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RESEARCH

Interests	Condensed Matter Physics (Theory & Experiment): Linear optics · Ultrafast optics · Optoelectronics & Nanotechnology
Areas	Materials Chemistry · Biomedical Engineering · Atomic and Molecular Physics, and Optics · Civil and Structural Engineering · Pollution · Aerospace Engineering

RESEARCH SUMMARY

45	223	10	10	0.41	0%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 45 publications listed below, 2007–2026. Field-weighted impact is the mean over the 28 works scored for it; 1.00 is the world average for works of the same field, type and year. 0 of the 28 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

University of Cape Coast
Cape Coast, Ghana

PUBLICATIONS

Journal articles 38

1. H. K. Obeng, **R. Edziah**, E. O. Amponsah-Abu (2026). Development of Integrated GHARR-1 MNSR Monitoring and Control Auxiliary Systems Automation Using WinCC and Industrial Process Modeling Tools. *Journal of Control Science and Engineering*. https://doi.org/10.1155/jcse/4242688
2. H. K. Obeng, **R. Edziah**, E. O. Amponsah-Abu (2025). Reliability Analysis for a New Semiautomated Control and Monitoring System for GHARR-1 MNSR Using Failure Modes, Effects, and Criticality Analysis. *Journal of Electrical and Computer Engineering*. https://doi.org/10.1155/jece/4692754
3. Issahaku Shirazu, Theophilus A. Sackey, **Raymond Edziah**, Yaw Mensah Boateng, Cyril. Schandorf (2024). Establishing national paediatric computed tomography diagnostic reference levels in Ghana. *Health and Technology*. https://doi.org/10.1007/s12553-024-00903-1
4. **Raymond Edziah**, Samuel S. Bentsiefi, Kwadwo Dompreh, Anthony Twum, Emmanuel Kofi Amewode, Patrick Mensah-Amoah, Ebenezer T. Tatchie, Cynthia Jebuni-Adanu, Samuel Y. Mensah (2024). Investigation of Acoustomagnetoelectric Effect in Bandgap Graphene by the Boltzmann Transport Equation. *World Journal of Condensed Matter Physics*. https://doi.org/10.4236/wjcmp.2024.141002
5. H. K. Obeng, **R. Edziah**, E. O. Amponsah-Abu (2024). REDESIGNING INTERLOCK SYSTEMS FOR THE UPGRADE OF MINIATURE NEUTRON SOURCE REACTORS (MNSRS): A CONCEPTUAL APPROACH. *International Journal of Engineering Applied Sciences and Technology*. https://doi.org/10.33564/ijeast.2024.v09i07.010
6. Daniel Sekyi-Arthur, Samuel Yeboah Mensah, Kofi Wi-Adu, Kwadwo Anokye Dompreh, **Raymond Edziah** (2024). Tunable High-Frequency Acoustoelectric Current Oscillations in Fluorine-Doped Single-Walled Carbon Nanotubes. *Journal of Nanotechnology*. https://doi.org/10.1155/2024/7426184
7. **Raymond Edziah**, S.Y. Mensah, E.K. Amewode, C. Jebuni-Adanu, J. Asare (2023). High frequency

amplification of acoustic phonons in fluorine-doped single-walled carbon nanotubes. *Diamond and Related Materials*. https://doi.org/10.1016/j.diamond.2023.110642

