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DR GIDAY WELEGERGS (POSTDOCTORAL FELLOW)
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CONTACT DETAILS:

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EDUCATION DETAILS:

PhD (Chemistry) 2023 – University of South Africa, Johannesburg, South Africa

MSc (Chemistry, with distinction) 2013 – Gondar University, Gondar, Ethiopia

BSc (Chemistry, with great distinction) 2009 – Arba-Minch University, Arba-Minch, Ethiopia.

EMPLOYMENT HISTORY :

- Debre Berhan University, P.O.BOX 445, Debrebirhan, Ethiopia, from 2010-2018.

- Designation; as graduate assistant and Lecturer.

RESEARCH TITTLE:

Synthesis of semiconductor oxides/Sulfides and its carbon-based nanocomposites as electrode materials for electrochemical energy storage (supercapacitors & batteries) and Photodegradation.

PUBLICATIONS :

- Giday G. Welegergs, H. G. Gebretinsae, M. T. Girmay, Azole Sindelo, Abebe Tedla, Z. Y. Nuru, S. Dube, Malik Maaza, Tebello Nyokong
  Plasmonic Silver (Ag) Supported Mesoporous CuO Nanocomposites for Photodegradation of Methylene Blue in Water
  Catalysis Letters 155:275 (2025) (1-18)
  https://doi.org/10.1007/s10562-025-05100-x
- Giday G Welegergs, Mbulelo Jokazi, H.G. Gebretinsae, N. Matinise, Z.Y. Nuru, S.Dube, Malik Maaza, and Tebello Nyokong
  Eco-friendly synthesis of hierarchical hollow Cu_7S_4 nanotubelets using volatile organosulfurs for high-performance supercapacitors
  Journal of Material Science, (2025) 1-16
  https://doi.org/10.1007/s10853-025-11305-7
- Giday G. Welegergs, Abera D. Ambaye, Mbulelo Jokazi, Nnamdi Nwahara and Tebello Nyokong
  Bioengineering of one dimensional hierarchical Cu7S4 hollow nanotubes for non-enzymatic glucose sensing applications
  RSC Advances (2024), 14, 27122–27131, https://doi.org/10.1039/d4ra05199h
- G.G.Welegergs, Z.M Mehabaw, H.G. Gebretinsae, M.G. Tsegay, L. K, Z. Khumalo, N. Matinisie, Z.T. Aytuna, S. Mathur , Z.Y. Nuru, S. Dube, M. Maaza, Electrodeposition of nanostructured copper oxide (CuO) coatings as spectrally solar selective absorber: Structural, Optical and electrical properties, Infrared Physics, and Technology, 133(2023) 104820 https://doi.org/10.1016/j.infrared.2023.104820
- N. L. Botha, K. J. Cloete, G.G. Welegergs, M. Akbari, R. Morad, L. Kotsedi, N. Matinise, R. Bucher, S. Azizi & M. Maaza, Physical properties of computationally informed phyto-engineered 2-D nanoscaled hydronium jarosite, Nature scientific report, 13(2023) 2442.
  https://doi.org/10.1038/s41598-022-25723-z
- G. G. Welegergs, Room Temperature Surface Bio-Sulfurisation via Natural Sativum Annilin and Bioengineering of Nanostructured CuS/Cu2S, Nanohorizon 2(2023), 1-27. https://doi.org/10.25159/NanoHorizons.45486dad4f9
- G.G. Welegergs, H.G. Gebretnisae, M.G. Tsegay, A. Bhardwaj, S. Mathur, T.G. Kebede, Z.Y. Nuru, S. Dube, M. Maaza, Spectrally selective single-layered Ag@CuO nanocermet coatings for photothermal Applications: Green synthesis method, Optical Materials, 135 (2023) 113247. https://doi.org/10.1016/j.optmat.2022.113247.

- M.G. Tsegay , H.G. Gebretinsae , **G.G. Welegergs**, Sh. Azizi, M.P. Seopela, M. Henini, M. Maaza, Z.Y. Nuru , Optical response of green synthesized thin Cr2O3 films prepared via drop and spin coatings, material proceeding today, (**2023**) xxxx, https://doi.org/10.1016/j.matpr.2023.06.225.
- G.G. Welegergs, H.G. Gebretnisae, M.G. Tsegay, C. Mtshali, N. Mongwaketsia, Z.Y. Nuru, S. Dube, and M. Maaza, Single Layered Biosynthesised Copper Oxide (CuO) Nanocoatings as Solar Selective Absorber, applied sciences, 13(2023) 1867-1881, https://doi.org/10.3390/app13031867
- H.G Gebretinsae, M.G Tsegay, G.G Welegergs, M Maaza, ZY Nuru, Effect of rotational speed on the structural, morphological, and optical properties of biosynthesized Nickel Oxide thin films for selective solar absorber nanocoatings, Energies, 15(2022) 8960. https://doi.org/10.3390/en15238960
- M.G. Tsegay, M, H. Gebretinsae, G.G. Welegergs, M. Maaza, and Z. Nuru, Novel green synthesized Cr_2O_3 for selective solar absorber: Investigation of structural, morphological, chemical, and optical properties, Solar Energy, 236(2022) 308-319. https://doi.org/10.1016/j.solener.2022.03.011
- G.G.Welegergs, H.G.Gebretnisae, M.G.Tsegay, Z.Y.Nuru, S.Dube, M.Maaza, Thickness dependant morphological, structural, and optical properties of SS/CuO nanocoatings as solar selective absorber, Infrared Physics and Technology, 113 (2021) 103619. https://doi.org/10.1016/j.infrared.2020.103619
- G.G. Welegergs**,** R Akoba, J Sacky, ZY Nuru, Structural and optical properties of copper oxide (CuO) nanocoatings as selective solar absorber. MaterialToday proceedingss, 36(**2020**) 509-513. https://doi.org/10.1016/j.matpr.2020.05.298
- G.G Welegergs, H Gebretinsae, N Matinise, Z.Y.Nuru, M Maaza, Electrochemical properties of green synthesised Zinc oxide (ZnO) nanoparticles, MRS advances, 5(**2020**) 1103-1112.
- Rashidah Akoba, **Giday G. Welegergs**, De W.Selwyn, Nagla Numan, Juliet Sackey, Zebib Y.Nuru, Nanostructured black moly surfaces for solar thermal absorbers by wet chemical etching, Materials Today proceedings, 36(**2021**) 251-255. https://doi.org/10.1016/j.matpr.2020.03.325
- R Akoba, G.G.Welegergs, M Luleka, J Sackey, Effect of Etchant Concentration on the Optical Properties and Surface Topography of MoO3 Selective Solar Absorber, MRS Advances, 5(**2020**) 133–1143. https://doi.org/10.1557/adv.2020.194
- H. Gebretinsae, G.G Welegergs, N. Matinise, M. Maaza and Z. Y. Nuru, Electrochemical study of Nickel Oxide (NiO) nanoparticles from cactus plant extract, MRS Advances, 5(**2020**), 1095–1102, https://doi.org/10.1557/adv.2020.118.

Awards:

- Postdoctoral Rhodes University fellowship (PDRF) from Jan. 2024–Dec 2024.
- German academic exchange service (DAAD) in region PhD scholarship from Jan. 2019 to May 2022, University of South Africa, South Africa.

Overseas travels:

• Cologne University, German, from Sept 01, 2021 – Nov.30, 2021.

Reason for visit: PhD Research internship sponsored by DAAD.