RHODES UNIVERSITY, GRAHAMSTOWN, SOUTH AFRICA

STAFF INFORMATION
Doctor Philani Nkosinathi Mashazi
Bsc, Bsc(Hons), Msc, PhD (Rhodes)
Lecturer (Analytical and inorganic Chemisrty)

Find Me:

Postal Adress: Department of Chemistry, Rhodes University, PO Box 94, Grahamstown, 6140, SOUTH AFRICA

Courier Address: Room F44, Department of Chemistry, Cnr of University and Artillery Roads, Rhodes University, Grahamstown, 6140, SOUTH AFRICA.

About:

Dr Mashazi, spent 7 years at the Council for Minerals Technology (Mintek) as a research scientist from February 2007 to September 2013. During his tenure at Mintek, Dr Mashazi studied his doctoral degree part-time and graduated with the Doctor of Philosophy (PhD) degree at Rhodes University in April 2012. He rejoins Rhodes University Chemistry Department as a Senior Lecturer of Inorganic Chemistry since October 2013. He is currently involved in many departmental activities whilst pursuing his research interests. He further provides support to the National Facility funded by the Department of Science and Technology, the Nanotechnology Innovation Centre (DST NIC). He manages two state-of-the-art equipments, that is the X-ray photoelectron spectroscopy (XPS) and the soon-to-be-commissioned TOF-SIMS (Time-of-flight Secondary Ion Mass Spectrometry). Both these techniques are a very sensitive surface analytical techniques well established for many industrial and research applications.

Teaching:

- 1st Year – Kinetics and Electrochemistry
- 2nd Year – Kinetics and Electroanalytical Techniques
- 3rd Year – Crystallography
- Honours - Intelligent Nanomaterials and Their Applications, Design and Development of Biosensors

Research Interests:

- Optical, Electrochemical and Immunochromatographic Lateral Flow (Bio)Sensors Design and Developments for Point-of-Care Applications
- Nanoelectrochemistry - methods of modifying electrode surfaces with nanomaterials and electrocatalytic materials as thin films for sensor applications.
- Disease biomarker detection using electrochemical and optical biosensors – design and development of cheap, sensitive and reliable electrochemical and optical diagnostic systems for the detection of biomarkers for communicable and non-communicable diseases.
- Nanobioconjugate strategies – methods of integrating biological molecules with nano-sized materials for the design of highly sensitive and selective novel sensors and/or biosensors.
- Design of Lateral-Flow and Electrochemical detection systems for diagnostic applications

2018 Publications:

1. **Achadu, O.J.** and **Nyokong, T.** (2018) Fluorescence "turn-ON" nanosenor for cyanide ion using supramolecular hybrid of graphene quantum dots and cobalt pyrene-derivatized phthalocyanine. *Dyes and Pigments.* 2018. p.1-8.

2. **Ayeni, A.O.**, **Watkins, G.M.** and Hosten, E.C. (2018) Polymorphism of a new Mannich base-[-4-methyl-2-((4-(4-nitrophenyl) piperazin-1-yl) methyl) phenol]. *Journal of Molecular Structure.* 1160 (2018). p.38-45.

3. **Ayeni, A.O.** and **Watkins, G.M.** (2018) Synthesis and evaluation of catecholase activities of metal complexes of 1, 4-substituted piperazine Mannich Base of 4-acetamidophenol. *Turkish Journal of Chemistry.* 42 (2018). p.1275-1284.

4. **Ayeni, A.O.** and **Watkins, G.M.** (2018) Biomimetics of mononuclear and dinuclear Cu(II) and Fe(III) complexes of a newly synthesized piperazyl Mannich base with or without thiocyanate towards catechol. *Monatshefte Fur Chemie.* 149 (2018). p.2175-2182.

5. **Ayeni, A.O.**, **Watkins, G.M.** and Hosten, E.C. (2018) Molecular and Crystal structure of a novel Mannich quaternary salt: 3-(dimethylamino)-1-*p*-tolylpropan-1-one hydrochloride. *Journal of Structural Chemistry*. 59 (7). p.1688-1690.

6. **Beteck, R.M.**, **Isaacs, M.**, **Hoppe, H.C.** and **Khanye, S.D.** (2018) Synthesis, *in vitro* Cytotoxicity and Trypanosomal Evaluation of Novel 1,3,6-Subsituted Non-fluoroquinolones. *South African Journal of Chemistry – Suid-Afrikaanse Tydskrif Vir Chemie.* 71 (2018). p.188-195.

