CURRICULUM VITAE

Personal Data

Name : Alaa Mahmoud Abd-Elnaiem Mohamed.
Nationality : Egyptian.
Date of Birth : March 27, 1983.
Place of Birth : Assiut – Egypt.
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Education

- Ph.D. in Physics (Materials Science), Faculty of Science, Assiut University (December 2013).

  Thesis Title: "***Fabrication of 3D Nanowire Network for Energy-storage***".

  Experiments of the PhD were done at Imec, Belgium & Centre of Surface Chemistry and Catalysis, KU Leuven, Belgium.

- M.Sc. in Physics (Solid State Physics), Faculty of Science, Assiut University (November 2010).

  Thesis Title: "***Spinodal to Nucleation-Growth Phase Transition and Physical Properties of the Co-Cu Binary Alloy Systems***".

- B.Sc. Physics, Faculty of Science, Assiut University (June 2004).

  Grade: ***Distinction with Honor***.

Standard academic and research record

Name & Address of Employer	Position	From	To
		Month Year	Month Year
Physics Department, Faculty of Science, Assiut University, Assiut 71516, Egypt	Professor	July 2024	up to date
Physics Department, Faculty of Science, Assiut University, Assiut 71516, Egypt	Associate Professor	February 2019	July 2024
Physics Department, Faculty of Science, Assiut University, Assiut 71516, Egypt	Assistant professor	January 2017	February 2019
		January 2014	June 2016
Department of Chemical Engineering, Vrije Universiteit Brussel, Pleinlaan 2, B-1050, Brussel, Belgium	Visiting Researcher	July 2016	January 2017
Imec, Belgium & Centre of Surface Chemistry and Catalysis, KU Leuven, Belgium	Researcher	September 2011	March 2013
Physics Department, Faculty of Science, Assiut University, Assiut 71516, Egypt	Assistant Lecturer	December 2010	September 2011
		March 2013	January 2014
Physics Department, Faculty of Science, Assiut University, Assiut 71516, Egypt	Demonstrator	November 2004	December 2010

Research Interest

- Preparation of bulk and thin films of metals, metal oxides, polymers, composites, and chalcogenide materials using various techniques such as melt quenching, chemical and electrochemical and physical methods such as anodization, hydrothermal, and thermal evaporation methods.
- Structural investigations of materials using X-ray diffraction, X-ray photoelectron spectroscopy (XPS), Scanning Electron Microscopy, and transmittance electron microscopy.
- Mechanical properties including microhardness.
- Optical (linear and nonlinear), electrical (DC and AC), and thermal analysis (TGA, DSC, DTA) of materials.
- Different types of thermal heat treatments at high temperatures.
- Fabrication of nanoporous materials using electrochemical methods such as porous alumina template, porous Titania, and porous silicon.
- Fabrication of nanostructured materials such as nanowires arrays and 3D nanowires by using electrochemical deposition.
- Fabrication and characterization of conductive polymers and dye-sensitized solar cells.
- Fabrication of different photo-catalysis for wasted water purification technology.

List of Patents:

1. Cedric Huyghebaert, Alaa Abd-Elnaiem, Philippe M. Vereecken, ***"Method for interconnected nanowire cluster formation using Anodic Aluminium Oxide (AAO) templates" Europian Patent,*** EP20160032475, 2016 Feb., 4.
2. Huyghebaert, Cedric, Alaa Abd-Elnaiem, and Philippe Vereecken. ***"Method for Nanowire Cluster Formation***." U.S. Patent 20,160,032,475 issued February 4, 2016.

List of International Publications:

1. A.M. Mebed, M.I. Abd-Elrahman, A.M. Abd-Elnaiem, M.A. Gaffar, ***"Thermal analysis study for the phase determination and instable to metastable transformation of the Co–13Cu alloy"***, Phase Transitions, 82:8, (2009)587-598.
2. A.M. Mebed, A.M. Abd-Elnaiem, T.B. Asafa, M.A. Gaffar, **"*Composition, microstructure, Vickers hardness and activation energies of Co–Cu alloys fabricated by arc melting technique"***, Phase Transitions, 85:12, (2012) 1079-1090.
3. A.M. Abd-Elnaiem, A. Gaber, **"*Parametric Study on the Anodization of Pure Aluminum Thin Film Used in Fabricating Nano-pores Template"***, Int. J. Electrochem. Sci., 8 (2013) 9741 – 9751.
4. A.M. Abd-Elnaiem, A.M. Mebed, A. Gaber, M.A. Abdel-Rahim, ***"Effect of the Anodization Parameters on the Volume Expansion of Anodized Aluminum Films"***, Int. J. Electrochem. Sci., 8 (2013) 10515-10525.
5. A.M. Abd-Elnaiem, A.M. Mebed, W.A. El-Said, M.A. Abdel-Rahim, ***"Porous and mesh alumina formed by anodization of high purity aluminum films at low anodizing voltage"***, Thin Solid Films, 570, Part A (2014) 49–56.
6. A.M. Mebed, A.M. Abd-Elnaiem, ***"Microstructural study and numerical simulation of phase decomposition of heat treated Co–Cu alloys"***, Prog. Nat. Sci.: Mater. Int., 24 (6) (2014) 599-607.
7. J. Vanpaemel, A.M. Abd-Elnaiem, S. De Gendt, P.M. Vereecken, ***"The Formation Mechanism of 3D Porous Anodized Aluminum Oxide Templates from an Aluminum Film with Copper Impurities"***, J. Phys. Chem. C, 119 (4) (2015) 2105–2112.
8. M.A. Abdel-Rahim, M.M. Hafiz, A.Y. Abdel-Latief, A.M. Abd-Elnaiem, A.Elwhab. B. Alwany, "***A study of the non-isothermal crystallization kinetic of $Zn_{10}Se_{90}$ glass***" Appl. Phys. A 119(3) (2015) 881-890.
9. M. Mohamed, S. Mostafa, A.M. Abd-Elnaiem, M.A. Abdel-Rahim***, The optical parameters of γ-irradiated and annealed $Ge_{15}Se_{50}Te_{35}$ thin films,*** J. Alloy. Compd., 647 (2015) 771-777.
10. A.M. Abd-Elnaiem, A.M. Mebed, A. Gaber, M.A. Abdel-Rahim, ***"Tailoring the porous nanostructure of porous anodic alumina membrane with the impurity control"*** J. Alloy. Compd., 659C (2016) 270-278.

