldanzi, S.

Nonyukela, A.S., Baldanzi, S. and Vumazonke, L.U. (2019) The sub-tropical-temperate transition along the east coast of South Africa shapes the thermal physiology of the truncated mangrove snail *Cerithidea decollata* (Gastropoda: Caenogastropoda, Potamididae). *African Journal of Marine Science*. 41 (2). pp. 155-161.

Bills, R.

Manda, B.K., Snoeks, J., Decru, E., Bills, R. and Vreven, E. (2019) *Enteromius thespesios* (Teleostei: Cyprinidae): a new mimmo species with a remarkable sexual dimorphism from the south-eastern part of the Upper Congo River. *Journal of Fish Biology*. 2019. pp.1-16.

Ford, A.G.P., Bullen, T.R., Pang, L., Genner, M.J., Bills, R., Flouri, T., Ngatunga, B.P., Ruber, L., Schlieven, U.K., Seehausen, O. and *et al.* (2019) Molecular phylogeny of *Oreochromis* (Cichlidae: Oreochromini) reveals mito-nuclear discordance and multiple colonisation of adverse aquatic environments. *Molecular Phylogenetics and Evolution*. 136 (2019). pp. 215-226.

Braganca, P.H.N.

Van Der Zee, J.R., Bernotas, K., Braganca, P.H.N. and Stiassny, M.L.J. (2019) An unexpected new *Poropanchax* (Cyprinodontiformes, Procatopodidae) from the Kango Central Province, Democratic Republic of Congo. *American Museum Novitates*. 3941 (2019). pp. 1-12.

Chakona, A.

Martin, M.B. and Chakona, A. (2019) Designation of a neotype for *Enteromius pallidus* (Smith, 1841) an endemic cyprinid minnow from the Cape Fold Ecoregion, South Africa. *ZooKeys*. 848 (2019). pp. 103-118.

Kambikambi, M.J., Chakona, A. and Kadye, W.T. (2019) The influence of diet composition and tissue type on the stable isotope incorporation patterns of a small bodied southern African minnow *Enteromius anoplus* (Cypriniformes, Cyprinidae). *Rapid Communications in Mass Spectrometry*. 33 (2019). pp. 613-623.

Chakona, A., Jordaan, M.S. and Kadye, W.T. (2019) Distribution and summer habitat associations of three narrow-range endemic fishes in an intermittent southern Mediterranean temperate river system. *Fundamental and Applied Limnology*. 193 (1). pp. 65-77.

Kambikambi, M.J., Chakona, A. and Kadye, W.T. (2019) Tracking seasonal food web dynamics and isotopic niche shifts in wild chubbyhead barb *Enteromius anoplus* within a southern temperate headwater stream. *Hydrobiologia*. 837 (2019). pp. 87-107.

Chakona, A. and Rennie, C.L.

Chakona, A., Rennie, C.L. and Kadye, W.T. (2019) First record of *Lernaea cyprinacea* (Copepoda: Lernaeidae) on an imperilled endemic anabantid, *Sandelia bairdii* (Teleostei: Anabantidae), from the Eastern Cape province, South Africa. *African Journal of Aquatic Science*. 44 (2). pp. 183-187.

Chakona, A., Gouws, G. and Swartz, E.R.

Chakona, A., Gouws, G., Kadye, W.T., Jordaan, M.S. and Swartz, E.R. (2019) Reconstruction of the historical distribution ranges of imperilled stream fishes from a global endemic hotspot based on molecular data: Implications for conservation of threatened taxa. *Aquatic Conservation - Marine and Freshwater Ecosystems*. 2019. pp. 1-15.

Coetzer, W.

Coetzer, W. and Hamer, M. (2019) Managing South African biodiversity research data: Meeting the challenges of rapidly developing information technology. *South African Journal of Science*. 115 (3/4). pp. 1-5.