7. **Centane, S.**, **Sekhosana, K.E.**, **Matshitse, R.** and **Nyokong, T.** (2018) Electrocatalytic activity of a push-pull phthalocyanine in the presence of reduced and amino functionalized graphene quantum dots towards the electrooxidation of hydrazine. *Journal of Electroanalytical Chemistry.* 820 (2018). p.146-160.

8. **Chani, F.M.**, **Ngcoza, K.M.**, **Chikunda, C.** and **Sewry, J.D.** (2018) Exploring the Mediation of Learning of Chemical Equilibrium to High-achieving Students in a Selected Senior Secondary School in Namibia. *African Journal of Research in Mathematics, Science and Technology Education*. 22 (3). p.287-296.

9. **Chindeka, F.**, **Mashazi, P.**, **Britton, J.**, **Fomo, G.**, **Oluwole, D.O.**, **Sindelo, A.** and **Nyokong, T.** (2018) Optimizing phthalocyanine based dye-sensitized solar cells: The role of reduced graphene oxide. *Synthetic Metals.* 246 (2018). p.236-245.

10. **Darrell, O.T.**, **Hulushe, S.T.**, **Mtshare, T.E.**, **Beteck, R.M.**, **Isaacs, M.**, **Laming, D.**, **Hoppe, H.C.**, **Krause, R.W.M.** and **Khanye, S.D.** (2018) Synthesis, Antiplasmodial and Antitrypanosomal Evaluation of a Series of Novel 2-Oxoquinoline-based Thiosemicarbazone Derivatives. *South African Journal of Chemistry – Suid-Afrikaanse Tydskrif Vir Chemie*. 71 (2018). p.174-181.

11. Milanowski, D.J., Oku, N., Cartner, L.K., Bokesch, H.R., Williamson, R.T., Sauri, J., Liu, Y., Blinov, K.A., Ding, Y., Li, X.C., Ferreira, D., Walker, L.A., Khan, S., **Davies-Coleman, M.T.**, Kelley, J.A., McMahon, J.B., Martin, G.E., and Gustafson, K.R. (2018) Unequivocal determination of caulamidines A and B: application and validation of new tools in the structure elucidation tool box. *Chemical Science*. 9 (2018). p.307-314.

12. **Dube, E.** and **Nyokong, T.** (2018) Effect of gold nanoparticles shape and size on the photophysicochemical behaviour of symmetric and asymmetric zinc phthalocyanines. *Journal of Luminescence.* 2018. p.1-8.

13. **Dube, E.**, **Nwaji, N.**, **Mack, J.** and **Nyokong, T.** (2018) The photophysicochemical behavior of symmetric and asymmetric zinc phthalocyanines, surface assembled onto gold nanotriangles. *New Journal of Chemistry.* 42 (2018). p.14290-14299.

14. **Dube, E.**, **Oluwole, D.O.** and **Nyokong, T.** (2018) Improved Photophysical and Photochemical Properties of Thiopheneethoxy Substituted Metallophthalocyanines on Immobilization onto Gold-speckled Silica Nanoparticles. *Photochemistry and Photobiology.* 94 (2018). p.521-531.

15. **Dube, E.**, **Oluwole, D.O.**, **Prinsloo, E.** and **Nyokong, T.** (2018) A gold-chitosan composite with low symmetry zinc phthalocyanine for enhanced singlet oxygen generation and improved photodynamic therapy activity. *New Journal of Chemistry.* 42 (2018). p.10214-10225.

16. **Dube, E.**, **Oluwole, D.O.**, **Nwaji, N.** and **Nyokong, T.** (2018) Glycosylated zinc phthalocyanine-gold nanoparticle conjugates for photodynamic therapy: Effect of nanoparticle shape. *Spectrochimica Acta Part A – Molecular and Biomolecular Spectroscopy.* 203 (2018). p.85-95.

17. **Faridoon, H.**, **Mnkandhla, D.**, **Isaacs, M.**, **Hoppe, H.C.** and **Kaye, P.T.** (2018) Synthesis and evaluation of substituted 4-arylimino-3-hydroxybutanoic acids as potential HIV-1 integrase inhibitors. *BIOORGANIC & Medicinal Chemistry Letters.* 28 (2018). p.1067-1070.