11. M. Rashad, N. M. Shaalan, and A. M. Abd-Elnaiem. ***"Degradation enhancement of methylene blue on ZnO nanocombs synthesized by thermal evaporation technique"*** Desalin. Water Treat. 57(54) (2016) 26267-26273.

12. A.M. Abd-Elnaiem, A.M. Mebed, W.J. Stępniowski, T. Czujko ***"Characterization of arrangement and geometry of porous anodic alumina formed by one-step anodization of Al-1 wt % Si thin films"*** Surf. Coat. Tech. 307 (2016) 359-365.

13. A.M. Abd-Elnaiem, M. Mohamed, R.M. Hassan, A.A. Abu-Sehly, M.A. Abdel-Rahim, M.M. Hafiz ***"Influence of annealing temperature on the structural and optical properties of $As_{30}Te_{70}$ thin films"***, Mater. Sci.-Poland, 35(2), (2017) 335-345.

14. Alaa M. Abd-Elnaiem, T. B. Asafa, Francisco Trivinho-Strixino, Adriana de O. Delgado-Silva, M anly Callewaert, Wim De Malsche ***"Optical reflectance from anodized Al-0.5 wt % Cu thin fil ms: porosity and refractive index calculations",*** J. Alloy. Compd., 721C (2017) 741-749.

15. M. Mohamed, A.M. Abd-Elnaiem, R.M. Hassan, M.A. Abdel-Rahim, M.M. Hafiz ***" Non-isother mal crystallization kinetics of $As_{30}Te_{60}Ga_{10}$ glass "***, Appl. Phys. A, 123(8), (2017) 511.

16. Safeya A.Taha, Alaa M. Abd-Elnaiem, Mansour Mohamed, Samar Mostafa, M.S. Mostafa ***"Struc tural study and photocatalytic performance of ZnO thin films prepared by electrochemical depo sition"***, Desalin. Water Treat. 100 (2017) 160-167.

17. Cedric Huyghebaert, Alaa Abd-Elnaiem, Philippe Vereecken ***"Nanowire cluster and template an d method for nanowire cluster formation"*** U.S. Patent 9,834,847, issued December 5, 2017.

18. M. A. Dabban, Nema M. Abdelazim, Alaa M. Abd-Elnaiem, S. Mustafa, M. A. Abdel-Rahim, ***"E ffect of Sn substitution for Se on dispersive optical constants of amorphous Se–Te–Sn thin film s"*** Materials. Res. Innov. 22(6) (2018) 324-332.

19. Waleed A. El-Said, M. Abdel-Shakour, Alaa M. Abd-Elnaiem, ***" An efficient and low-cost photo anode for backside illuminated dye-sensitized solar cell using 3D porous alumina",*** Mater. Lett. 222 (2018) 126–130.

20. Seenaa I. Hussein, Alaa M. Abd-Elnaiem, Tesleem B. Asafa, Harith I. Jaafar, ***"Effect of incorporation of conductive fillers on mechanical properties and thermal conductivity of epoxy resin composite"***, Appl. Phys. A, 124(7), (2018) 475.

21. A.M. Abd-Elnaiem, M. Mohamed, R.M. Hassan, A.A. Abu-Sehly, M.A. Abdel-Rahim, M.M. Haf iz ***" Structural and optical characterization of annealed $As_{30}Te_{60}Ga_{10}$ thin films prepared by thermal evaporation technique"***, Mater. Sci.-Poland, 36(2), (2018)193-202.

22. A.M. Abd-Elnaiem, S. Mostafa, ***"Optical properties of annealed $As_{30}Te_{67}Ga_3$ thin films grown b y thermal evaporation"***, Process. Appl. Ceram., 12 (3), (2018) 209–218.

23. A.M. Mebed, Alaa M. Abd-Elnaiem, ***"A thermodynamic understanding of horizontal Pores for mation mechanism in anodized doped aluminum with alloying elements",*** J. Electroanal. Chem. , 829 (2018) 138–147.

24. A.M. Abd-Elnaiem, M. Rashad, ***"Morphology of anodic aluminum oxide anodized in a mixture of phosphoric acid and lithium phosphate monobasic***", Mater. Res. Express 6 (2019) 016412.

25. A.M. Mebed, Alaa M. Abd-Elnaiem, Waleed A. El-Said, T. B. Asafa, ***"Review on Formation of Anodic Metal Oxides and their Sensing Applications",*** Curr Nanosci., 15(1) (2019) 6-26.

26. Mansour Mohamed, Samar Mostafa, Safeya A. Taha, Alaa M. Abd-Elnaiem, ***"Morphological characterization and refractive index calculation of anodized titanium (99.7%) foil in HF-ethanol electrolyte"***, Mater. Res. Express 6 (2019) 035026.

27. Abd-Elnaiem, Alaa, Ghada Abbady, Dalia Ali, and Tesleem Asafa. ***"Influence of anodizing voltage and electrolyte concentration on Al-1 wt% Si thin films anodized in H_2SO_4"*** Mater. Res. Express 6 (2019) 086468.

28. Abbady, Gh, and Alaa M. Abd-Elnaiem. ***"Thermal stability and crystallization kinetics of $Ge_{13}In_8Se_{79}$ chalcogenide glass"*** Phase Transitions 92 (2019) 667-682.

29. Alaa M. Abd-Elnaiem, S. Moustafa, and T. B. Asafa. ***"Comparative Study of Pore Characterizations of Anodized Al–0.5 wt.% Cu Thin Films in Oxalic and Phosphoric Acids"*** Nano (2019): 1950140.

30. Alaa M. Abd-Elnaiem, and Gh Abbady. ***"A thermal analysis study of melt-quenched Zn_5Se_{95} chalcogenide glass."*** Journal of Alloys and Compounds 818 (2020): 152880.