8. Christiana Subaar, Emmanuel Gyan, Jonathan Osei -Owusu, **Raymond Edziah**, Aboagye.K Dofuor, Joseph. B. Tandoh, Ralph Kwakye, Edward Ntim (2022). Determination of Heavy Metals Pollution in Soil and Tree Rings along Haatso- Atomic Road in Ghana. *Pollution and Effects on Community Health*. https://doi.org/10.58489/2836-3590/002
9. Kwadwo A. Dompreh, Daniel Sekyi-Arthur, Samuel Y. Mensah, Kofi W. Adu, **Raymond Edziah**, Mathew Amekpewu (2022). Effect of band-gap tuning on absorption of phonons and acoustoelectric current in graphene nanoribbon. *Physica E Low-dimensional Systems and Nanostructures*. https://doi.org/10.1016/j.physe.2022.115516
10. D. Sekyi-Arthur, M. Egblewogbe, S.Y. Mensah, N.G. Mensah, K.W. Adu, K.A. Dompreh, **R. Edziah**, S. Atarah (2022). Giant thermoelectric figure of merit in fluorine-doped single walled-carbon nanotubes. *Physica E Low-dimensional Systems and Nanostructures*. https://doi.org/10.1016/j.physe.2022.115292
11. Anthony Twum, Samuel Y. Mensah, **Raymond Edziah**, Natalia G. Mensah, S.S. Abukari, K.A. Dompreh, G. Nkrumah-Buandoh, Augustine Arthur (2022). Investigation of laser modulated thermoelectric power of chiral carbon nanotubes. *Physica E Low-dimensional Systems and Nanostructures*. https://doi.org/10.1016/j.physe.2022.115304
12. **Raymond Edziah** (2022). Pollution and Effects on Community Health. *Community Health*. https://www.researchgate.net/profile/Jonathan-Osei-Owusu/publication/362845736_Determination_of_Heavy_Metals_Pollution_in_Soil_and_Tree_Rings_along_Haatso-_Atomic_Road_in_Ghana/links/6306bac55eed5e4bd1199aef/Determination-of-Heavy-Metals-Pollution-in-Soil-and-Tree-Rings-along-Haatso-Atomic-Road-in-Ghana.pdf
13. Michael Kwame Vowotor, **Raymond Edziah**, Samuel Sonko Sackey, Emmanuel Kofi Amewode, Sandra Baaba Frempong (2021). Assessment of Arsenic and Copper Pollution of the Benya Lagoon, Ghana By Neutron Activation Analysis. *Journal of Engineering Advancements*. https://doi.org/10.38032/jea.2021.04.004
14. G. Edusei, J. B. Tandoh, **Raymond Edziah**, O. Gyampo, H. Ahiamadjie (2021). Chronological Study of Metallic Pollution Using Tree Rings at Tema Industrial Area. *Pollution*. https://doi.org/10.22059/poll.2020.306742.855
15. H. K. Obeng, E. O. Amponsah-Abu, B. J. B. Nayrko, **R. Edziah**, P. D. Gasu, A.G. Ampong (2021). Failure Mode and Effect Analysis for a Programmable Logic Controller-Based Control Unit for a Miniature Neutron Source Reactor Pneumatic Transfer System. *Journal of Electrical and Computer Engineering*. https://doi.org/10.1155/2021/7653857
16. Anthony Twum, **Raymond Edziah**, Samuel Yeboah Mensah, Kwadwo Dompreh, Patrick Mensah-Amoah, Augustine Arthur, Natalia G. Mensah, Kofi Adu, George Nkrumah-Buandoh (2021). Temperature Dependent Resistivity of Chiral Single-Walled Carbon Nanotubes in the Presence of Coherent Light Source. *World Journal of Condensed Matter Physics*. https://doi.org/10.4236/wjcmp.2021.114006
17. D. Sakyi-Arthur, S. Y. Mensah, K. W. Adu, K. A. Dompreh, **R. Edziah**, N. G. Mensah (2020). Acoustoelectric Effect in Fluorinated Carbon Nanotube in the Absence of External Electric Field. *World Journal of Condensed Matter Physics*. https://doi.org/10.4236/wjcmp.2020.101001
18. G. Edusei, J. B. Tandoh, **Raymond Edziah**, O. Gyampo (2020). Chronological Studies of Traffic Pollution Using Elemental Analysis of Tree Rings: Case Study of Haatso-atomic Road. *Pollution*. https://doi.org/10.22059/poll.2020.291347.701
19. B. Sefa-Ntiri, B. Kwakye-Awuah, **R. Edziah**, B. Anderson, F. A. Armah, P. Mensah-Amoah, S. S. Sackey, F. Sam, A. G. Akyea, S. Yunus, E. Tatchie, B. K. Nkansah, F. Kumi (2020). Dissolved organic matter in hand-dug well water as groundwater quality indicator: assessment using laser-induced fluorescence spectroscopy and multivariate statistical techniques. *SN Applied Sciences*. https://doi.org/10.1007/s42452-020-2446-4
20. Daniel Sakyi-Arthur, Samuel Y. Mensah, Kofi W. Adu, Kwadwo A. Dompreh, **Raymond Edziah**, Natalia G. Mensah, Cynthia Jebuni-Adanu (2020). Induced Hall-Like Current by Acoustic Phonons in Semiconductor Fluorinated Carbon Nanotube. *World Journal of Condensed Matter Physics*. https://doi.org/10.4236/wjcmp.

