

Dr. Naveed Afzal

Associate Professor,
Centre for Advanced Studies in Physics (CASP),
Government College University, Lahore, Pakistan
Tel. No. +92 42 99211589
Cell No. +92 3334604277
Emails: naveedafzal@gcu.edu.pk
naveed.phys@gmail.com



Personal Details

Father's Name	Muhammad Afzal
CNIC No.	35202-2692509-5
Domicile	Lahore, Punjab
Marital Status	Married
Present Position	Associate Professor
Organization:	Government College University, Lahore, Pakistan
Department	Centre for Advanced Studies in Physics (CASP)
Teaching/Research Experience	25 Years (at GC University, Lahore, Pakistan)

Biography:

Dr. Naveed Afzal is working as Associate Professor at the Centre for Advanced Studies in Physics (CASP), Government College University (GCU), Lahore, with more than 25 years of teaching and research experience at the GCU. He earned his PhD in semiconductor physics from Universiti Sains Malaysia (USM), receiving the Best PhD Thesis Award from the USM in the Sciences category. He secured 1st positions in both M.Sc. and M.Phil. (Physics) at GCU, Lahore securing Gold Medal and Roll of Honor. Dr. Afzal is a recipient of the prestigious TWAS-USM Fellowship by the World Academy of Sciences (TWAS), Italy in 2013. His achievements also include the Research Productivity Award by Pakistan Council for Science and Technology (PCST) in 2013 and the Sanggar Sanjung Award by the USM, Malaysia in 2015. He has published over 95 research

papers in impact-factor international journals and has supervised over 30 M.Phil. Theses. Dr. Afzal has reviewed more than 120 research papers for various reputed international journals (published by Elsevier, Springer, Wiley, IOP, World Scientific etc.). He is the co-author of 10th class Textbook of Physics (Urdu and English) and Textbooks of Federal Board (class XI and XII) published by Qureshi Brothers Publishers in 2025. His research focuses on semiconductor thin films for optoelectronic devices, surface modification of materials for advanced applications using ion beam, and fabrication of triboelectric nanogenerators for energy harvesting application.

Academic Qualifications

1. Ph.D. (Physics)

Universiti Sains Malaysia, Feb. 2017

Thesis Title: Fabrication and Characterizations of Magnetron Co-Sputtered InAlN Films for Photodetectors Application, (2014-2017)

Research Field: Semiconductor Fabrication (Thin films)

Distinction: Best PhD Thesis Award-2018 by Universiti Sains Malaysia In “Sciences” Category

2. M. Phil. (Physics)

Government College University, Lahore, Pakistan, Jan. 2005

Thesis Title: Irradiation Effects on Microstructure and Tensile Behavior of Stainless Steel, CGPA: 3.40/4, Session: (2002-2004)

Research Field: Materials Science

Distinction: 1st Position

3. M.Sc. (Physics)

Government College University, Lahore, Pakistan, Nov. 2000

GPA: 3.96/4, Session: 1998-2000, Marks: 1108/1300

Distinction: 1st Position, Gold Medal/Roll of Honor

4. B.Sc.

University of the Punjab, Lahore, Pakistan, Sept. 1998

Main Subjects: Physics, Math A, Math B courses

1st Division

Employment Record

Designation	Organization	Period		Responsibilities
		From	To	
Associate Professor (BS-20)	Centre for Advanced Studies in Physics (CASP), GC University, Lahore, Pakistan	09-08-2017	to date	Teaching/supervision of M.Phil./PhD students
Director	Centre for Advanced Studies in Physics (CASP), GC University, Lahore, Pakistan	30-03-2023	29-03-2026	Administrative Work/Teaching/Research
Assistant Professor (BS-19)	Centre for Advanced Studies in Physics (CASP) GC University, Lahore, Pakistan	02-07-2007	08-08-2017	Teaching BS and F.Sc. classes/ Research Work in field of Materials Physics
Assistant Professor (BS-18)	Centre for Advanced Studies in Physics (CASP) GC University, Lahore, Pakistan	04-10-2006	01-07-2007	Teaching BS and F.Sc. classes/ Research Work in field of Materials Physics
Lecturer/ Research Officer (BS-17)	Centre for Advanced Studies in Physics (CASP), GC University, Lahore, Pakistan	06-09-2002	03-10-2006	Teaching / Research Work in field of Materials Science
Research Assistant (BS-16)	Centre for Advanced Studies in Physics (CASP), GC University, Lahore, Pakistan	27-11-2000	05-09-2002	Research Work in Materials science