31. Seenaaa Hussein, Nadia Abbas Ali, Alaa M Abd-Elnaiem, A. M. Mebed, ***"Enhanced thermo-mechanical properties of poly(vinyl alcohol)/poly(vinyl pyrrolidone) polymer blended with nanographene"*** Current Nanoscience, 16, no. 6 (2020): 994-1001.

32. Alaa M Abd-Elnaiem, S. Moustafa, M.A. Abdel-Rahim, ***"Comparative investigation of electronic properties of As-70 at.%Te thin films: influence of Ga doping and annealing temperature"*** Journal of Non-Crystalline Solids, Volume 540, 15 July (2020), 120062.

33. A.M. Mebed, Alaa M. Abd-Elnaiem, Wim De Malsche, ***"Influence of Anodizing Parameters on the Electrochemical Characteristics and Morphology of Highly Doped p-type Porous Silicon"*** Silicon 13 (2021): 819-829.

34. Gh.Abbady, A. Qasem, Alaa M.Abd-Elnaiem ***"Optical parameters and electronic properties for the transition of the amorphous-crystalline phase in $Ge_{20}Te_{80}$ thin films"*** Journal of Alloys and Compounds 842 (2020): 155705.

35. Alaa Abd-Elnaiem, A. M. Mebed, Hatem R. Alamri, and Hasan S. Assaedi. ***"Tailoring Controllable Nanowire Morphologies using a Multi-layer Porous Anodic Alumina Template for Technological Applications."*** Journal of the Electrochemical Society, 167, no. 10 (2020): 103505.

36. Alaa M. Abd-Elnaiem, R. M. Hassan, Hatem R. Alamri, Hasan S. Assaedi, ***"Comparative investigation of linear and nonlinear optical properties of As–70 at% Te thin films: influence of Ga content"*** Journal of Materials Science: Materials in Electronics 31, no. 16 (2020): 13204-13218.

37. Alaa M. Abd-Elnaiem, Seenaa I. Hussein, Hasan S. Assaedi, and A. M. Mebed. ***"Fabrication and evaluation of structural, thermal, mechanical and optical behavior of epoxy–TEOS/MWCNTs composites for solar cell covering."*** Polymer Bulletin 78 (2021): 3995-4017.

38. Nadia A. Ali, Seenaa I. Hussein, Tesleem B. Asafa, and Alaa M. Abd-Elnaiem. ***"Mechanical Properties and Electrical Conductivity of Poly (methyl methacrylate)/Multi-walled Carbon Nanotubes Composites***." Iranian Journal of Science and Technology, Transactions A: Science 44 (2020): 1567-1576.

39. Alaa M. Abd-Elnaiem, S. Moustafa, A. M. Abdelraheem, M. A. Abdel-Rahim, and A. Z. Mahmoud. ***"Effects of annealing on structural and optical properties of $Ge_{20}Se_{70}Sn_{10}$ thin films for optoelectronic applications."*** Journal of Non-Crystalline Solids 549 (2020): 120353.

40. Hassan, Rashed M., S. Moustafa, and Alaa M. Abd-Elnaiem. ***"Optimization of the linear and nonlinear optical properties of amorphous $As_{30}Te_{69}Ga_1$ thin films by the annealing process."*** Journal of Materials Science: Materials in Electronics 31, no. 22 (2020): 20043-20059.

41. Abd-Elnaiem, Alaa M., A. Z. Mahmoud, and Samar Moustafa. ***"Structural and optical properties of thermally evaporated and annealed $Ge_{20}Se_{76}Sn_4$ thin films."*** Optical Materials (2020): 110607.

42. M. Rashad, H. A. Saudi, Hesham MH Zakaly, Shams AM Issa, and Alaa M. Abd-Elnaiem. ***"Control optical characterizations of Ta^{+5}–doped B_2O_3–Si_2O–CaO–BaO glasses by irradiation dose."*** Optical Materials 112 (2021): 110613.

43. M. Rashad, R. Amin, S. A. Al-Ghamdi, M. M. Hafiz, Alaa M. Abd-Elnaiem. ***"Improving the Electrical Parameters of $Se_{80}Te_{20}$ Films by the Sn Substitution for Te and Thermal-Induced Effect"***. Journal of Electronic Materials 50 (2021): 2075-2082.

44. Hassan, Rashed M., A. Z. Mahmoud, M. A. Abdel-Rahim, Hasan S. Assaedi, Shoroog W. Alraddadi, and Alaa M. Abd-Elnaiem. "***Effect of Thermal Annealing on Structure and Optical Properties of Amorphous $As_{30}Te_{64}Ga_6$ Thin Films***." Journal of Inorganic and Organometallic Polymers and Materials 31, no. 8 (2021): 3334-3349.

45. Mebed, Abdelazim M., Meshal Alzaid, Rashed M. Hassan, and Alaa M. Abd-Elnaiem. "***Theoretical and Experimental Parameters of the Structure and Crystallization Kinetics of Melt-Quenched $As_{30}Te_{64}Ga_6$ Glassy Alloy***." Journal of Inorganic and Organometallic Polymers and Materials 31, no. 8 (2021): 3334-3349.

46. Abd-Elnaiem, Alaa M., H. A. Saudi, Hesham MH Zakaly, Shams AM Issa, and M. Rashad. "***The effect of composition and γ-irradiation on the Vickers hardness, structural and optical properties of $xLiNbO_3$-25CaO-35PbO-(40-x) waste systems***." Ceramics International 47, no. 13 (2021): 18751-18760.

47. Abd-Elnaiem, Alaa M., Taymour A. Hamdalla, Seleim M. Seleim, T. A. Hanafy, Meshari Aljouhani, and M. Rashad. "***Influence of Incorporation of Gallium Oxide Nanoparticles on the Structural and Optical Properties of Polyvinyl Alcohol Polymer***." Journal of Inorganic and Organometallic Polymers and Materials 31, no. 10 (2021): 4141-4149.

