KARATINA UNIVERSITY

STAFF PROFILE TEMPLATE

1. **Name:** Dr. Stephen Maina Njoroge
2. **Designation**: Lecturer
3. **Employment details**

   School: Pure and Applied Sciences

   Department: Biological and Physical Sciences Department

4. **Contact Information**

   Email Address (snjoroge@karu.ac.ke; njorostep05@gmail.com):

   Research Links: orcid.org/0000-0002-0861-0095

4. **Describe your professional self**

Dr. Stephen Maina Njoroge is a Physics lecturer in the school of pure and applied sciences at Karatina University where he has been a faculty member since April, 2014. Njoroge received the Bachelors of Education Science degree in physics/ Chemistry (physics major) and Masters in Physics degree on 2007

and 2014, respectively from Kenyatta University. In 2020, Njoroge received Doctor of Optics degree from Huazhong University of Science and Technology (HUST), Wuhan, China. He has worked on the theory and experiment of electronics, nondestructive testing (NDT), strong-field physics, including the generation of high harmonics and attosecond pulse in gases and solids. He has actively participated in research in holography condition optimization as well as exploring its applications in different fields.

Dr. Njoroge has participated in several workshops/ conferences. In the department he has participated in several committees, review of curriculum and generation of new undergraduate and postgraduate programs. He currently serves as Masters of Science (Physics), Bachelors of Science with Education program coordinator and program leader of Bachelors of Electronics with informatics.

5. **Area/ Field of specialization**: attosecond physics and electronics

6. **Research interests**: ultrafast optics, biosensors and signal processing

7. List some of your key published works.

Peer-reviewed Publications

Njoroge, S.M. and Kinyua, D.M. (2023) Polarized Phase Holograms of High Diffraction Efficiency. Open Access Library Journal, 10: https://doi.org/10.4236/oalib.1110120

S. M. Njoroge, J. Li and F. Li, "High-order harmonic enhancement in nanowire by inhomogeneous field," IEEE access 8, 135103 (2020).

H. Yuan, L. He, **S. M. Njoroge**, D. Wang, R. Shao, P. Lan, and P. Lu, "Generation of Near-Circularly Polarized Attosecond Pulse with Tunable Helicity by Unidirectionally Rotating Laser Field, " Annalen der Physik, 1900570 (2020).

C. Zhai, R. Shao, P. Lan, B. Wang, Y. Zhang, H. Yuan, **S. M. Njoroge**, L. He, and P. Lu, "Ellipticity control of high-order harmonic generation with nearly orthogonal two-color laser fields," Physical Review A, 110, 053407 (2020).

S. M. Njoroge, H. Yuan, K. Dickson, Q. Zhang and P. Lan, "Control of the polarization direction of isolated attosecond pulses using inhomogeneous two-color fields," Scientific reports 9,18582 (2019).

D. M. Kinyua, H. Long, X. Xing, **S. Njoroge**, K. Wang, B. Wang, and P. Lu, "Gigahertz acoustic vibrations of Ga-doped ZnO nanoparticle array," Nanotechnology 30, 305201 (2019).

Conferences/ Workshops

i. Polarization Effect in Phase Holograms. 6th Kirinyaga University International Conference. 21st -23rd March, 2023.

ii. The Potential of Cellophane Sheet as a Cheap Optical Retarder. 6th Kirinyaga University International Conference. 21st -23rd March, 2023.
iii. Webinar on Intelligent Optimization Techniques and Their Real Life Application, 25th – 27th February, 2022.
iv. IEEE XploreR Webinar: Search Strategies to Maximize Your Research Experience, 21st October, 2021.
v. Webinar on Basic to Advanced Guide on Literature Review Writing, 10th October, 2021.
vi. Virtual IEEE Authorship Symposium, 31st March, 2021.
vii. Attended 2nd International Online Covid-19 Sensitization, 12th February, 2021.