Honors/Awards/Distinctions

1. Awarded Gold Medal and Roll of Honor for securing 1st position in M.Sc. (Physics) by GC Lahore, Pakistan (Session 1998-2000)
2. Secured 1st Position in M-Phil Physics in GC University Lahore, Pakistan (Session 2002-2004)
3. Secured 1st Divisions through the academic career
4. Awarded “Research Productivity Award” (RPA) by Pakistan Council for Scientific and Industrial Research (PCST) in 2013
5. Won competitive international travel grants for participation in ICTP/IAEA Workshops at ICTP, Trieste, Italy (Nov. 2009, April, 2010, March, 2011, Nov. 2011, Oct. 2012)
6. Awarded TWAS-USM Scholarship by the World Academy of Sciences, Italy, for PhD studies at Universiti Sains Malaysia (Feb. 2013)
7. Awarded Sanggar Sajung Research Publication Award by University Sains Malaysia (Nov. 2017)
8. Awarded Certificate for Second Position in Poster Presentation in 43rd International Nathiagali Summer College, July, 2018
9. Best PhD Thesis-USM Award-2018 in “Sciences Category” by Universiti Sains Malaysia (Dec. 2018)
10. HEC Approved Supervisor

Languages:

1. English – (S, R, W) with excellent skills
2. Urdu – (S, R, W) with excellent skills
3. Bahasa, Malaysia – with basics

Administrative Experience:

- Director, Centre for Advanced Studies in Physics (CASP) at GC University, Lahore, Pakistan from 30-03-2023 to 29-03-2026
- Managed the office affairs of Director, Centre for Advanced Studies in Physics (CASP) GC University, Lahore, Pakistan from 03-09-2019 to 26-11-2019
- Member, Academic Council, GC University, Lahore (2023 to 2026)
- Member Boards of Faculty of Mathematical and Physical Sciences , GC University, Lahore, Pakistan (2021-to date)
- Member Boards of Faculty of Life and Chemical Sciences, GC University, Lahore, Pakistan (2018 to 2021)
- Member and Convener, Board of Studies (CASP), GC University, Lahore, Pakistan
- Member, Institute of Physics (IOP), Committee, GC University, Lahore, Pakistan (2017-to date)
- Incharge, Materials Research Group of CASP, GC University, Lahore, Pakistan (2002 to date)
- Member GC University Works Committee
- Member GC University Technical Committee for Budget Head Machinery and Equipment
- Member DTRC, Institute of Physics
- Member, Selection Committee for the HEC funded project title “Centre for Advanced Studies in Physics at Government College University Lahore.
- Focal Person from GCU for the MOU signed between GCU and Inonu University, Turkey

Research Projects as PI / Co-PI:

1. Completed **ORIC, GCU, Lahore funded** Research Project, Deposition of thin films by magnetron sputtering” of **Rs. 300,000** as Principal Investigator (2019)
2. Completed **HEC funded** SRGP Research Project titled “Irradiation of metallic materials by energetic ions” of **Rs. 488,000** as Co-Principal Investigator (2019)
3. Completed **ORIC, GCU, Lahore funded** Research Project titled “Establishing Precise Vacuum Measurement Facility for Laser and Ion Deflection Projects” of cost **Rs. 440,000** as Principal Investigator (2007)

4. Completed **GCU, Lahore funded** Research Project titled Measurement of Electrical Conductivity of Insulator Material using Femto Ampere meter and /four Probe Apparatus of cost **Rs. 300,000** as Principal Investigator (2010)
5. Successfully **coordinated with Project Director** in the execution and completion the project titled “Establishment of High Tech Central Resource Laboratories at GC University Lahore” of cost **Rs. 39.373 Million** funded by Higher Education Commission Pakistan (2003-2006).