48. Hassan, R. M., Riadh Neffati, Alaa Abd-Elnaiem, and A. Dahshan. "***Activation energies during glass transition and fragility of the $As_{30}Te_{64}Ga_6$ chalcogenide glass***." Physica Scripta 96 (2021) 085703.

49. Mebed, Abdelazim M., EF Abo Zeid, and Alaa M. Abd-Elnaiem. "***Synthesis and Thermal Treatment of Pd-Cr@ Carbon for Efficient Oxygen Reduction Reaction in Proton-Exchange Membrane Fuel Cells***." Journal of Inorganic and Organometallic Polymers and Materials 31, no. 9 (2021): 3772-3779.

50. Mebed, Abdelazim M., Meshal Alzaid, and Alaa M. Abd-Elnaiem. "***Comparative Study of Anodization of Small-Scale and Wafer-Scale Aluminum Films on a Silicon Substrate and Controlling Pores Shape for Practical Applications***." Journal of Electroanalytical Chemistry (2021): 115367.

51. Nadia A. Ali, Alaa M. Abd-Elnaiem, Seenaa I. Hussein, Asmaa S. Khalil, Hatem R. Alamri, Hasan S. Assaedi, ***"Thermal and Mechanical Properties of Epoxy Resin Functionalized Copper and Graphene Hybrids using In-situPolymerization Method***", Current Nanoscience 17(3) (2021) 494-502.

52. Mebed, Abdelazim M., Wim De Malsche, and Alaa M. Abd-Elnaiem. ***"Fabrication, Boron Leaching, and Electrochemical Impedance Spectroscopy of Nanoporous P-Type Silicon."*** Silicon 14, no. 10 (2022): 5691-5701.

53. Rashada, M., Al-Ghamdia, S. A., Alzahranic, A. O. M., Al-Tabaaa, K., Al-Osemia, S., Al-Atawia, O., ... & Abd-Elnaiemb, A. M. ***"Zinc oxide nanoparticles for adsorption of potassium permanganate from wastewater using shaking method"*** DESALINATION AND WATER TREATMENT, 229, (2021) 227-234.

54. Al-Ghamdia, S. A., Rashada, M., Al-Qarnia, M. S., Al-Shehria, F. A., Mbarkia, A. H., Al-Rashidia, M. A., & Abd-Elnaiemb, A. M. ***"Photocatalytic degradation of potassium permanganate using zinc oxide nanoparticles"*** Digest Journal of Nanomaterials & Biostructures (DJNB), Vol 16 (2021): 889-898.

55. Abd-Elnaiem, A. M., El-Baki, A., Randa, F., Alsaaq, F., Orzechowska, S., & Hamad, D**.** ***"Composite Nanoarchitectonics of Graphene Oxide for Better Understanding on Structural Effects on Photocatalytic Performance for Methylene Blue Dye".*** Journal of Inorganic and Organometallic Polymers and Materials, 32, no. 4 (2022): 1191-1205.

56. Abd-Elnaiem, Alaa M., and Rashed M. Hassan. ***"Evaluation of the crystallization kinetic parameters in terms of the sheet resistance of amorphous $As_{30}Te_{60}Ga_{10}$ films."*** Applied Physics A 127.12 (2021): 1-12.

57. Mebed, A. M., Abd-Elnaiem, A. M., Alshammari, A. H., Taha, T. A., Rashad, M., & Hamad, D. ***Controlling the Structural Properties and Optical Bandgap of $PbO–Al_2O_3$ Nanocomposites for Enhanced Photodegradation of Methylene Blue***. Catalysts, 12(2), (2022) 142.

58. Abd-Elnaiem, A. M., Abdelraheem, A. M., Abdel-Rahim, M. A., & Moustafa, S. ***Substituting Silver for Tellurium in Selenium–Tellurium Thin Films for Improving the Optical Characteristics***. Journal of Inorganic and Organometallic Polymers and Materials, 32, no. 6 (2022): 2009-2021.

59. Abd-Elnaiem, A. M., Salman, O. S., Hakamy, A., & Hussein, S. I. ***Mechanical Characteristics and Thermal Stability of Hybrid Epoxy and Acrylic Polymer Coating/Nanoclay of Various Thicknesses***. Journal of Inorganic and Organometallic Polymers and Materials, 32, no. 6 (2022): 2094-2102.

60. Abd-Elnaiem, A. M., Hakamy, A., Ibrahem, I. A., Ali, A. M., Mohamed, W. A., & Abo Zeid, E. F. ***Thermal-induced effects on the structural and photocatalytic properties of Nickel Oxide nanoparticles for Indigo Carmine dye removal***. Journal of Inorganic and Organometallic Polymers and Materials, 32, no. 6 (2022): 2209-2220.

61. Rashad, Mohamed, Saloua Helali, Shams Issa, Saleh Al-Ghamdi, Marwah Alsharif, Ahmed Obaid Alzahrani, Mohamed Sobhi, Antoaneta Ene, and Alaa M. Abd-Elnaiem. "***Adsorption Study of Congo Red Dye from Synthetic Wastewater at Different Concentrations Using Zinc Sulfide Nanoparticles."*** Materials 15, no. 14 (2022): 5048.

62. Abd-Elnaiem, Alaa M., and A. Hakamy. ***"Influence of annealing temperature on structural, electrical, and optical properties of 80 nm thick indium-doped tin oxide on borofloat glass."*** Journal of Materials Science: Materials in Electronics 33, no. 30 (2022): 23293-23305.

63. Abbady, Gh, A. Hakamy, and A. M. Abd-Elnaiem. ***"Effect of composition and coordination number on some fundamental parameters in the Ge-Se glass."*** Chalcogenide Letters 19, no. 11 (2022).

64. Abd-Elnaiem, Alaa M., Seenaa I. Hussein, Nadia A. Ali, Ahmad Hakamy, and Abdelazim M. Mebed. ***"Ameliorating the Mechanical Parameters, Thermal Stability, and Wettability of Acrylic Polymer by Cement Filling for High-Efficiency Waterproofing."*** Polymers 14, no. 21 (2022): 4671.