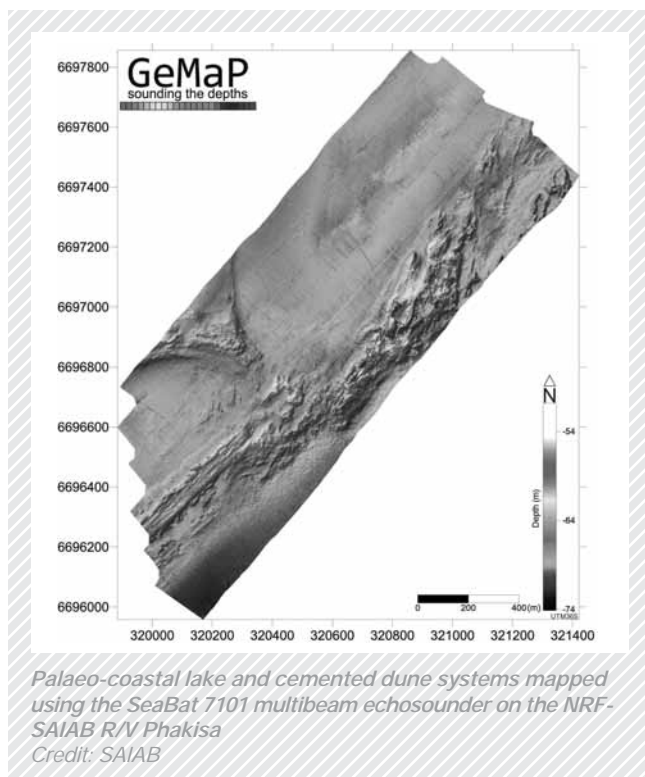
Cowley, P.D.

Elston, C., Cowley, P.D. and von Brandis, R.G. (2019) Movement patterns of juvenile porcupine rays *Urogyrnus asperrimus* at a remote atoll: a potential nursery ground within a proposed marine protected area. *Environmental Biology of Fishes*. 2019. pp. 1-10.

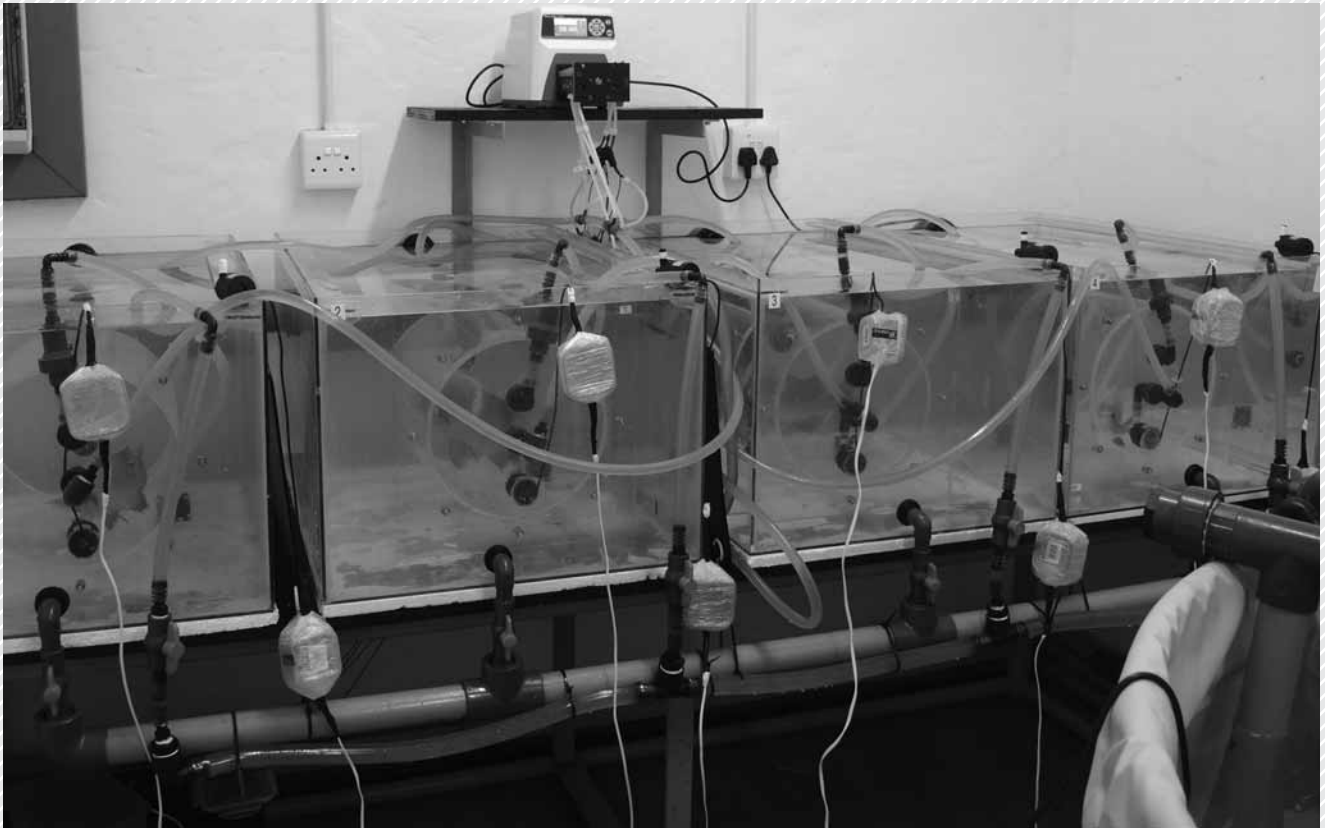
Grusd, S.P., Moloney, C.L., Distiller, G., Watson, R.G.A., Cowley, P.D. and Gennari, E. (2019) Using mark-recapture methods to estimate population size and survival of pyjama sharks *Poroderma africanum* in Mossel Bay, South Africa. *African Journal of Marine Science*. 41 (4). pp. 1-12.