Research Interest:

1. Thin films deposition and their applications
2. Metal Oxides/Nitrides Semiconductors
3. Metal-Semiconductor-Metal Photodetectors
4. Heterojunction Photodetectors
5. Ion Implantation/Doping in thin films
6. Radiation effects on metallic materials
7. Mechanical properties of materials
8. Age-hardening of different materials
9. Electrochemical testing of materials
10. Triboelectric Nanogenerators

Courses Taught

1. Physics of Materials (M.Phil. Applied Physics)
2. Semiconductor Physics (M.Phil. Applied Physics)
3. Electromagnetic theory (BS Physics)
4. Materials Science (BS Physics)
5. Electricity and Magnetism (BS Physics)
6. Waves and Oscillations (BS Physics)
7. Modern Physics (BS Physics)
8. Electronics (M.Sc. Telecom)
9. Circuit Analysis (B.Sc. Electrical Engg.)
10. Electromagnetic theory (M.Sc. Telecom)
11. Applied Physics (BS Computer Sci.)
12. Intermediate Physics (Part 1 & 2)

International Travel Grants

Sr. No.	Purpose of Grant	Funding Agency	Date
1.	To participate in the School and Training Course on Ionizing Radiations, their Diagnostics and Applications at ICTP, Trieste, Italy	International Centre for Theoretical Physics (ICTP), Trieste, Italy	8 th -12 th Oct. 2012
2.	To participate in Joint ICTP/IAEA workshop on Radiation Damage Mechanisms in Nuclear Materials at ICTP, Trieste, Italy	International Centre for Theoretical Physics (ICTP), Trieste, Italy	14 th -18 th Nov. 2011
3.	To participate in Joint ICTP/IAEA workshop on “Radiation Resistant Polymers at ICTP, Trieste, Italy	International Centre for Theoretical Physics (ICTP), Trieste, Italy	14 th -18 th March 2011
4.	To participate in Joint ICTP/IAEA advanced workshop on “Basic Understanding of Radiation Damage Mechanisms in Materials	International Centre for Theoretical Physics (ICTP), Trieste, Italy	12 th -23 rd April, 2010
5.	To visit Malaysia for PhD studies	The world academy of sciences (TWAS), Italy	Dec. 2012

International Workshops Attended:

1. Participated and gave a poster presentation in the Joint ICTP/IAEA Workshop on “Effects of Mechanical Properties and Mechanisms Governing the Irradiation-induced Embrittlement of Pressure Vessel Steels” 23rd November to 27th November 2009 at ICTP, Trieste, **Italy**.
2. Participated in the Joint ICTP/IAEA advanced workshop on “Basic Understanding of Radiation Damage Mechanisms in Materials” 12th-23rd April 2010, held at ICTP, Trieste, **Italy**.
3. Participated in and completed the Joint ICTP/IAEA workshop on “Radiation Resistant Polymers” 14th March to 18th March, 2011, held at ICTP, Trieste, **Italy**
4. Participated in and completed the Joint ICTP/IAEA workshop on “Radiation Damage Mechanisms in Nuclear Materials” 14th November to 18th November, 2011, held at ICTP, Trieste, **Italy**
5. Participated in and completed the “School and Training Course on Ionizing Radiations, their Diagnostics and Applications” 8th Oct. to 12th Oct. 2012, held at ICTP, Trieste, **Italy**
6. Participated in the workshop on Occupation health and safety on 14th June, 2014, held at Universiti Sains **Malaysia**

International Training Courses Attended:

1. Attended a training course on “Structural and Surface Analysis” at USians Infotech **Malaysia**, 13th-14th, March, 2014
2. Attended a training course on Occupational Safety and Health at Universiti Sains **Malaysia**, 14th June, 2014
3. Attended a training course on Atomic Force Microscope at Shimadzu Asia Pacific, **Singapore**, from 06th to 8th October 2008
4. Attended a training course on Transmission Electron Microscope at JEOL, Tokyo, **Japan**, 14th-18th November 2005

Teachers Training Course

1. Attended an In-Service Teachers’ Training Course held at GC University, Lahore, **Pakistan**, September 2005 to May, 2006.

Conferences Attended

1. Participated as **Invited Speaker** in 7th International Workshop on Ion Beam Application (IBA), held at National Centre for Physics, Islamabad, 13th-15th January, 2026
2. Participated as **Invited Speaker** in the 3rd International Conference on Recent Trends in Physics at FC College Lahore (9th-11th April, 2025)
3. Participated as **Invited Speaker** in International School on Physics and Allied Disciplines (ISPAD)-2025 at National Centre for Physics (NCP)Islamabad (14th-18th April, 2025)
4. Participated as **Invited Speaker** in 6th International Workshop on Ion Beam Application (IBA), at National Centre for Physics (NCP), Islamabad (04-06th December, 2024)
5. Participated as **Invited Speaker** in 1st International Conference on “Emerging Trends in Physics” held at University of Management Technology, Lahore (7th-8th March, 2024)
6. Participated as **Invited Speaker** in 2nd International Conference on Trends in Materials Science and Nanotechnology” held at FC College University, Lahore (4th-5th March 2024)
7. Participated as **Invited Speaker** in 4th International Conference on “Advances in Materials Science” held at University of Education, Lahore, 29th-30th November, 2023
8. Participated as **Invited Speaker** in 5th International Workshop on Ion Beam Applications held at National Centre for Physics, Islamabad (11th-13th Sept. 2023)

9. Attended and Participated as **Invited Speaker** in 48th International Nathiaghali Summer College on “Semiconductor Devices” at Nathiagali (10th-14th July, 2023)
10. Participated as **Invited Speaker** in 2nd international conference on Emerging Trends in Physics held at Lahore College for Women University (20th-22nd March, 2023)
11. Participated as **Invited Speaker** in 4th International Workshop on Ion Beam Application held at National Centre for Physics, Islamabad (03rd-5th Oct. 2022)
12. Participated as **Invited Speaker** in International Conference on Solid State Physics (ICSSP)-21, at Punjab University, Lahore (20th-23rd Feb. 2022)
13. Attended “2nd International Conference on Advances in Materials Science” held online at University of Education, Lahore (5-6th October, 2021)
14. Attended 45th International Nathiaghali Summer College on “Advances in Nanomaterials and Semiconductor Devices and Applications” held Online at National Centre for Physics (5-10th July, 2021)
15. Attended “ International School on Physics and Allied Disciplines” jointly organized by NCP and ICTP online at National Centre for Physics, Islamabad (9-11th March, 2021)
16. Attended 45th International Nathiaghali Summer College on “ Applications of Synchrotron Radiations” held Online at National Centre for Physics (20-21st July, 2020)
17. Participated as **Invited Speaker** in International Conference on Solid State Physics (ICSSP)-19, at Punjab University, Lahore (Dec. 8-12. 2019)
18. Participated as **Invited Speaker** at 3rd International Workshop on Ion Beam Applications and Defects in Nano materials, at NCP, Islamabad (5th-7th August, 2019)
19. Participated in 44th International Nathiaghali Summer College on “Nano materials and Semiconductor Devices ” held at National Centre for Physics, Islamabad, Pakistan (15th-20th July, 2019)
20. Participated in 16th National symposium on Frontiers in Physics as **member organizing Committee** (29th Jan to 31st Jan. 2019)
21. Participated as **Poster Presenter** in 43rd International Nathiaghali Summer College on “Applications of Synchrotron Light Sources” held at National Centre for Physics, Islamabad, Pakistan, 16th-21st July, 2018
22. Participated in the 10th International Scientific Spring jointly organized by the International Centre for Theoretical Physics (ICTP), Italy and National Centre for Physics, Islamabad, Pakistan (16th-20th March, 2018)