18. **Fomo, G.**, **Achadu, O.J.** and **Nyokong, T.** (2018) One-pot synthesis of graphene quantum dots phthalocyanines supramolecular hybrid and the investigation of their photophysical properties. *Journal of Materials Science.* 53 (2018). p.538-548.

19. **Fomo, G.**, **Nwaji, N.** and **Nyokong, T.** (2018) Low symmetric metallophthalocyanine modified electrode via click chemistry for simultaneous detection of heavy metals. *Journal of Electroanalytical Chemistry.* 813 (2018). p.58-66.

20. **Gumbo, M.**, **Beteck, R.M.**, **Mandizvo, T.**, Seldon, R., Warner, D.T., **Hoppe, H.C.**, **Isaacs, M.**, **Laming, D.**, Tam, C.C., Cheng, L.W., Liu, N., Land, K.M. and **Khanye, S.D.** (2018) Cinnamoyl-Oxaborole Amides: Synthesis and Their in Vitro Biological Activity. *Molecules.* 23 (2018). p.1-13.

21. **Idowu, M.A.**, **Xego, S.**, **Arslanoglu, Y.**, **Mack, J.**, **Antunes, E.** and **Nyokong, T.** (2018) Photophysicochemical behaviour and antimicrobial properties of monocarboxy Mg (II) and Al (III) phthalocyanine-magnetite conjugates. *Spectrochimica Acta Part A – Molecular and Biomolecular Spectroscopy.* 193 (2018). p.407-414.

22. **Isalomboto Nkanga, C.** and **Krause, R.W.M.** (2018) Abstract: Formualtion and characterization of pH-/light-responsive liposomes for macrophage targeted delivery of isoniazid. *Chemical Papers.* 10 (2018). p.24-25.

23. **Isalomboto Nkanga, C.** and **Krause, R.W.M.** (2018) Conjugation of isoniazid to a zinc phthalocyanine via hydrazone linkage for pH-dependent liposomal controlled release. *Applied Nanoscience*. 8 (2018). p.1313-1323.

24. **Isalomboto Nkanga, C.**, **Walker, R.B.** and **Krause, R.W.M.** (2018) pH-Dependant release of isoniazid from isonicotinic acid (4-hydroxy-benzylidene)-hydrazide loaded liposomes. *Journal of Drug Delivery Science and Technology.* 45 (2018). p.264-271.

25. **Olawode, E.O.**, **Tandlich, R.**, **Prinsloo, E.**, **Isaacs, M.**, **Hoppe, H.C.**, Sheldon, R., Warner, D.T., Steenkamp, V. and **Kaye, P.T.** (2018) Synthesis and biological screening of diethyl [N-(thiazol-2-yl)carbamoyl]methylphosphonates. *Arkivoc.* 7 (2018). p.110-118..

26. Kumar, A., **Khan, F.I.** and Olaniran, A.O. (2018) Chloroacetaldehyde dehydrogenase from *Ancylobacter aquaticus* UV5: Cloning, expression, characterization and molecular modeling. *International Journal of Biological Macromolecules.* 114 (2018). p.1117-1126.

27. Ali, S., **Khan, F.I.**, Chen, W., Rahaman, A. and Wang, Y. (2018) Open and closed states of Mrlip1 DAG lipase revealed by molecular dynamics simulation. *Molecular Simulation.* 44 (18). p.1520-1528.

28. Gulzar, M., Syed, S.B., **Khan, F.I.**, Khan, P., Ali, S., Hasan, G.M., Taneja, P. and Hassan, M.I. (2018) Elucidation of interaction mechanism of ellagic acid to the integrin linked kinase. *International Journal of Biological Macromolecules.* 2018. p.1-8.

29. Beg, A., **Khan, F.I.**, **Lobb, K.A.**, Islam, A., Ahmad, F. and Hassan, M.I. (2018) High throughput screening, docking, and molecular dynamics studies to identify potential inhibitors of human calcium/calmodulin-dependent protein kinase IV. *Journal of Biomolecular Structure & Dynamic.* 2018. p.1-14.