65. Elshahat, Sayed, Zain Elabdeen A. Mohamed, Alaa M. Abd-Elnaiem, Zhengbiao Ouyang, and Mohamed Almokhtar. ***"One-dimensional topological photonic crystal for high-performance gas sensor."*** Micro and Nanostructures 172 (2022): 207447.

66. Mebed, Abdelazim M., Hasnain Mehdi Jafri, A. Hakamy, Alaa M. Abd-Elnaiem, Muhammad Sulaman, and Sayed Elshahat. ***"Multidimensional modeling assisted mining of GDB17 chemical database: A search for polymer donors for organic solar cells and machine learning assisted performance prediction."*** International Journal of Quantum Chemistry 122, no. 23 (2022): e26991.

67. Umar, S. A., S. N. Nazrin, I. G. Geidam, R. El-Mallawany, Alaa M. Abd-Elnaiem, Ahmad Hakamy, and F. U. Muhammad. ***"Optical basicity, polarizability and spectroscopic investigations of CuO doped TeO_2–B_2O_3 glass system."*** Materials Chemistry and Physics (2023): 127309.

68. Mohammed Ali, Asmaa N., Nadia A. Ali, Seenaa I. Hussein, A. Hakamy, Bahaaudin Raffah, Ayman S. Alofi, and Alaa M. Abd-Elnaiem. ***"Nanoarchitectonics of Silver/Poly (Methyl Methacrylate) Films: Structure, Optical Characteristics, Antibacterial Activity, and Wettability."*** Journal of Inorganic and Organometallic Polymers and Materials 33, no. 3 (2023): 694-706.

69. Abdelraheem, A. M., M. A. Abdel-Rahim, D. Hamad, and Alaa M. Abd-Elnaiem. "***Physical characterizations and methane gas–sensing of $Al_xZn_{1-x}O$ nanoparticles***." Applied Surface Science 619 (2023): 156729.

70. Mohamed, Zain Elabdeen A., Sayed Elshahat, Alaa M. Abd-Elnaiem, and Mohamed Almokhtar. "***Sensing performance of Fano resonance induced by the coupling of two 1D topological photonic crystals***." *Optical and Quantum Electronics* 55, no. 11 (2023): 943.

71. Han, Shaoyong, Qianqian Ye, A. Hakamy, and Alaa M. Abd-Elnaiem. "***Numerical solution hybridized by machine-leaning-based algorithm to provide an efficient method for analyzing thermomechanical shock behavior of the circumferentially-graded graphene-plates reinforced composite sandwich panel***." Mechanics of Advanced Materials and Structures (2023): 1-24.

72. Abd-Elnaiem, Alaa M., Zain Elabdeen A. Mohamed, Sayed Elshahat, Mohamed Almokhtar, and Małgorzata Norek. "***Recent Progress in the Fabrication of Photonic Crystals Based on Porous Anodic Materials***." Energies 16, no. 10 (2023): 4032.

73. Abd-Elnaiem, Alaa M., M. Rashad, T. A. Hanafy, and N. M. Shaalan. "***Improvement of Optical Properties of Functionalized Polyvinyl Alcohol-Zinc Oxide Hybrid Nanocomposites for Wide UV Optoelectronic Applications***." *Journal of Inorganic and Organometallic Polymers and Materials* 33, no. 8 (2023): 2429-2444.

74. Abdullah, Ahmed Q., Nadia A. Ali, Seenaa I. Hussein, Ahmad Hakamy, and Alaa M. Abd-Elnaiem. "***Improving the Dielectric, Thermal, and Electrical Properties of Poly (Methyl Methacrylate)/Hydroxyapatite Blends by Incorporating Graphene Nanoplatelets***." *Journal of Inorganic and Organometallic Polymers and Materials* 33, no. 12 (2023): 3882-3893.

75. Abd El-Baki, Randa F., Ahmed Q. Abdullah, A. Hakamy, and Alaa M. Abd-Elnaiem. "***Nanoarchitectonics of Nickel Dimethylglyoxime/γ-alumina Composites: Structural, Optical, Thermal, Magnetic and Photocatalytic Properties***." *Journal of Inorganic and Organometallic Polymers and Materials* 33, no. 12 (2023): 3760-3778.

76. Abd-Elnaiem, Alaa M., Mohamed Almokhtar, and Zain Elabdeen A. Mohamed. "***Structural parameters, optical band gap, and catalytic performance of anodized molybdenum***." *Materials Chemistry and Physics* 302 (2023): 127683.

77. Rashad, M., Alaa M. Abd-Elnaiem, T. A. Hanafy, N. M. Shaalan, and A. M. A. Shamekh. "***Optical properties of functional Al_2O_3 nano-filler in eco-friendly PVA polymer for flexible optoelectronic devices***." *Optical Materials* 141 (2023): 113990.

78. Sedky, A., A. Hakamy, Naser Afify, Soukaina Bouhmaidi, Larbi Setti, D. Hamad, and Alaa M. Abd-Elnaiem. "***Comparative investigation of structural, photoluminescence, and magnetic characteristics of $M_xSn_{1-x}O_y$ nanocomposites***." Applied Physics A 129, no. 10 (2023): 669.

79. Rashad, M., H. Mahfoz Kotb, Saloua Helali, Mohamad M. Ahmad, Aishah E. Albalawi, Naifa S. Alatawi, Bassam Al-Faqiri, Abdulrhman M. Alsharari, and Alaa M. Abd-Elnaiem. "***Structural analysis and photocatalytic degradation towards methylene blue using $(Nb_{0.5}Si_{0.5})_xTi_{1-x}O_2$ nanocomposites***." Ceramics International 50, no. 1 (2024): 512-525.

80. Sedky, A., Naser Afify, A. Hakamy, and Alaa M. Abd-Elnaiem. "***Structural, optical, and dielectric properties of hydrothermally synthesized SnO_2 nanoparticles, Cu/SnO_2, and Fe/SnO_2 nanocomposites***." Physica Scripta 98, no. 12 (2023): 125929.