23. Participated in 38th International Nathiaghali Summer College on “Accelerators, their Applications and new acceleration concepts” held at Nathiaghali, Pakistan (24th -29th June, 2013)
24. Participated in 15th National symposium on Frontiers in Physics as member organizing Committee (29th Jan to 31st Jan. 2018)
25. Participated in 37th International Nathiaghali Summer College, Accelerator Physics and its Applications, held at Nathiaghali, Pakistan (2nd -07th July 2012)
26. Participated in 35th International Nathiaghali Summer College, Quantum Condensed Matter Systems, held at Nathiaghali, Pakistan (28th June-4th July, 2010)
27. Participated in 32nd International Nathiaghali Summer College, Synchrotron Radiation and its Applications, held at Nathiaghali, Pakistan (2nd -07th July, 2007)
28. Participated in the 5th International Scientific Spring jointly organized by the International Centre for Theoretical Physics (ICTP), Italy and National Centre for Physics, Islamabad, Pakistan (11th-15th March, 2013)
29. Participated in the 4th International Scientific Spring jointly organized by the International Centre for Theoretical Physics (ICTP), Italy and National Centre for Physics, Islamabad, Pakistan (05th-09th March, 2012)
30. Participated in 12th National Symposium on Frontiers in Physics, held at GC University, Lahore (02nd-4th Feb. 2011)
31. Attended One day workshop on “Laser Ablation and its Applications” at GC University, Lahore (19th May, 2011)
32. Participated in Two days’ Workshop on Crystallography at Department of Chemistry, GC University Lahore (6th-7th June, 2011)
33. Participated in the 2nd National Conference on Radiation, Particles and Matter, held at GC University, Lahore (26-28th October, 2010)
34. Participated in National Conference on Radiations, Particles & Matter held at GC University, Lahore, Pakistan (22nd-24th December, 2009)
35. Attended a National seminar on “Activities around Pelletron Accelerator” held at GC University, Lahore on 8th April, 2009
36. Participated in 2nd PIP International Conference held at UET Lahore, Pakistan (February, 23-26th 2009)
37. Participated and gave poster presentation in 11th National Symposium on Frontiers in Physics at GCU, Lahore, Pakistan in January 2009

38. Participated and presented a research paper in 3rd International Conference on “Frontiers of Advanced Engineering Materials (FAEM) held at PC Lahore, Pakistan 15-17th December, 2008
39. Attended a National Conference on Commercializing research and development in Industry-Role of Industry University Linkages & Expo arranged by LCCI on 30th Oct. 2008 at LCC, Lahore, Pakistan
40. Participated and presented a research paper in 2nd International Conference on “Frontiers of Advanced Engineering Materials (FAEM) held at PCSIR Lahore in 4th - 6th December 2006
41. Participated and gave poster presentation in 1st PIP International Conference held at UET Lahore in March 13-16th 2006
42. Attended lectures on solid state nuclear track detectors and their applications at GC University, Lahore (25-29th Jan. 2005)
43. 10th National Symposium on Frontiers in Physics at GCU in January 2005
44. Participated and presented a research paper in the 1st International Conference on Frontiers of Advanced Engineering Materials (FAEM) held at Lahore, September, 2004.
45. 9th National Symposium on Frontiers in Physics at GCU, Lahore in January 2003.