Maggs, J.Q., Cowley, P.D., Porter, S.N. and Childs, A.R. (2019) Should I stay or should I go? Intra-population variability in movement behaviour of wide-ranging and resident coastal fishes. *Marine Ecology Progress Series*. 6 (2019). pp. 111-124.

Harcourt, R., Sequeira, A.M.M., Zhang, X., Roquet, F., Komatsu, K., Heupel, M., McMahon, C., Whoriskey, F., Meekan, M., Cowley, P.D. and *et al.* (2019) Animal-Borne Telemetry: An Integral Component of the Ocean Observing Toolkit. *Frontiers in Marine Science*. 6 (326). pp. 1-21.



NRF-SAIAB Marine Platform's new Coastal Craft, R/V Observer launched in late 2019 is stationed in Algoa Bay. The vessel will be accessed through the ACEP Open Call. Credit: SAIAB



Set-up of the high-volume oxygen sensing equipment at the AERP, used for measuring the metabolic rates of adult Red Roman  
Credit: SAIAB

Cowley, P.D. and Bennett, R.H.

Moxham, E.J., Cowley, P.D., Bennett, R.H. and von Brandis, R.G. (2019) Movement and predation: a catch-and-release study on the acoustic tracking of bonefish in the Indian Ocean. *Environmental Biology of Fishes*. 102 (2019). pp. 365-381.

Cowley, P.D. and Gouws, G.

Murray, T.S., Cowley, P.D., Mann, B.Q., Maggs, J.Q. and Gouws, G. (2019) Movement patterns of an endemic South African sparid, the black musselcracker, *Cymatoceps nasutus*, determined using mark-recapture method. *African Journal of Marine Science*. 41 (1). pp. 71-81.

Wasserman, R.J. and Weyl, O.L.F.

Cuthbert, R.N., Dalu, T., Wasserman, R.J., Weyl, O.L.F., Froneman, P.W., Callaghan, A., Coughlan, N.E. and Dick, J.T.A. (2019) Alternative prey impedes the efficacy of a natural enemy of mosquitos. *Biological Control*. 2019. pp. 1-10.

Mofu, L., Cuthbert, R.N., Dalu, T., Woodford, D.J., Wasserman, R.J., Dick, J.T.A. and Weyl, O.L.F. (2019) Impacts of non-native fishes under a seasonal temperature gradient are forecasted using functional responses and abundances. *NeoBiota*. 49 (2019). pp. 57-75.

Cuthbert, R.N., Dalu, T., Wasserman, R.J., Weyl, O.L.F., Froneman, P.W., Callaghan, A. and Dick, J.T.A. (2019) Sex demographics alter the effect of habitat structure on predation by a temporary pond specialists. *Hydrobiologia*. 2019. pp. 1-11.

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Cuthbert, R.N., Dalu, T., Wasserman, R.J., Dick, J.T.A., Callaghan, A., Froneman, P.W. and Weyl, O.L.F. (2019) Quantifying reproductive state and predator effects on copepod motility in ephemeral ecosystems. *Journal of Arid Environments*. 168 (2019). pp. 59-61.

Cuthbert, R.N., Dalu, T., Wasserman, R.J., Weyl, O.L.F., Froneman, P.W., Callaghan, A. and Dick, J.T.A. (2019) Lack of prey switching and strong preference for mosquito prey by a temporary pond specialist predator. *Ecological Entomology*. 2019. pp. 1-4.