81. Abbady, Gh, A. Hakamy, and Alaa M. Abd-Elnaiem. "***Physical characterizations of $Sn_{1-x}Zn_{2x}Cr_2O_5$ nanocomposites and their adsorption performance towards methylene blue***." Ceramics International 49, no. 21 (2023): 33546-33556.

82. Sedky, A., Naser Afify, Abdullah Almohammedi, M. A. Sayed, Atif Mossad Ali, and Alaa M. Abd-Elnaiem. "***Structural, optical, and dielectric properties of M/SnO2 (M= Al_2O_3, NiO, Mn_3O_4) nanocomposites***." Ceramics International 50, no. 2 (2024): 3409-3421.

83. Abdelbaki, Randa F., A. Hakamy, Nasser Afify, Mohamed Abd El-Aal, and Alaa M. Abd-Elnaiem. "***Structural, optical, photocatalytic, and magnetic properties of new hydrothermal synthesized $Cd_{1-x}Sn_xFe_2O_4$ nanocomposites***." Inorganic Chemistry Communications 160 (2024): 111861.

84. Mohammed, Awatiff A., Nadia A. Ali, Ahmed Q. Abdullah, Seenaa I. Hussein, Ahmad Hakamy, Alaa M. Abd-Elnaiem, and A. M. A. Shamekh. "***Effect of graphene nanoplates and multi-walled carbon nanotubes doping on structural and optical properties of polyvinyl chloride membranes for outdoor applications***." Journal of Materials Science: Materials in Electronics 35, no. 6 (2024): 440.

85. Hakamy, A., A. M. Mebed, A. Sedky, and Alaa M. Abd-Elnaiem. "***Effect of annealing temperature on the structure and dielectric characterization of ITO thin films on a boro-float substrate prepared by radio frequency sputtering***." Journal of Electroceramics (2024): 1-10.

86. Abdullah, Ahmed Q., Seenaa I. Hussein, Nadia A. Ali, Awatiff A. Mohammed, Abdelazim M. Mebed, A. Sedky, Alaa M. Abd-Elnaiem, and A. M. A. Shamekh. "***A comparative study on the effects of multi-walled carbon nanotubes and graphene nanoplates incorporated for improved thermal conductivity and dielectric properties of polyvinyl chloride***." Diamond and Related Materials 145 (2024): 111143.

87. Abd-Elnaiem, Alaa M., A. Hakamy, N. Afify, Mohamed Omer, and R. F. Abdelbaki. "***Nanoarchitectonics of zinc nickel ferrites by the hydrothermal method for improved structural and magnetic properties***." Journal of Alloys and Compounds 984 (2024): 173941.

88. Hakamy, A., and Alaa M. Abd-Elnaiem. "***Porous alumina–lithium composites for novel lithium-ion batteries***." Journal of Applied Electrochemistry 54, no. 7 (2024): 1463-1471.

89. Hamad, D., N. M. Shaalan, A. M. Abdelraheem, and Alaa M. Abd-Elnaiem. "***Synthesis and structural characteristics of $Ag_xSn_{1-x}O_2$ nanocomposites and their sensing performance toward methane, hydrogen, and carbon monoxide***." Journal of Environmental Chemical Engineering (2024): 113464.

90. Mohsen, Ali H., Nadia A. Ali, Seenaa I. Hussein, Ayeda YA Mohammed, Alhafez M. Alraih, and Alaa M. Abd-Elnaiem. "***Investigation of optical, mechanical, thermal, wettability, and antibacterial activity of polyvinyl alcohol mixed with clay nanoparticles***." Inorganic Chemistry Communications (2024): 112841.

91. Ali, Asmaa N. Mohammed, Nadia A. Ali, Seenaa I. Hussein, S. A. Al-Ghamdi, Alaa M. Abd-Elnaiem, and A. M. A. Shamekh. "***Conversion of preferred crystalline orientation by annealing and its impacts on the structural, electronic, and optical properties of pulsed laser-deposited CdO thin films***." Journal of Alloys and Compounds (2024): 175498.

92. Mebed, Abdelazim M., Muhammad Mushtaq, Majed Alshamary, Meshal Alzaid, Amel Laref, and Alaa M. Abd-Elnaiem. "***Selective Co and Sn co-doped black phosphorene for hydrogen storage: first-principles insights***." Adsorption (2024): 1-12.

93. Hussein, Seenaa I., Saba J. Kadhem, Nadai A. Ali, Alhafez M. Alraih, and Alaa M. Abd-Elnaiem. "***Improving the Mechanical, Thermoelectric Insulations, and Wettability Properties of Acrylic Polymers: Effect of Silica or Cement Nanoparticles Loading and Plasma Treatment***." Polymers 16, no. 21 (2024): 2965.

94. Abbady, Gh, A. Sedky, Alhafez M. Alraih, Abdullah Almohammedi, N. Afify, and Alaa M. Abd-Elnaiem. "***Comparative study of optical properties and photocatalytic performance of $Cd_{0.4}Mn_{0.6}O$ nanocomposites incorporated with different metal oxides***." Inorganic Chemistry Communications (2024): 113385.

95. Abd-Elnaiem, Alaa M., Zeinelabedin A. Mohamed, Sayed Elshahat, and Mohamed Almokhtar. "***Synthesis, characterization, and optical sensing of hydrophilic anodic alumina films***." Optical Materials (2024): 116390.

96. Sedky, A., Alaa M. Abd-Elnaiem, M. Al-Dossari, N. S. Abd EL-Gawaad, N. Afify, and Gh Abbady. "***Enhancement of mechanical and ferromagnetic properties of $Cd_{0.4}Mn_{0.6}XO$ nanocomposites (X= ZnO, SnO, CuO, Al_2O_3, Fe_2O_3, CoO, NiO).***" Materials Science and Engineering: B 310 (2024): 117737.

97. Mebed, Abdelazim M., Khulaif Alshammari, Mohammed Ezzeldien, S. A. Al-Ghamdi, Alaa M. Abd-Elnaiem, Mohamed Abd El-Aal, and Dalia Hamad. "***Enhancement of the photodegradation performance towards methylene blue and rhodamine B using $Ag_xSn_{1-x}O_2$ nanocomposites***." Journal of Alloys and Compounds 1009 (2024): 176977.