2020.102005

21. Anthony Twum, Samuel Yeboah Mensah, **Raymond Edziah**, Augustine Arthur (2020). Laser induced resistivity of chiral single wall carbon nanotubes. *Journal of Physics Communications*. https://doi.org/10.1088/2399-6528/aba1d4
22. S. S. Abukari, R. Musah, M. Amekpewu, S. Y. Mensah, N. G. Mensah, **R. Edziah**, K. W. Adu (2020). Rectification in Chiral Carbon Nanotubes with Hot Electron Injection. *Journal of Experimental and Theoretical Physics*. https://doi.org/10.1134/s1063776120080099
23. D. Sakyi-Arthur, S. Y. Mensah, K. W. Adu, K. A. Dompreh, **R. Edziah**, N. Mensah, C. Jebuni-Adanu (2020). Semiconductor Fluorinated Carbon Nanotube as a Low Voltage Current Amplifier Acoustic Device. *World Journal of Condensed Matter Physics*. https://doi.org/10.4236/wjcmp.2020.101002
24. D. Sakyi-Arthur, S. Y. Mensah, N. G. Mensah, K. W. Adu, K. A. Dompreh, **R. Edziah** (2020). Tunable power factor in fluorine-doped single-walled carbon nanotubes. *Journal of Applied Physics*. https://doi.org/10.1063/5.0031326
25. E. O. Amponsah-Abu, B. J. B. Nyarko, **R. Edziah** (2019). Design and Construction of Pneumatic Transfer System Controller Unit for Ghana MNSR. *Journal of Control Science and Engineering*. https://doi.org/10.1155/2019/6450987
26. **Raymond Edziah** (2019). High Repetition-Rate Laser Z-Scan Measurements: Criterion for Recognizing Adverse Thermal Effects. *Applied Physics Research*. https://www.academia.edu/download/76981209/39757.pdf
27. Jerry Opoku-Ansah, Moses Jojo Eghan, Benjamin Anderson, Johnson Nyarko Boampong, **Raymond Edziah**, Peter Osei-Wusu Adueming, Charles Lloyd Yeboah Amuah (2019). Optical Identification of Plasmodium falciparum Malarial Byproduct for Parasite Density Estimation. *International Journal of Optics*. https://doi.org/10.1155/2019/8782567
28. **R. Edziah** (2019). Programmable Logic Controller based mitigation of obsolescence control unit of GHARR-1 Pneumatic Transfer System. *Merit Research Journal of Engineering, Pure and Applied Sciences*.
29. D Sakyi-Arthur, SY Mensah, NG Mensah, KA Dompreh, **R Edziah** (2018). Absorption of acoustic phonons in fluorinated carbon nanotube with non-parabolic, double periodic band. *Phonons in low dimensional structures*. https://books.google.com/books?hl=en&lr=&id=GFWRDwAAQBAJ&oi=fnd&pg=PA129&dq=info:7jMbiNdQywsJ:scholar.google.com&ots=5A5GR9xINA&sig=H6zr_x0HSUYloZiSknDc66FkBeI
30. **Raymond Edziah** (2018). Cost Effective Profiling of Neodymium-Doped Vanadate Laser Pulses. *Applied Physics Research*. https://www.academia.edu/download/68475396/88855ab595eae2db2c64356f17c7a5aa60a4.pdf
31. K. A. Dompreh, N. G. Mensah, S. Y. Mensah, S. S. Abukari, F. Sam, **R. Edziah** (2015). Hypersound Absorption of Acoustic Phonons in a Degenerate Carbon Nanotube. *Graphene*. https://doi.org/10.4236/graphene.2015.43007
32. KA Dompreh, Samuel Y Mensah, SS Abukari, **R Edziah**, NG Mensah, HA Quaye (2014). Acoustomagnetoelectric Effect in Graphene Nanoribbon in the Presence of External Electric and Magnetic Field. *arXiv preprint arXiv:1412.1678*. https://arxiv.org/abs/1412.1678
33. **Raymond Edziah** (2014). White light photothermal lens spectrophotometer for the determination of absorption in scattering samples. *Applied spectroscopy*. https://doi.org/10.1366/13-07385
34. Aristides Marcano, Isaac Basaldua, Aaron Villette, **Raymond Edziah**, Jinjie Liu, Omar Ziane, Noureddine Melikechi (2013). Photothermal Lens Spectrometry Measurements in Highly Turbid Media. *Applied Spectroscopy*. https://doi.org/10.1366/12-06970
35. **Raymond Edziah** (2013). Treatment efficacy of laser photothermal therapy using gold nanorods. *International Journal of Biomedical Engineering and Technology*. https://doi.org/10.1504/ijbet.2013.056508
36. **R Edziah** (2012). MicroCT Imaging and In Vivo Temperature Elevations in Implanted Prostatic Tumors in Laser Photothermal Therapy Using Gold Nanorods. *Journal of Nanotechnology in Engineering and Medicine*. https://asmedigitalcollection.asme.org/nanoengineeringmedical/article-abstract/3/2/021003/467062