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Cuthbert, R.N., Weyl, O.L.F., Wasserman, R.J., Dick, J.T.A., Froneman, P.W., Callaghan, A. and Dalu, T. (2019) Combined impacts of warming and salinisation on trophic interactions and mortality of a specialist ephemeral wetland predator. *Freshwater Biology*. 2019. pp. 1-9.

Daly, R.

Pirog, A., Ravigne, V., Fontaine, M.C., Rieux, A., Gilabert, A., Cliff, G., Clua, E., Daly, R., Heithaus, M.R., Kiszka, J.J. and *et al.* (2019) Population structure, connectivity, and demographic history of an apex marine predator, the bull shark *Carcharhinus leucas*. *Ecology and Evolution*. 2019. pp. 1-21.

Peel, L.R., Stevens, G.M.W., Daly, R., Keating Daly, C.A., Lea, J.S.E., Clarke, C.R., Collin, S.P. and Meekan, M.G. (2019) Movement and residency patterns of reef manta rays *Mobula alfredi* in the Amirante Islands, Seychelles. *Marine Ecology Progress Series*. 621 (2019). pp. 169-184.

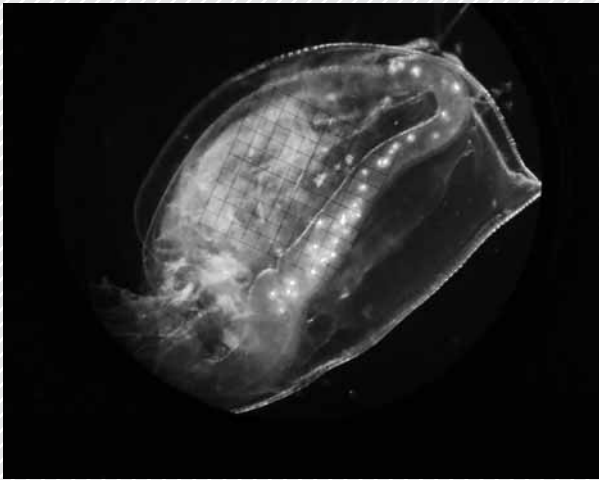
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Daly, R., Filmmalter, J.D., Bennett, R.H. and Cowley, P.D.

Daly, R., Filmmalter, J.D., Daly, C.A.K., Bennett, R.H., Pereira, M.A.M., Mann, B.Q., Dunlop, S.W. and Cowley, P.D. (2019) Acoustic telemetry reveals multi-seasonal spatiotemporal dynamics of a giant trevally *Caranx ignobilis* aggregation. *Marine Ecology Progress Series*. 621 (2019). pp. 185-197.

Daly, R., Gennari, E. and Filmmalter, J.D.

Queiroz, N., Humphries, N.E., Couto, A., Vedor, M., da Costa, I., Sequeira, A.M.M., Daly, R., Gennari, E., Filmmalter, J.D. and *et al.* (2019) Global spatial risk assessment of sharks under the footprints of fisheries. *Nature*. 572 (7770). pp. 1-7.



Fluorescent microscopy microplastic beads ingested by *Daphnia magna*  
Credit: SAIAB

#### Ebert, D.A.

**Ebert, D.A., Akhilesh, K.V. and Weigmann, S.** (2019) *Planonassus indicus* sp. n., a new species of pygmy false catshark (Chondrichthyes: Carcharhiniformes: Pseudotriakidae), with a revised diagnosis of the genus and key to the family. *Marine Biodiversity*. 49 (2019). pp. 1321-1341.

Concha, F.J., Caira, J.N., **Ebert, D.A.** and Pompert, J.H.W. (2019) Redescription and taxonomic status of *Dipturus chilensis* (Guichenot, 1848), and description of *Dipturus lamillai* sp. nov. (Rajiformes: Rajidae), a new species of long-snout skate from the Falkland Islands. *Zootaxa*. 4590 (5). pp. 501-524.

Kuhn, L.A., Bizzarro, J.J. and **Ebert, D.A.** (2019) *In situ* observations of deep-living skates in the eastern North Pacific. *Deep-Sea Research Part I - Oceanographic Research Papers*. 152 (103104). pp. 1-11.

Jew, M., **Ebert, D.A.**, Kemper, J.M., Walovich, K.A. and Quaranta, K.L. (2019) Redescription of the bigeye chimaera, *Hydrolagus macrophthalmus* de Buen, 1959 (Chondrichthyes: Chimaeriformes), with a genetic characterization of the species. *Marine Biodiversity*. 49 (2019). pp. 1605-1614.