30. Husain, F.M., Ahmad, I., **Khan, F.I.**, Al-Shabib, N.A., Baig, M.H., Hussain, A., Rehman, M.T., Alajmi, M.F. and **Lobb, K.A.** (2018) Seed Extract of *Psoralea corylifolia* and Its Constituent Bakuchiol Impairs AHL-Based Quorum Sensing and Biofilm Formation in Food- and Human-Related Pathogens. *Frontiers in Cellular and Infection Microbiology*. 8 (351). p.1-16.

31. Syed, S.B., **Khan, F.I.**, Khan, S.H., Srivastava, S., Hasan, G.M., **Lobb, K.A.**, Islam, A., Hassan, M.I. and Ahmad, F. (2018) Unravelling the unfolding mechanism of human intergrin linked kinase by GdmCl-induced denaturation. *International Journal of Biological Macromolecules.* 117 (2018). p.1252-1263.

32. Mohammad, T., **Khan, F.I.**, **Lobb, K.A.**, Islam, A., Ahmad, F. and Hassan, M.I. (2018) Identification and evaluation of bioactive natural products as potential inhibitors of human microtubule affinity-regulating kinase 4 (MARK4). *Journal of Biomolecular Structure & Dynamics.* 2018. p.1-17.

33. Syed, S.B., **Khan, F.I.**, Khan, S.H., Srivastava, S., Hasan, G.M., **Lobb, K.A.**, Islam, A., Hassan, M.I. and Ahmad, F. (2018) Unravelling the unfolding mechanism of human intergrin linked kinase by GdmCl-induced denaturation. *International Journal of Biological Macromolecules.* 117 (2018). p.1252-1263.

34. Khan, S., **Khan, F.I.**, Mohammad, T., Khan, P., Hasan, G.M., **Lobb, K.A.**, Islam, A., Ahmad, F. and Hassan, M.I. (2018) Exploring molecular insights into the interaction mechanism of cholesterol derivatives with the Mce4A: A combined spectroscopic and molecular dynamic simulation studies. *International Journal of Biological Macromolecules.* 111 (2018). p.548-560

35. Odame, F., Betz, R., Hosten, E.C., Krause, J., **Isaacs, M.**, **Hoppe, H.C.**, **Khanye, S.D.**, Sayed, Y., Frost, C.L., **Lobb, K.A.** and Tshentu, Z.R. (2018) A New Synthetic Method for Tetraazatricyclic Derivatives and Evaluation of Their Biological Properties. *ChemistrySelect*. 3 (2018). p.13613-13618.

36. Gounden, D., **Khene, S.** and Nombona, N. (2018) Electroanalytical detection of heavy metals using metallophthalocyanine and silica-coated iron oxide composites. *Chemical Papers.* 72 (2018). p.3043-3056.

37. Namondo, B.V., Foba-Tendo, J., Etape, E.P. and **Krause, R.W.M.** (2018) Potential of blended biomass feedstock from some species of raffia palm (*Raffia farinifera, Raffia hookeri and Raffia vinifera*) and Oil Palm Empty Fruit Bunch (OPEFB) from Cameroon. *African Journal of Pure and Applied Chemistry*. 12 (4). p.25-33.

38. **Kubheka, G.**, **Sanusi, K.**, **Mack, J.** and **Nyokong, T.** (2018) Optical limiting properties of 3,5-dipyrenylvinylene BODIPY dyes at 532 nm. *Spectrochimica Acta Part A – Molecular and Biomolecular Spectroscopy.* 191 (2018). p.357-364.

39. **Lebechi, A.K.**, Gai, L., Shen, Z., **Nyokong, T.** and **Mack, J.** (2018) Electrospun 3,5-dithienylvinyleneBODIPY embedded polystyrene nanofibers for the photocatalytic degradation of azo dyes in industrial wastewaters. *Journal of Porphyrins and Phthalocyanines.* 22 (2018). p.501-508.

40. **Musyoka, T.M.**, **Tastan Bishop, O.**, **Lobb, K.A.** and **Moses, V.** (2018) The determination of CHARMM force field parameters for the Mg2+ containing HIV-1 integrase. *Chemical Physics Letters.* 711 (2018). p.1-7.

41. Odame, F., Krause, J., Hosten, E.C., Betz, R., **Lobb, K.A.**, Tshentu, Z.R. and Frost, C.L. (2018) Synthesis, Characterization and DPPH Scavenging Activity of some Benzimidazole Derivatives. *Bulletin of the Chemical Society of Ethiopia.* 32 (2). p.271-284.