List of Conferences:

1. Alaa Abd-Elnaiem, "***Audience***", The first Conference of Young Researchers, Basic Sciences & Technology, Faculty of Science, Assiut University, Egypt May 5-6, 2007.
2. Alaa Abd-Elnaiem, Cedric Huyghebaert, Mohamed A. Gaffar, Philippe M. Vereecken, ***"Anodized Alumina with Tailored Pore Architectures"***, 63rd Annual Meeting, Int. Soc. of Electrochem., Symp.7, Aug. 2012, Cz. Rep.
3. Alaa Abd-Elnaiem, A. Gaber, Cedric Huyghebaert, Philippe M. Vereecken, ***"Tailoring the Porous Nanostructure of AAO by Impurity Control"***, 2nd Saudi International Nanotech. Conf. (2SINC), Nov. 2012, Riyadh KSA.
4. A.M. Abd-Elnaiem, A. Gaber, M.A. Abdel-Rahim, ***"Formation of Porous Alumina Integrated on Silicon Oxide Substrate"***, International Conference on New Horizons in Basic and Applied Science (ICNHBAS 2013), September 2013, Hurghada, Egypt.
5. A.M. Abd-Elnaiem, M.A. Abdel-Rahim, ***" Anodic Aluminum Oxide as Matrix for Li-composite Electrolyte"***, 9th International Conference on the Physical Properties and Application of Advanced Materials (ICPMAT2014), 13-18 September 2014, Krakow, Poland.
6. Alaa M. Abd-Elnaiem ***"Synthesize of 3D/2D Porous Structure by Anodization of Bi-layer of Impure Aluminum Films"***, The First International Conference on Multidisciplinary Research, organized by The Multidisciplinary Research Centre of Excellence, Assiut University- EGYPT, 28 – 31 October 2015, Porto Sokhna Resort, Ain Sokhna-EGYPT.
7. Alaa M. Abd-Elnaiem, A. Hakamy, D. Hamad ***"Efficient methane sensing using the hydrothermal synthesized $Ag_xSn_{1-x}O_2$ nanocomposite"***, The Sixth International Conference on New Horizons in Basic and Applied Science (ICNHBAS) 22– 25 September, Hurghada, 2023.

Referee/Reviewer:

Advanced Materials; Small; Materials Letter; Current Nanoscience; Nanoscale Research Letters; Journal of Membrane Science; Thin Solid Films; Current Smart Materials; Physics & Astronomy International Journal; Inżynieria Materiałowa Materials Engineering; Surface and Coatings Technology; Journal of Materials Science: Materials in Electronics; Journal of Nanoscience and Nanotechnology Applications (JNNA); Journal of Physics and Chemistry of Solids; Materials Chemistry and Physics; Desalination and Water Treatment; Phase Transitions; Journal of Nanoscience and Nanotechnology; Diamond & Related Materials; Malaysian Journal of Science; ECS Journal of Solid State Science and Technology; Applied Organometallic Chemistry; Journal of Non-Crystalline Solids; Corrosion Science; Ceramics International; Journal of Vinyl and Additive Technology; Heliyon; International Journal of Biological Macromolecules; Sustainability; Fuel; Journal of Asian Ceramic Societies; Journal of Environmental Chemical Engineering; Engineering Failure Analysis; Optical Materials; Buildings; Physica Scripta; Nanotechnology Reviews; Materials Chemistry and Physics; Journal of Materials Research and Technology; Journal of Alloys and Compounds; Electronics; Phase Transitions; Indian Journal of Physics; Physica B: Condensed Matter; Sensors; NANO; Arabian Journal of Chemistry; Coatings; Optical Materials: X; Polymers; Applied Surface Science Advances; Photonics; Polymer Bulletin; Desalination and Water Treatment; Materials Research Bulletin; Gels; Materials; Journal of Thermoplastic Composite Materials; Al-Bahir Journal for Engineering and Pure Sciences; Modern Physics Letters B; Metals; Inorganic and Nano-Metal Chemistry; International Journal of Modern Physics B; Environmental Science and Ecotechnology; Pharmaceutics; Catalysts; International Journal of Environmental Research and Public Health; Water; Thin Solid Films; Journal of Inorganic and Organometallic Polymers and Materials; Materials Science in Semiconductor Processing; Journal of Non-Crystalline Solids; Atmosphere; Membranes; Silicon; Reviews on Advanced Materials Science; ACS Omega.

Honors and Awards

- Certificate of Merit for Academic Excellence from Faculty of Science, Assiut University, 2004/2005.
- Graduated with Distinction and Honors, Faculty of Science, Assiut University, June 2004.
- The Faculty of Science Award for the published article with the heights Impact factor from the academic thesis in Basic Science (Physics) for 2014.
- The Best Research Article in Basic Science (Physics) for 2019/2020.
- Encouragement Award in Basic Science (Physics) 2020.

Projects:

- **"Generation, Characterization and Magnetic Properties of Two-phase Ferromagnetic Nanostructures with a Homogeneous Size-Distribution in a Paramagnetic Thin Films"**, *Al-Jouf University, Sakaka 2014, Saudi Arabia*, March 2013 to February 2014, No. 71/33. (10000 $).
- **"Synthesis of 3D Nickel Nano-wire Array"**, *Al-Jouf University, Sakaka 2014, Saudi Arabia*, April 2015 to March 2016, No. 306/35. (10000 $).
- **"Fabrication of Porous Templates and Metal Nanowire Array for various Technological Applications"**, ScienceUP, Academy of Scientific Research and Technology (ASRT) of the Arab Republic of Egypt, Cairo, Egypt, Project number 6577. (20000 $)
- **"Using of metal oxide semiconductor nanoparticle for water desalination and purification"**, Deanship of Scientific Research at the University of Tabuk, project number: RGP-S-1443-0045. (30000 $).
- **"Nanostructured Microsensor Array for Breath Analysis and Medical Applications"**, Science and Technology Development Fund (STDF), Project number 33367, In progress. (200000 $)
- "**New Metal Oxide-Based Nanocomposites for Gas Sensing and Water Treatment**", Umm Al-Qura University, Deanship for Research & Innovation, Ministry of Education in Saudi Arabia, project number: IFP22UQU4250045DSR055, in progress. (30000 $).