**Ebert, D.A.** and Leslie, T.D. (2019) *Leucoraja elaineae* sp. nov., a new rough skate (Rajiformes: Rajidae) from the Western Indian Ocean. *Zootaxa*. 4691 (3). pp. 225-234.

Fernando, D., Bown, R.K., Tanna, A., Gobiraj, R., Ralick, H., Jockusch, E.L., **Ebert, D.A.**, Jensen, K. and Caira, J.N. (2019) New insights into the identities of the elasmobranch fauna of Sri Lanka. *Zootaxa*. 4585 (2). pp. 201-238.

#### Edworthy, C.

Kisten, Y., **Edworthy, C.** and Strydom, N.A. (2019) Fine-scale habitat use by larval fishes in the Swartkops Estuary, South Africa. *Environmental Biology of Fishes*. 2019. pp. 1-11.

#### Ellender, B.R.

Coppinger, C.R., **Ellender, B.R.**, Stanley, D.A. and Osborne, J. (2019) Insights into the impacts of rural honey hunting in Zambia. *African Journal of Ecology*. 57 (2019). pp. 610-614.

#### Ellender, B.R. and Weyl, O.L.F.

Rivers-Moore, N.A., **Ellender, B.R.** and **Weyl, O.L.F.** (2019) Modelling expected trout ranges under current and future water temperature regimes in the Eastern Cape, South Africa. *African Journal of Aquatic Science*. 44 (1). pp. 35-42.

#### Gennari, E.

Egeberg, C.A., Kempster, R.M., Hart, N.S., Ryan, L., Chapuls, L., Kerr, C.C., Schmidt, C., **Gennari, E.**, Yopak, K.E. and Collin, S.P. (2019) Not all electric shark deterrents are made equal: Effects of a commercial electric anklet deterrent on white shark behaviour. *PLoS One*. 14 (3). pp. 1-18.

#### Gouws, G.

**Scheepers, M.J.** and **Gouws, G.** (2019) Assessing multiple mating and reproductive skew in three species of clinid fishes (Blenniiformes:

Clinidae: Clinini), in reference to multiple mating in viviparous teleosts. *African Journal of Marine Science*. 41 (2). pp. 145-153.

Underwood, J.N., Travers, M.J., Snow, M., Puotinen, M. and **Gouws, G.** (2019) Cryptic lineages in the Wolf Cardinalfish living in sympatry on remote coral atolls. *Molecular Phylogenetics and Evolution*. 132 (2019). pp. 183-193.

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#### Gouws, G., Swartz, E.R. and Weyl, O.L.F.

**Ramoejane, M., Gouws, G., Swartz, E.R., Sidlauskas, B.L. and Weyl, O.L.F.** (2019) Molecular and morphological evidence reveals hybridisation between two endemic cyprinid fishes. *Journal of Fish Biology*. 2019. pp. 1-17.

#### Heemstra, E.

Yato, T. and **Heemstra, E.** (2019) A new deep water gurnard of the genus *Pterygotrigla* (Scorpaeniformes: Triglidae) from the southwestern Indian Ocean. *Zootaxa*. 4706 (1). pp. 189-200.

#### Heyns-Veale, E.R.

**Heyns-Veale, E.R., Bernard, A.T.F., Gotz, A., Mann, B.Q., Maggs, J.Q. and Smith, M.K.S.** (2019) Community-wide effects of protection reveal insights into marine protected area effectiveness for reef fish. *Marine Ecology Progress Series*. 620 (2019). pp. 99-117.

**Heyns-Veale, E.R., Richoux, N.B., Bernard, A.T.F. and Gotz, A.** (2019) Protected nearshore shallow and deep subtidal rocky reef communities differ in their trophic diversity but not their nutritional condition. *African Journal of Marine Science*. 41 (1). pp. 103-114.

#### Hill, J.M. and Weyl, O.L.F.

**Taylor, G.C., Hill, J.M. and Weyl, O.L.F.** (2019) The diet and trophic ecology of non-native *Micropterus salmoides* in two South African impoundments. *African Journal of Aquatic Science*. 44 (2). pp. 143-145.

**Peel, R.A., Hill, J.M., Taylor, G.C. and Weyl, O.L.F.** (2019) Food Web Structure and Trophic Dynamics of a Fish Community in an Ephemeral Floodplain Lake. *Frontiers in Environmental Science*. 7 (192). pp. 1-18.

#### Hill, J.M., Tweddle, D. and Weyl, O.L.F.

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