42. Odame, F., Hosten, E.C., Betz, R., **Lobb, K.A.** and Tshentu, Z.R. (2018) Characterization and Computational Studies of a Co-Crystal of 2-Aminobenzimdazole and 2-[(Benzolycarbamothioyl) Amino]Propanoic Acid. *Journal of Structural Chemistry.* 59 (5). p.1200-1204.

43. Liang, X., Li, M., **Mack, J.**, **Lobb, K.A.** and Zhu, W. (2018) Iron(III)porphyrin electrocatalyzed enantioselective carbon-chloride bond cleavage of hexachlorocyclohexanes (HCHs): combined experimental investigation and theoretical calculations. *Dalton Transactions.* 47 (2018). p.11470-11476.

44. Bomanda, B.T., Waudo, W., Ngoy, B.P., Muya, J.T., Mpiana, P.T., Mbala, M., Openda, I., **Mack, J.** and **Nyokong, T.** (2018) Photophysical and *in vitro* Antibacterial Studies of 2,6-Dibromo-BODIPY Dye Substituted with Dithienylenevinylene at 3,5-Positions. *Macroheterocycles*. 11 (4). p.429-437.

45. Abdurrahmanoglu, S., Canlica, M., **Mack, J.** and **Nyokong, T.** (2018) Pyridone substituted phthalocyanines: Photophysico-chemical properties and TD-DFT calculations. *Journal of Porphyrins and Phthalocyanines*. 22 (2018). p.25-31.

46. Liang, X., Luo, H., Lan, Y., Zhu, W., **Mack, J.**, **Hlatshwayo, Z.**, **Nyokong, T.** and Chen, Q. (2018) n - Extended BODIPY Analogues: Synthesis, Electronic Structure, Potential Utility for *in vivo* Imaging Applications and Cytotoxicity. *Macroheterocycles*. 11 (4). p.421-428.

47. Liang, X., Qin, M., Zhou, L., Liu, T., Li, M., **Mack, J.**, **Ndebele, N.**, **Nyokong, T.** and Zhu, W. (2018) Porphyrin dimers with a bridging chiral amide-bonded benzo-moiety: Influence of positional isomerism on the molecular chirality. *Dyes and Pigments.* 154 (2018). p.229-233.

48. Yuan, X., Li, M., Meng, T., **Mack, J.**, **Soy, R.**, **Nyokong, T.**, Zhu, W., Xu, H. and Liang, X. (2018) Core-modified rubyrins with phenanthrene-fused pyrrole rings: Highly selective and tunable response to Hg2+ ions. *Dyes and Pigments.* 158 (2018). p.188-194.

49. **Mafukidze, D.M.** and **Nyokong, T.** (2018) A comparative study of the singlet oxygen generation capability of a zinc phthalocyanine linked to graphene quantum dots through ?-? stacking and covalent conjugation when embedded in asymmetric polymer members. *Journal of Molecular Structure*. 1180 (2018). p.307-317.

50. **Magadla, A., Oluwole, D.O., Britton, J. and Nyokong, T. Magadla, A.**, **Oluwole, D.O.**, **Britton, J.** and **Nyokong, T.** (2018) Effect of nature of nanoparticles on the photophysicochemical properties of asymmetrically substituted Zn phthalocyanines. *Inorganica Chimica Acta.* 482 (2018). p.438-446.

51. **Makinde, Z.O.**, **Louzada, M.S.**, **Britton, J.**, **Nyokong, T.** and **Khene, S.** (2018) Spectroscopic and nonlinear optical properties of alkyl thio substituted binuclear phthalocyanines. *Dye and Pigments.* 2018. p.1-8.

52. **Managa, M.**, **Achadu, O.J.** and **Nyokong, T.** (2018) Photophysical studies of graphene quantum dots - Pyrene-derivatized porphyrins conjugates when encapsulated within Pluronic F127 micelles. *Dyes and Pigments.* 148 (2018). p.405-416.

53. **Managa, M.**, **Britton, J.**, **Prinsloo, E.** and **Nyokong, T.** (2018) Effects of Pluronic F127 micelles as delivering agents on the *vitro* dark toxicity and photodynamic therapy activity of carboxy and pyrene substituted porphyrins. *Polyhedron.* 152 (2018). p.102-107.

