

Zeinelabedin Aly Mohamed Mohamed

Master of Science

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Homepage: [Zain Elabeden Ali Mohamed | Faculty of Science](#)

Education

Military University of Technology (WAT) – Warsaw, Poland		Oct. 2025 – Present
Admitted as a Ph.D. student starting October 2025; pending arrival at the university.		
Assiut, Egypt		Assiut university
Master of science, Physics		Oct.2020-Feb.2025
Area of specialization:	Trapping and Manipulation of Light in Designed Topological Photonic Crystal	
Assiut, Egypt		Assiut University
Diploma in Nanomaterials physics		Oct.2020- Oct.2021
Cumulative GPA:		3.73/4.
Assiut, Egypt		Assiut University
Bachelor of science (B.Sc.), Physics and Chemistry		Sept.2015-Jun.2019
Study Area:	Physics and Chemistry department Double major, 2015-2019	
Cumulative GPA:		GPA 3.67/4.

Teaching experience

Department of physics, Faculty of Science, Assiut University.	Assiut, Egypt	
Teaching assistant	Dec.2020	
Teaching undergraduate student labs such as:		
Mechanics Lab	Nuclear & radiation Physics lab	Thermodynamics Lab
Modern Physics Lab	Electricity and Magnetism Lab	Electronics Lab
This work included grading student reports and devising exams. These tasks were performed for a range of class levels, from introductory to advanced upper level		
Tutoring topics in physics for science and engineering undergraduates, including:		
Mechanics – Thermodynamics – Electricity and Magnetism – Light and Optics at the level of Serway and Jewett’s textbook Physics for Scientists and Engineers with Modern Physics		

Technical Skills

▪ Simulation of Photonic Crystals using (COMSOL Multiphysics and MATLAB).
▪ Preparation method using Auto lab (Electrochemical Deposition and Anodization).
▪ X-Ray Diffraction: (Data analysis and Explanation).
▪ Scanning Electron Microscopy (Data analysis and Explanation).
▪ Spectrophotometer: (Absorbance, Transmission, and Reflectance).
▪ Photocatalysis: (Experiment and calculations).

Professional account:
LinkedIn https://www.linkedin.com/in/zain-elabdeen-ali-5aa795221/
• ResearchGate https://www.researchgate.net/profile/Zain-Elabdeen-Mohamed

Computer skills and languages:
• Simulations Tools: (COMSOL-Multiphysics, MATALB)
• Microsoft Office: (Word, and Power point): Professional.
• Microsoft Office: (Excel, OneNote, and Publisher): very good.
• Origin and ImageJ: Very good.
• Arabic: Native.
• English: IELTS certificate band score 6 (Speaking 6, Reading 6.5, Listening 6, writing 5.5)

Conference Presentation:
• The Fifth International and Conference for Young Scientists Basic and Applied Science, Faculty of science, Assiut university, Egypt. (2022).

Research Project Participant
1- Contributed to NSFC- and BIT-funded projects through simulation work, manuscript preparation, and reviewer responses; co-author of “ <i>High Tunability and Sensitivity of 1D Topological Photonic Crystal Heterostructure</i> ” (Journal of Optics).
2- Contributed to an STDF-funded project (ID: 33367) at Assiut University, focusing on methodology, data analysis, and manuscript revision; co-author of “ <i>Structural Parameters, Optical Band Gap, and Catalytic Performance of Anodized Molybdenum</i> ” (Materials Chemistry and Physics).
3- Contributed to multiple NSFC, Guangdong, and Shenzhen-funded projects, performing simulations and drafting manuscripts; co-author of “ <i>One-Dimensional Topological Photonic Crystal for High-Performance Gas Sensor</i> ” (Micro and Nanostructures).
4- Contributed to STDF (Egypt, ID: 33367) and NSC (Poland, UMO-2019/35/B/ST5/01025) funded projects, focusing on conceptualization, methodology, and draft preparation; co-author of “ <i>Recent Progress in the Fabrication of Photonic Crystals Based on Porous Anodic Materials</i> ” (Energies).
5- Funded by the Deanship of Scientific Research, Najran University (Grant Code: NU/RG/SERC/12/4); contributed to study design, software development, and manuscript drafting; co-author of “ <i>Fano Resonance Based on Coupling Between Nanoring Resonator and MIM Waveguide for Refractive Index Sensor</i> ” (Plasmonics, 2024).
6- Funded by STDF–EKB (Grant No. 33367) and STDF–JEJSC (Grant No. 46322); conducted simulations and prepared the main manuscript; co-author of “ <i>Fano Resonance-Boosted Topological Sensor for Next-Generation Sensing</i> ” (Optical and Quantum Electronics, 2025).
7- Funded by Najran University (Grant Code: NU/GP/SERC/13/202-3); contributed to study design, software, and writing; co-author of “ <i>Plasmon-Induced Transparency in a Periodic Silver Cavity for Optical Sensing Applications</i> ” (Plasmonics, 2025).
8- Funded by Najran University (Grant Code: NU/GP/SERC/13/241–4); contributed to study design, software development, and manuscript drafting; co-author of “ <i>Plasmonic Multi-Resonator Perfect Absorber with Narrowband Modes for Optical Sensing</i> ” (Plasmonics, 2025).