37. **Raymond Edziah** (2011). Z-scan measurements using ultrashort high-repetition-rate lasers: how to recognize the parasitic effects of non linear behavior of fused-silica damage sites. *Journal of the Optical Society of America B*. https://opg.optica.org/abstract.cfm?uri=josab-28-6-1385

38. **Raymond Edziah** (2010). Nonlinear optical properties of novel forms of enriched carbon disulfide. *Ph. D. Thesis*. https://ui.adsabs.harvard.edu/abs/2010PhDT.....9E/abstract

Book chapters 1

1. Daniel Sakyi-Arthur, S. Y. Mensah, N. G. Mensah, Kwadwo A. Dompreh, **R. Edziah** (2018). Absorption of Acoustic Phonons in Fluorinated Carbon Nanotubes with Non-Parabolic, Double Periodic Band. *IntechOpen eBooks*. https://doi.org/10.5772/intechopen.78231

Conference papers 6

1. **R Edziah** (2012). Thermal effect of gold nanorods in implanted prostatic tumors during laser photothermal therapy. *Summer Bioengineering Conference*. https://asmedigitalcollection.asme.org/SBC/proceedings-abstract/SBC2012/621/333779

2. **R Edziah** (2012). Treatment efficacy of laser photothermal therapy using gold nanorods: Tumor shrinkage study. *Summer Bioengineering Conference*. https://asmedigitalcollection.asme.org/SBC/proceedings-abstract/SBC2012/411/333231

3. **R Edziah** (2012). Visualization and quantification of gold nanorods distribution in prostatic tumors using microct imaging. *Summer Bioengineering Conference*. https://asmedigitalcollection.asme.org/SBC/proceedings-abstract/SBC2012/253/333662

4. **R Edziah** (2011). Temperature elevations in implanted prostatic tumors during laser photothermal therapy using nanorods. *Summer Bioengineering Conference*. https://asmedigitalcollection.asme.org/SBC/proceedings-abstract/SBC2011/1051/290507

5. **R Edziah** (2011). Temperature elevations in prostatic tumors during laser photothermal therapy. *Smart Biomedical and Physiological Sensor Technology VIII*. https://doi.org/10.1117/12.882746.short

6. **Raymond Edziah** (2007). 100X enhancement of the nonlinear refractive index of sulfur-doped CS2 over pure CS2. *2007 Quantum Electronics and Laser Science Conference*. https://ieeexplore.ieee.org/abstract/document/4431592/