54. **Managa, M.**, **Khene, S.**, **Britton, J.**, Martynov, A.G., Gorbunova, Y.G., Tsivadze, A.Y. and **Nyokong, T.** (2018) Photophysics and NLO properties of Ga(III) and In(III) phthalocyaninates bearing diethyleneglycol chains. *Journal of Porphyrins and Phthalocyanines.* 22 (2018). p.137-148.

55. **Managa, M.**, **Ngoy, B.P.**, **Mafukidze, D.M.** and **Nyokong, T.** (2018) Incorporation of metal free and Ga 5,10,15,20-tetrakis(4-bromophenyl) porphyrin into Pluronic F127-folic acid micelles. *Journal of Luminescence.* 194 (2018). p.739-746.

56. **Matlou, G.G.**, Kobayashi, N., Kimura, M. and **Nyokong, T.** (2018) Physicochemical properties of water-soluble unsymmetrical phthalocyanine-folic acid conjugates. *Dyes and Pigments.* 149 (2018). p.393-398.

57. **Matlou, G.G.**, **Oluwole, D.O.**, **Prinsloo, E.** and **Nyokong, T.** (2018) Photodynamic therapy activity of zinc phthalocyanine linked to folic acid and magnetic nanoparticles. *Journal of Photochemistry and Photobiology B – Biology.* 186 (2018). p.216-224.

58. **Matlou, G.G.**, **Oluwole, D.O.** and **Nyokong, T.** (2018) Evaluation of the photosensitizing properties of zinc and indium tetra cinnamic acid phthalocyanines linked to magnetic nanoparticles on human breast adenocarcinoma cells. *Journal of Luminescence.* 2018. p.1-8.

59. **Matshitse, R.** and **Nyokong, T.** (2018) Singlet Oxygen Generating Properties of Different Sizes of Charged Graphene Quantum Dot Nanoconjugates with a Positively Charged Phthalocyanine. *Journal of Fluorescence.* 28 (2018). p.827-838.

60. **Matshitse, R.**, **Nwaji, N.**, **Managa, M.**, **Prinsloo, E.** and **Nyokong, T.** (2018) Effect of number of positive charges on the photophysical and photodynamic therapy activities of quaternary benzothiazole substituted zinc phthalocyanine. *Journal of Photochemistry and Photobiology A – Chemistry* 367 (2018). p.253-260.

61. **Mbaba, M.**, **De La Mare, J.A.**, **Sterrenberg, J.N.**, **Kajewole, D.I.**, **Maharaj, S.**, **Edkins, A.L.**, **Isaacs, M.**, **Hoppe, H.C.** and **Khanye, S.D.** (2018) Novobiocin-ferrocene conjugates possessing anticancer and antiplasmodial activity independent of HSP90 inhibition. *Journal of Biological Inorganic Chemistry.* 2018. p.1-11.

62. **Mgidlana, S.**, **Oluwole, D.O.** and **Nyokong, T.** (2018) Effects of the carboxylic acid substituents on the photophysical and nonlinear optical properties of asymmetrical Zn(II) phthalocyanines-quantum dots conjugates. *Inorganic and Nano-Metal Chemistry*. 48 (6). p.296-307.

63. **Mgidlana, S.**, **Oluwole, D.O.** and **Nyokong, T.** (2018) Fabrication of efficient nonlinear optical absorber using Zn phthalocyanine-semiconductor quantum dots conjugates. *Polyhedron.* 2018. p.1-14.

64. **Molupe, N.**, **Babu, B.**, **Oluwole, D.O.**, **Prinsloo, E.**, **Mack, J.** and **Nyokong, T.** (2018) The investigation of *in vitro* dark cytotoxicity and photodynamic therapy effect of a 2,6-dibromo-3,5- distyryl BODIPY dye encapsulated in Pluronic® F-127 micelles. *Journal of Coordination Chemistry.* 71 (21). p.3444-3457.

66. Ejeromedoghene, O., Adewuyi, S., Amolegbe, S.A., Akinremi, C.A., **Moronkola, B.A.** and Salaudeen, T. (2018) Electrovalent chitosan functionalized methyl-orange/metal nanocomposites as chemosensors for toxic aqueous anions. *Nano-Structures and Nano-Objects*. 16 (2018). p.174-179.