M-Phil Thesis Supervised:

1. Thesis Title: Study of Mechanical Properties of Artificially Aged Al-2024 Alloy (Session 2010-2012)
2. Thesis Title: Stress-Induced Phase Characteristics of Thermally Treated Ni-Ti Shape Memory Alloy (Session 2012-2014)
3. Thesis Title: Structural and mechanical properties of proton irradiated Zr at different energies (Session 2012-2014)
4. Thesis Title: Ion implantation effects on magnetron sputtered ZnO thin films (Session: 2017-2019)
5. Thesis Title: Structural and surface characterizations of ion implanted Magnesium alloy AZ91D, (Session: 2017-2019)
6. Thesis Title: Heat treatment effects on structural and mechanical properties of Aluminum

alloy 6061, (Session: 2017-2019)

7. Thesis Title: Proton irradiation effects on structural, morphological and mechanical properties of Zircaloy-4 (Session 2016-2018)
8. Thesis Title: Carbon ions irradiation effects on structural and surface properties of Aluminium (Session 2016-2018)
9. Thesis Title: Copper ion implantation effects on structural, electric and optical properties of ZnO film deposited by DC magnetron sputtering (Session 2016-2018)
10. Thesis Title: Fabrication and characterizations of Molybdenum Oxide thin films (Session 2016-2018)
11. Thesis Title: Study of structural and optical properties of post-deposition annealed MoO₃ film for ultraviolet photodetector applications. (Session 2017-2019)
12. Thesis Title: Fabrication and characterization of metal-semiconductor-metal-photodetector based on magnetron sputtered Copper Oxide film (Session 2017-2019)
13. Thesis Title: Study of annealing effect on photodetection characteristics of Copper Oxide Film (Session 2018-2020)
14. Thesis Title: Influence of copper irradiation energy on the surface properties of Mg-Al-Zn alloy, (Session 2018-2020)
15. Thesis Title: Effect of artificial aging on electrochemical corrosion and hardening of Al-7075 (Session 2018-2020)
16. Thesis Title: Impact of Carbon ion dose on different properties of Aluminum alloy 5052 (Session 2019-2021)
17. Thesis Title: Influence of nitrogen ions dose on various properties of Copper Oxide film deposited on silicon substrate (Session 2019-2021)
18. Thesis Title: Fabrication of Carbon nanotubes based sensor for radiation detection (Session 2019-2021)
19. Thesis Title: Impact of annealing temperature on properties of Nickel Oxide thin film for optoelectronic application, (Session 2019-2021)
20. Thesis Title: Study of Carbon ion implantation effects on Nickel Oxide film prepared by reactive sputtering, (Session 2020-2022)
21. Thesis Title: Study of post-deposition annealing effect on RF sputtered Zinc Sulfide thin film properties, (Session 2020-2022)

22. Thesis Title: Influence of deposition temperature on physical properties of RF sputtered NiO film on glass substrate (Session 2020-2022)
23. Thesis Title: Study of annealing effect on properties of TiO₂ thin film prepared by DC Sputtering (Session 2021-2023)
24. Thesis Title: Silicon ions implantation effects on hardness and corrosion rate of Magnesium alloy AZ31 (Session 2021-2023)
25. Thesis Title “Effect of co-doping on different properties of ZnO thin films prepared by Spray Pyrolysis technique (Session 2022-2024)
26. Thesis Title: Characterization of ions implanted Zinc Sulphide thin films prepared by RF Sputtering (Session 2022-2024)
27. Thesis Title: Surface hardness and corrosion properties of ions implanted Ti6Al4V alloy (Session 2022-2024)
28. Thesis Title: Annealing effect on structural and surface features of AZ31 Mg alloy (Session 2022-2024)
29. Thesis Title: Tailoring the physical properties of TiO₂ thin film on glass substrate through Argon ion implantation (Session 2023-2025)
30. Thesis Title: Carbon ion irradiation effects on ZnO film for UV photodetection (Session 2023-2025)
31. Thesis Title: Impact of annealing environment on properties of RF sputtered Molybdenum Oxide thin film

