

CURRICULUM VITAE

Personal Details

Name: Dr. Susan Waiyego Karuga
Gender: Female
Nationality: Kenyan
Languages: Fluent in English and Swahili
Email address: swkaruga@uonbi.ac.ke

Education

Year	Institution	Qualification
2023	University of Nairobi	Ph.D Nuclear Science
2015	University of Nairobi	MSc. Nuclear Science
2008	University of Nairobi	B.Sc. Chemistry

Work Experience

Feb 2024 – Present	Lecturer, Department of Electrical and Information Engineering, University of Nairobi.
July 2021 – Feb 2024	Tutorial Fellow, Department of Electrical and Information Engineering, University of Nairobi.
2019 Oct – July 2021	Tutorial Fellow, Institute of Nuclear Science & Technology, University of Nairobi.
2014 Oct – 2019 Oct	Graduate Assistant, Institute of Nuclear Science & Technology, University of Nairobi.
2015 Sept – 2018	PhD Guest Researcher, Delft University of Technology (TUDelft), The Netherlands. <i>Research Area:</i> Aerosol Technology, deposition of thin films using electrospray technique.
2013 Nov – 2014 May	MSc. Guest Researcher, Chalmers University of Technology, Sweden. <i>Research Area:</i> Synthesis and characterization of materials for clean energy applications.
2012 Dec – 2013 Oct	MSc. Research fellow, World Agroforestry Centre (icraf), Nairobi. <i>Research Area:</i> Micronutrients in plants from selected sites in Kenya: Application of Total Reflection X-ray Fluorescence.

Journal Publications

1. Susan W. Karuga, Erik M. Kelder, Michael J. Gatari and Jan C. M. Marijnissen. A comprehensive design schedule for electrosprayed thin films with different surface morphologies. *Journal of Aerosol Research*, 2(2): 245-259, August 2024. DOI: 10.5194/ar-2-245-2024.
2. J.C.M. Marijnissen, C.U. Yurteri, S.W. Karuga and R.P.A. Hartman. On the minimum and maximum flowrate of electrospraying: A practical approach, based on fundamentals, for design purposes. *Journal of Electrostatics*, Volume 124, July 2023, 103809. <https://doi.org/10.1016/j.elstat.2023.103809>.
3. E.M. Kelder, J.C.M. Marijnissen, S. Waiyego Karuga. "EDHA for Energy Production, Storage and Conversion Devices". *Journal of Aerosol Science*, Volume 125, November 2018, Pages 119-147. <https://doi.org/10.1016/j.jaerosci.2018.04.011>.

Patents

KE/P/2017/2677: Solid State Lithium Ion Batteries.

KE/P/2024/004763: A Design Schedule for Electrosprayed Thin Films.

Conference Publications

1. **S.W. Karuga**, M.J. Gatari, E.M. Kelder and J.C.M Marijnissen (2022). Design and Production of Thin Films by Electrospraying for Li-ion Batteries. Proceedings of the International Aerosol Conference (IAC2022), Athens, Greece. September 5 - 9, 2022.
2. J.C.M. Marijnissen, C.U. Yurteri, **Karuga S. Waiyego** and R.P.A. Hartman (2022). The minimum flow rate and the operational window of electrospraying in the cone-jet mode. Proceedings of the International Aerosol Conference (IAC2022), Athens, Greece. September 5 - 9, 2022.
3. L.K. Kiriinya, **S.W. Karuga** and M.J. Gatari (2022). Education and Training in Radiation Science and Technology in Kenya. Proceedings of the Second International Conference on Applications of Radiation Science and Technology (ICARST2022), Vienna, Austria. August 22 – 26, 2022.
4. Dickson Ombewa, **Susan Karuga**, Michael J. Mangala, John M. Onyari and Michael Gatari (2022). Trace Elements in Selected Fish Species from Kenya. Proceedings of the European Conference on X-ray Spectrometry (EXRS2022), Bruges, Belgium. 26th June - 1st July, 2022.
5. Margaret Gitau, Michael J. Gatari, John Birir, **Susan Karuga** (2022). Knowledge Management in nuclear material Safety and security: Engaging the Youth for Sustainable Development. Proceedings of the Institute of Nuclear Materials Management (INMM) conference, virtual. 28th August, 2022
6. **S.W. Karuga**, M.J. Gatari, J.C.M Marijnissen and E.M. Kelder (2019). Morphological control of thin films: Application of electrospray technique. Proceedings of the European Aerosol Conference (EAC2019), Gothenburg, Sweden. August 25 - 30, 2019.

7. **S.W. Karuga**, M.J. Gatari, E.M. Kelder, and J.C.M Marijnissen (2018). Electrospray synthesis of porous cathode material for lithium ion batteries. Proceedings of the Aerosol Technology Conference 2018, Bilbao, Spain. June 18 - 20, 2018.
8. **S.W. Karuga**, M.J. Gatari, E.M. Kelder, and J.C.M Marijnissen (2017). Solid-state electrolytes for lithium ion batteries: Application of electrospray technique. Proceedings of the European Aerosol Conference (EAC2017), Zurich, Switzerland. August 27 – September 1, 2017.
9. M.J.G. Gichuru, D.M. Maina, M.J. Mangala, **S.W. Karuga**, F.K. Kariithi, and S. Bartilol. Application of Ionizing radiation in Studying Akamba and Masai Art Objects Made from Glass. International Conference on Applications of Radiation Science and Technology (ICARST–2017), Vienna, Austria. 24 – 28 April, 2017.
10. **Karuga S.**, Gatari M. J., Maina D.M., Shepherd K.D., Nyambura M., Galgallo A. and Gichohi B.M. (2013). Uptake of Zinc in Sugarcanes: An Experiment using samples from Nairobi River Basin. Proceedings of the 27th Soil Science Society of East Africa and the 6th African Soil Science Society Conference. 20 - 25 October 2013.
11. A. Galgallo, M. Gatari, R. Keskinen, M. Esala, K. Shepherd and **S. Karuga** (2014). Total and Extractable Trace Elements in Soil. 20th World Congress of Soil Science 2014, 6, 160-160.
12. Galgallo A.H., Gatari M.J., Maina D.M., Shepherd K.D., Nyambura M., Nyandika H., **Karuga S.** and Gichohi B.M. (2013). Trace Elements in Soils from Tanzania: Application of TXRF Analysis. Proceedings of the 27th Soil Science Society of East Africa and the 6th African Soil Science Society Conference. 20 - 25 October 2013.

Grants

IAEA Coordinated Research Project F22069: Imaging Technologies for Process Investigation and Components Testing (Secondary Chief Scientific Investigator, 2017 – 2021).

IAEA Coordinated Research Project F22074: Development of Radiometric Methods and Modelling for Measurement of Sediment Transport in Coastal Systems and Rivers (Scientific staff, 2021 – 2025).

Awards

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- Outstanding contribution to the University of Nairobi community in scholarly contribution to innovation in the field of Nuclear Science & Technology of international recognition (UoN at 50, 2021).
 - Best Poster Award at the Aerosol Technology Conference (AT2018) held in Bilbao, Spain.
 - 1st runner up in the water sector trust fund innovations challenge awards (WICA) 2016, under the water and wastewater treatment category.