Publications
<p>1. High tunability and sensitivity of 1D topological photonic crystal heterostructure. Journal of optics. Sayed Elshahat1, <i>Zain Elabdeen A Mohamed</i>, Mohamed Almkhtar, and Cuicui Lu https://doi.org/10.1088/2040-8986/ac45d2.</p>
<p>2. One-dimensional topological photonic crystal of high - performance gas sensor. Journal of Nano and Microstructure. Sayed Elshahat, <i>Zain Elabdeen A. Mohamed</i>, Alaa M. Abd -Elnaiem, Zhengbiao Ouyang, and Mohamed Almkhtar. DOI: https://doi.org/10.1016/j.micrna.2022.207447.</p>
<p>3. Structural parameters, optical band gap, and catalytic performance of anodized molybdenum. Journal of Materials Chemistry and Physics. Alaa M. Abd-Elnaiem, Mohamed Almkhtar, <i>Zain Elabdeen A. Mohamed</i>. DOI: https://doi.org/10.1016/j.matchemphys.2023.127683.</p>
<p>4. Recent Progress in the Fabrication of Photonic Crystals Based on Porous Anodic Materials. Energies. Alaa M. Abd-Elnaiem, <i>Zain Elabdeen A. Mohamed</i>, Sayed Elshahat, Mohamed Almkhtar, and Małgorzata Norek DOI: 10.3390/en16104032</p>
<p>5. Sensing performance of Fano resonance induced by the coupling of two 1D topological photonic crystals. Optical and quantum electronics. <i>Zain Elabdeen A. Mohamed</i> · Sayed Elshahat · Alaa M. Abd-Elnaiem · Mohamed Almkhtar DOI: https://doi.org/10.1007/s11082-023-05092-1</p>
<p>6. Fano Resonance Based on Coupling Between Nanoring Resonator and MIM Waveguide for Refractive Index Sensor. Plasmonic. <i>Zain Elabdeen A. Mohamed</i> · Sofyan A. Taya · Abdulkarem H. M. Almwagani · Ayman Taher Hindi. DOI: https://doi.org/10.1007/s11468-023-02009-2</p>
<p>7. Fano resonance-boosted topological sensor for nextgeneration sensing. Optical and quantum electronics. <i>Zeinelabedin A. Mohamed</i> · Alaa M. Abd-Elnaiem · Israa Abood · Mohamed Almkhtar · Sayed El. Soliman. https://doi.org/10.1007/s11082-024-08016-9</p>
<p>8. Synthesis, characterization, and optical sensing of hydrophilic anodic alumina films. Optical materials. Alaa M Abd-Elnaiem, <i>Zeinelabedin A. Mohamed</i>, Sayed El. Soliman, Mohamed Almkhtar. DOI: 10.1016/j.optmat.2024.116390</p>
<p>9. Plasmon-Induced Transparency in a Periodic Silver Cavity for Optical Sensing Applications. Plasmonic. <i>Zeinelabedin A. Mohamed</i>, Abdulkarem HM Almwagani, Yousif S Adam, , Hussein S Gumaih, https://doi.org/10.1007/s11468-025-03013-4 .</p>
<p>10. Refractive index sensor using Perfect plasmonic absorber based on metamaterial Fabry-Perot Cavity. Optics Communications. <i>Zeinelabedin A Mohamed</i>. DOI: https://doi.org/10.1016/j.optcom.2025.132110.</p>
<p>11. Plasmonic Multi-resonator Perfect Absorber with Narrowband Modes for Optical Sensing. Plasmonic. <i>Zeinelabedin A Mohamed</i>, Abdulkarem HM Almwagani, Hussein S Gumaih, Yousif S Adam. https://doi.org/10.1007/s11468-025-03160-8.</p>
<p>12. Highly Sensitive Fano Resonance due to Coupling Between Metal-Insulator-Metal Waveguide and Semi-ring Resonators. Optik. <i>Zeinelabedin A Mohamed</i>. DOI: https://doi.org/10.1016/j.ijleo.2025.172530</p>

13. Design of high-Sensitive Metamaterial Sensor Device for Environmental Sensing Applications. Plasmonic. Zeinelabedin A Mohamed. (Revised-Optical and quantum electronics).
14. One-Dimension Photonic Crystals Mirror for high Q-Factor Optical Sensing. Zeinelabedin A. Mohamed. (Under Review-Optical and quantum electronics)
15. Design and Optimization of THz Optical Sensor Based on Coupling Between MIM Waveguide and Disk-like Resonator. Zeinelabedin A. Mohamed. (With editor-Sensing and Imaging)

Reference
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Dr. Hani Nasser Abdelhamid Department of Chemistry, College of Science, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh 11623, Saudi Arabia Mobile: (+20) 1029952642 • Email: hnabdelhamid@imamu.edu.sa • Google Scholar ID: https://scholar.google.com/citations?user=y_Fr2cYAAAAAJ&hl=en
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Consent to Personal Data Processing

I consent to the processing of my personal data by the Military University of Technology Jarosława Dąbrowskiego, 00-908 Warsaw, ul. Gen. Sylwestra Kaliskiego 2, contained in the application documents provided by me, in order to carry out the recruitment process in accordance with the Regulation of the European Parliament and of the Council (EU) 2016/679 of 27 April 2016 and the Personal Data Protection Act of 10 May 2018 (Journal of Laws of 2018, item 1000, as amended) and in accordance with the information clause attached to my consent.

Place, Date: Assiut, 27-10-2025

Signature:
(*zeinelabedin Aly Mohamed Mohamed*)

Full Name: Zeinelabedin Aly Mohamed Mohamed