PhD Thesis Supervised

Sr. No.	Name of the Student	Thesis Title	Completion Date
1.	Ayesha Masood (Supervised)	Study of ions irradiation induced changes in metal oxide thin films grown by magnetron sputtering	27 th April, 2026
2.	Muhammad Imran (co-Supervised)	Synthesis and characterization of M:ZnO thin films on various substrates	17 th March, 2021

Manuscripts Reviewed for International Journals

- Applied Surface Science
- Journal of Energy Storage
- Materials Letters
- Materials Science in Semiconductor Processing
- Journal of Alloys and Compounds
- Journal of Magnetism and Magnetic Materials
- Journal of Non-crystalline solids
- Optics and Laser Technology
- Optik
- Nuclear Instruments and Methods in Physics, Research Section B
- Physica Status Solidi B
- Materials Research Express
- Applied Physics A
- Surfaces and Interfaces
- Thin Solid Film
- Transactions on Electron Devices
- Microelectronics International

Co-Author of Books

- 10th Class Physics Textbook Published by PECTA (English Medium), May, 2026
- 10th Class Physics Textbook Published by PECTA (Urdu Medium), May, 2026
- 10th Class Physics Textbook Published by PECTA (Tech-English), May, 2026
- 10th Class Physics Textbook Published by PECTA (Tech-Urdu), May, 2026
- Federal Board, Text Book of Physics for XI Published by “Qureshi Brothers” 2025
- Federal Board, Text Book of Physics for XII Published by “Qureshi Brothers” 2025

Role in Institutional Development

Sr. No.	Nature of Assignment	Duration
1.	<ul style="list-style-type: none">• Successfully coordinated in the execution, management and completion of the project titled “Establishment of High Tech Central Resource Laboratories at GC University Lahore” of cost Rs. 39.373 Million funded by Higher Education Commission Pakistan. This project included the purchase of high tech equipment such Transmission Electron Microscope with samples preparation and EDS, Met allograph with camera, image analysis system, software and other accessories, Gas Chromatograph/Mass Spectrometer, Acoustic Emission Testing Equipment, and Universal Testing Machine (150 kN) along with thermostatic chamber.• Played a key role in the Rejuvenation of CASP during 2004-2010. This includes the establishment of Materials Research Laboratories and Pelletron Accelerator Research Laboratory at CASP. He served as member technical committee to procured Scientific Research Equipments of Rs. 200 million under the HEC funded projects.	2004-2010

Research Publications in Refereed International Journals

1. Maham Saeed, Shahzad Sharif, Eesha Tur Razia, Muhammad Hamid, Nashika Jabeen, Ayesha Shahzad, Javed Hussain Shah, Mohsin Rafique, Faran Nabeel, Naveed Afzal, Design of Zinc bi-linker 2D MOF@ MXene based electrode material for advanced energy storage devices, Discover Materials, Vol. 6 (2026) 133
2. Satam Alotibi, Salah, T. Hameed, Amani, M. Alansi, Aref, A.A. Qahtan, Taoreed O. Owolabi, Naveed Afzal, Mohsin Rafique, Talal F. Qahtan, Surface modification of polyimide films via low-energy argon ion irradiation: A comprehensive XPS analysis, Radiation Physics and Chemistry, Vol. 238 (2026) 113134
3. Amna Ahmad, Naveed Afzal, Mohsin Rafique, Turab Ali, Javaid Hussain and Khubaib Iqbal, Low-energy Ar + implantation in the Ti6Al4V alloy for enhanced electrochemical performance in simulated body fluids, Radiation Effects and Defects in Solids (2025) DOI: 10.1080/10420150.2025.2553276