Teaching Experience (in Assiut University and other Universities)

- **Undergraduate Courses:**

Course title	***Credits/Week***	***Grads - Faculty***
General Physics	2 hours	1st grade (Science, Education, and Engineering)
Biophysics	3 hours	1st grade (Engineering, and Faculty of Physical Therapy)
Electricity and Magnetism & AC Current	3 hours	2nd grade (Science)
Physics of Metals, alloys & Ceramics	3 hours	3rd grade (Science)
Solid-state Physics	2 hours	3rd grade (Science & Education)
Physics of Amorphous Materials	3 hours	4th grade (Science)
Materials Science	2 hours	4th grade (Education)
Selected topics in Physics	3 hours	4th grade (Science)
Diffraction of Waves and its Applications	3 hours	4th grade (Science)
Nanomaterials Science and its Applications	3 hours	4th grade (Science)
Physics of Semiconductors and Thin Solids and its Applications	3 hours	4th grade (Science)

- **Graduation Projects**:
  - ✓ Supervisor for B.Sc. Students, various subjects in "Physics and Materials Science" (2014-up to date, 2 hours/week).
- **Graduate Courses:**
  - ✓ Teaching a special course "Introduction to Electrochemistry", "Ceramics Materials", "Condensed Matter Physics", and "Introduction to Nanomaterials" for MSc., and PhD students.

Thesis Supervisor

- **Safaya A. Taha, MSc. Degree,** in the field of **Nanotechnology**, the proposed title is "Electrochemical Fabrication, Characterizations, and Applications of Nanostructured Metal Oxide"- Assiut University, Awarded 2019.
- **Rashed M. Hassan, Ph.D. degree,** in the field of **Solid-State Physics**, his thesis title is "Characterization and Electronic Properties of As-Te-Ga Chalcogenide Glass Thin Films"- Assiut University, Awarded 2018.
- **Ahmed Abdel-Rahim Mohamed, MSc. Degree,** in the field of Nanotechnology, the proposed title is "Synthesis, characterization, and study of some physical properties of different cobaltite functional nanocomposites"- Assiut University, (2019), In progress.
- **Zain Elabdeen A Mohamed, MSc. Degree,** in the field of Nanotechnology, the proposed title is "Light Trapping and Manipulation through Designed Topological Photonic Crystals"- Assiut University, (2022), In progress.
- **Shereen Adel Omer Osman, MSc. Degree,** in the field of Nanotechnology, the proposed title is "Fabrication, Characterizations, and Applications of Nanoporous Materials"- Assiut University, (2024), In progress.
- **Amira Mansour Abd Elfadil Bakr, MSc. Degree,** in the field of Solid-State Physics, the proposed title is "Physical Properties of some Doped Metal Oxide Semiconductors Thin films"- New Vally University, (2024), In progress.

Training and Internships

- ❖ The Training Workshop for Chemists and Researchers on Thermal Analysis and X-Ray Diffraction, Assiut University, 16-17/4/2011.
- ❖ KACST-Intel - CENA Scholarship (Consortium Center of Excellence in Nano-manufacturing Applications (CENA)) at imec in the area of energy storage with a specific focus on the fabrication and characterization of super-capacitors, nanowires, and micro-batteries, 9/2011-3/2013.
- ❖ Surface modification by electrochemical methods: synthesis and applications on nanomaterials, 27-28 June, MTM – K.U. Leuven – Belgium.
- ❖ Safely tidying up of chemicals - IMEC 09/2012
- ❖ chemical lab training – IMEC 9/2012
- ❖ Wet bench and Chemicals Training- IMEC 09/2012
- ❖ Safety care at imec training – IMEC 01/2012
- ❖ Cleanroom behavior training, IMEC, 01/2012
- ❖ Working with P-Line course – IMEC 01/2012
- ❖ Scientific Writing course, IMEC, 11,12/2011
- ❖ Cleanroom safety training – IMEC. 11/2011
- ❖ Visiting Researcher, Department of Chemical Engineering, Vrije Universiteit Brussel, Pleinlaan 2, B-1050, Brussel, Belgium, 3/7/2016 to 3/3/2017.
- ❖ Safety Instructions for use of Gas Bottles, VUB 7/2016
- ❖ General Safety & Lab Rules, VUB 7/2016

Attending Programs and Workshops

Program	Symbol	Date
Teaching with Technology	T4	8/2005
Effective Teaching Skills	T1	10/2005

Effective Communication Skills	I2	10/2005
Scientific Publishing	6R1	9/2007
Credit Hours System	6I2	3/2008
E-Learning	6T5	7/2010
Exams and Students' Assessment	6I3	6/2013
University Administration	6L2	6/2013
How to Write a Competitive Research Project	6R3	6/2013
Profession Behaviors	6C4	7/2013
Quality Standards in the Teaching Process	6I4	9/2013
Effective Display	6C2	10/2013
Legal and Financial Aspects in the University Environment	6L3	5/2015
Creative Thinking and Innovative Thinking	9T9	10/2017
E-Learning Advanced	6T6	10/2017
Scientific Research Funding and Grants	R9	10/2017
Statistical Analysis in Scientific Research	8R6	10/2017
Research Publishing in International Journals	2R2	9/2020
Communication Skills in Different Educational Styles	6C1	9/2020
Ethics of Scientific Research	6R4	10/2020
Presentations	FTDC4	8/2021
Operating Systems	FTDC2	8/2021
Database	FTDC6	8/2021
Crisis Management	L7	8/2021
How to Design an Electronic Course	6T7	8/2021

- **References**

Dr. Makarem A. Hussein	**Prof. Wim De Malsche**	**Prof. A. M. Mebed**
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