67. **Mpeta, L.S.**, **Fomo, G.** and **Nyokong, T.** (2018) Click chemistry electrode modification using 4-ethynylbenzyl substituted cobalt phthalocyanine for applications in electrocatalysis. *Journal of Coordination Chemistry.* 71 (10). p.1623-1638.

68. **Mvango, S.** and **Mashazi, P.** (2018) Synthesis, characterization of coppier oxide-gold nanoalloys and their peroxidase-like activity towards colorimetric detection of hydrogen peroxide and glucose. *Materials Science & Engineering C-Materials for Biological Applications*. 2018. p.1-10.

69. **Mwanza, D.**, **Louzada, M.S.**, **Britton, J.**, **Sekhosana, K.E.**, **Khene, S.**, **Nyokong, T.** and **Mashazi, P.** (2018) The effect of the cobalt and manganese central metal ions on the nonlinear optical properties of tetral(4-propargyloxyphenoxy)phthalocyanines. *New Journal of Chemistry.* 42 (2018). p.9857.

70. **Ndebele, N.**, **Mack, J.** and **Nyokong, T.** (2018) A 3.5-DistyrylBODIPY Dye Functionalized with Boronic Acid Groups for Direct Electrochemical Glucose Sensing. *Electroanalysis.* 2018. p.1-9.

71. **Ngoy, B.P.**, **Hlatshwayo, Z.**, **Nwaji, N.**, **Fomo, G.**, **Mack, J.** and **Nyokong, T.** (2018) Photophysical and optical limiting properties at 532 nm of BODIPY dyes with p-benzyloxystyryl groups at the 3,5-positions. *Journal of Porphyrins and Phthalocynines.* 22 (2018). p.413-422.

72. **Ngoy, B.P.**, **May, A.K.**, **Mack, J.** and **Nyokong, T.** (2018) Effect of bromination on the optical limiting properties at 532 nm of BODIPY dyes with *p*-benzyloxystyryl groups at the 3,5-positions. *Journal of Molecular Structure.* 2018. p.1-9.

73. **Nwahara, N.**, **Achadu, O.J.** and **Nyokong, T.** (2018) In-situ synthesis of gold nanoparticles on graphene quantum dots-phthalocyanine nanoplatforms: First description of the photophysical and surface enhanced Raman scattering behaviour. *Journal of Photochemistry and Photobiology A – Chemistry.* 359 (2018). p.131-144.

74. **Nwahara, N.**, **Nkhahle, R.**, **Ngoy, B.P.**, **Mack, J.** and **Nyokong, T.** (2018) Synthesis and photophysical properties of BODIPY-decorated graphene quantum dot-phthalocyanine conjugates. *New Journal of Chemistry.* 42 (2018). p.6051-6061.

75. **Nwaji, N.**, **Achadu, O.J.** and **Nyokong, T.** (2018) Photo-induced resonance energy transfer and nonlinear optical response in ball-type phthalocyanine conjugated to semiconductor and graphene quantum dots. *New Journal of Chemistry.* 42 (2018). p.6040-6050.

76. **Nwaji, N.**, **Dingiswayo, S.**, **Mack, J.** and **Nyokong, T.** (2018) Photophysical and enhanced nonlinear optical response in asymmetric benzothiazole substituted phthalocyanine covalently linked to semiconductor quantum dots. *Spectrochimica Acta Part A – Molecular and Biomolecular Spectroscopy.* 204 (2018). p.629-639.

77. **Nwaji, N.**, **Mack, J.** and **Nyokong, T.** (2018) An optical limiting study in aminophenoxy substituted phthalocyanine in the presence of semiconductor quantum dots. *Journal of Luminescence.* 203 (2018). p.247-256.

78. **Nwaji, N.**, **Mack, J.** and **Nyokong, T.** (2018) Photophysical and strong optical limiting properties of ball-type phthalocyanines dimers and their monomeric analogues. *Journal of Photochemistry and Photobiology A – Chemistry.* 352 (2018). p.73-85.

79. **Nwaji, N.**, **Mack, J.** and **Nyokong, T.** (2018) Enhanced nonlinear optical response of benzothiazole substituted ball-type phthalocyanines in the presence of metallic nanoparticles. *Optical Materials.* 82 (2018). p.93-103.

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