4. Bashar M. Salih, Asmiet Ramizy, Ethar Yahya Salih, Naveed Afzal, M. H. Eisa, Nazir Mustapha, Preparation and Simulation of AlGaN/CdS/Si Double Heterojunction for Solar Cell Application, *Plasmonics* (2025) DOI: 10.1007/s11468-025-03063-8
5. Aijaz Ali Soomro, Sabah M Mohammad, Naveed Afzal, Mundzir Abdullah, Muhammad Ramzan, Md Rumon Shahrier, Abubakar Abdullahi Sifawa, Morphological and optical tuning of β -Ga₂O₃ NRs/p-GaN/sapphire via precursor concentration for high-performance MSM UV photodetector application, *Optical Materials* Vol. 162 (2025) 116927
6. Abdellah Kaiba, Amani M Alansi, Ali Oubelkacem, Ilyas Chabri, Salah T Hameed, Naveed Afzal, Mohsin Rafique, Talal F Qahtan, Sunlight-Driven Synthesis of TiO₂/(MA)₂SnCl₄ Nanocomposite Films for Enhanced Photocatalytic Degradation of Organic Pollutants, *Catalysts*, Vol. 15 (2025) 214
7. Javaria Asad, Naveed Afzal, Mohsin Rafique, Muhammad Rizwan, Muhammad Waseem Yasin, Annealing Effect on DC Magnetron Sputtered TiO₂ Film: Theoretical and Experimental Investigations, *Arabian Journal for Science and Engineering* Vol. 50 (2025) 571-581
8. Muhammad Arslan Ayub, Naveed Afzal, Mohsin Rafique, Sameen Aslam, Physical Characteristics of Low-Dose Nitrogen Ions-Implanted Copper Oxide Thin Film on n-Si (100) Substrate, *Arabian Journal for Science and Engineering* Vol. 50 (2025) 467-475
9. Satam Alotibi, Talal F Qahtan, Amani M Alansi, Taoreed O Owolabi, Salah T Hameed, Naveed Afzal, Sadia Bilal, Dina Salah, Sustainable and Cost-Efficient Production of Micro-Patterned Reduced Graphene Oxide on Graphene Oxide Films, *Coatings* Vol. 14 (2024) 534
10. Babar Latif, Mohsin Rafique, Naveed Afzal, SM Haider Ejaz, Ameerq Farooq, Effects of different ions irradiation on the electrochemical corrosion and hardness of pure iron, *Radiation Effects and Defects in Solids* Vol. 179 (2024) 642-661
11. M Rafique, U Iqbal, Naveed Afzal, R Mukhtar, S Bashir, K Mahmood, A Farooq, Influence of Gas Environment on Structure, Morphology and Corrosion Rate of Laser Irradiated Vanadium, *Lasers in Manufacturing and Materials Processing* Vol. 11 (2024) 853-867
12. Anas A. Ahmed, Talal F Qahtan, Naveed Afzal, Marzaini Rashid, Lakshmi Narayana Thalluri, Mohamed Sultan Mohamed Ali, Low-pressure air plasma-treated polytetrafluoroethylene surface for efficient triboelectric nanogenerator, *Materials Today Sustainability*, Vol. 21 (2023) 100330
13. Rehman Iftikhar, Mohsin Rafique, MZ Butt, Naveed Afzal, Shazia Bashir, Farooq Bashir, Khaliq Mehmood, Ameerq Farooq, Structural, morphological, mechanical and electrochemical

properties of 532 nm Nd: YAG laser-irradiated vanadium at high fluence, *Applied Physics A* Vol. 129 (2023) 269

14. Ayesha Masood, Naveed Afzal, Anas A Ahmed, Talal F Qahtan, Mohsin Rafique, R Ahmad, M Imran, “Structural, surface and optical investigations of Cu⁺ implanted NiO film prepared by reactive sputtering” *Ceramics International*, Vol. 49 (2023) 4435-4448
15. Mohsin Rafique, Naveed Afzal, Rabia, Izhar Younas, Shazia Bashir, M. Imran, Khaliq Mahmood, Ameerq Farooq, Surface and structural modifications of Tungsten by laser irradiation for enhanced electrochemical corrosion resistance, *Journal of Materials Engineering and Performance*, Vol. 31 (2022) 1904-1913
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