PERSONAL INFORMATION

Dr. Muhammad Rafique

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Sex: Male Date of birth: 12/01/1984 Nationality: Pakistani

ORCID: https://orcid.org/0000-0002-2538- 2768
Researchgate: https://www.researchgate.net/profile/Muhammad_Rafique17
Google scholar: https://scholar.google.com.pk/citations?user=biKovmMAAAAJ&hl=en&authuser=1

WORK EXPERIENCE

2019 to date

Assistant Professor / Director Sustainability / Deputy Director Quality Enhancement Cell (QEC)

Department of Physics, University of Sahiwal, Sahiwal, Pakistan

Teaching of graduate and post graduate classes

Public Sector

2015 to 2019

Lecturer / Assistant Professor

Department of Physics, University of Gujrat, Gujrat, Pakistan

Teaching of graduate and post graduate classes

Public Sector

2013 to 2015

Lecturer

Department of Basic Sciences and Humanities, University of South Asia, Lahore, Pakistan

Teaching of graduate and post graduate classes

Private Sector

2012 to 2013

Lecturer-Visiting

Department of Basic Sciences & Humanities, KSK Campus, UET, Lahore, Pakistan

Teaching of graduate and post graduate classes

Public Sector

2011 to 2012

Lecturer

Department of Physics, Punjab Group of Colleges, Lahore Pakistan

Teaching of Intermediate classes

Private Sector

EDUCATION AND TRAINING

2011 to 2017

Doctor of Philosophy (PhD) in Physics (1st Division)

University of Engineering and Technology, Lahore, Pakistan

2008 to 2010

Master of Philosophy (M.Phil) Applied Physics (1st Division)

University of Engineering and Technology, Lahore, Pakistan

2005 to 2008

Master of Science (M.Sc) Applied Physics (1st Division)

University of Engineering and Technology, Lahore, Pakistan

2003 to 2004

Bachelor of Science (B.Sc) Physics, Mathematics, Statistics (1st Division)

University of the Punjab, Lahore, Pakistan

PERSONAL SKILLS

Mother tongue(s) Urdu

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Good	Excellent	Good	Good	Excellent

Computer skills

Computer Operator Diploma of 8 Months duration:

- MS Word, MS Excel, MS Power Point, Inpage etc.
- Image-J Software
- Microcal Origin
- Xpert Highscore
- Endnote
- Mendeley

Research Interests / skills

- Photocatalysis, Water splitting, Hydrogen production
- Energy devices, Supercapacitors, Fuel Cells
- Synthesis of nanofluids (Chemical Reduction, Laser Ablation)
- Phase Contrast Imaging by X-Rays emitted from Laser Plasma
- Laser induced plasma imaging and characterizations
- Laser Shadowgraphy
- Hands on experience in operating Potentiostat (Electrochemical Workstation)
- Hands on experience in operating Atomic Force Microscope (AFM)
- Hands on experience in operating Four Point Probe Apparatus
- Well skilled in UV-Visible Spectrophotometer, SEM, EDX, XRD, etc.
- Well practice in using Nd:YAG Laser, Kr-F Excimer Laser, Diode Pumped Solid State Laser, Nitrogen Pumped Dye Laser
- Fabricated Magnetic Stirrer Indigenously in UOG
- Fabricated Ultra-sonic bath Indigenously in UOG
- Established Physical Vapor Deposition Set-up Indigenously in UOG
- Established Spray Pyrolysis Set-up Indigenously in UOG

RESEARCH PROFILE

AWARDS & HONOURS

- **Among World's Top 2% Scientists of 2024: Stanford's University Database**
- **Among World's Top 2% Scientists of 2023: Stanford's University Database**
- **Among World's Top 2% Scientists of 2022: Stanford's University Database**
- **1st Position in University of Sahiwal in AD Scientific Index World Scientist and University Rankings 2025**
- **1st Position in University of Sahiwal in AD Scientific Index World Scientist and University Rankings 2024**
- **1st Position in University of Sahiwal in AD Scientific Index World Scientist and University Rankings 2023**
- **1st Position in University of Sahiwal in AD Scientific Index World Scientist and University Rankings 2022**
- **Indigenous PhD Fellowships for 5000 Scholars, Higher Education Commission (HEC), Islamabad, Pakistan.**
- **HEC Approved Supervisor for PhD / MPhil / MS / MSc / BS, etc.**

RESEARCH PROJECTS

WON HEC NRPU Project as PI worth 5.69 Million (NRPU # 9745)

Development of an Efficient, Cost Effective and Eco-Friendly Heterojunction Solar Cell

BOOKS / BOOK CHAPTERS

BOOKS

1. "Nanotechnology and Photocatalysis for Environmental Applications" by Muhammad Bilal Tahir, **Muhammad Rafique** and Muhammad Shahid Rafique, 1st Edition, 3rd August 2020, Elsevier.
2. "Nanotechnology: Trends and Future Applications" by Muhammad Bilal Tahir, **Muhammad Rafique** and Muhammad Sagir, 1st Edition, May 2021, Springer Nature.
3. "Schrödinger Equation - Fundamentals Aspects and Potential Applications" edited by Muhammad Bilal Tahir, **Muhammad Rafique**, Muhammad Isa Khan, M. Sagir, February 2024, IntechOpen.
4. "Smart Nanosystems - Advances in Research and Practice" by Brajesh Kumar, Alexis Debut, **Muhammad Rafique**, Muhammad Bilal Tahir, Muneeb Irshad, October 2024, IntechOpen.
5. "Handbook of MXenes: Emerging Characteristics, Compositions and Synthesis Methods for Energy Storage Applications" by **Muhammad Rafique**, Muhammad Bilal Tahir, Saira Anwar, 1st Edition, December 2024, CRC Press/Taylor & Francis.
6. "Electrochemical Energy Storage Devices: Fundamentals and Applications" by **Muhammad Rafique**, Syeda Hajra, Muhammad Bilal Tahir, 1st Edition, December 2025, Springer Nature.

BOOK CHAPTERS

1. **Muhammad Rafique***, Muhammad Bilal Tahir, Iqra Sadaf, Chapter entitled "Nanotechnology: An Innovative Way for Waste Water Treatment and Purification" in book edition entitled "Advanced Research in Nanosciences for Water Technology" Springer Nature (2019).
2. **Muhammad Rafique***, Syeda Hajra, Muhammad Bilal Tahir, Tahir Iqbal, Almas Bashir, Aqsa Tehseen; Chapter entitled "Properties of Nanomaterials" in book "Chemistry of Nanomaterials: Fundamentals and Applications" Elsevier (2020).
3. Muhammad B. Tahir, **Muhammad Rafique**, Muhammad Sagir, Sami Ullah, Habiba kiran Sarwar: Nanomaterials for Photocatalytic Applications. Reference Module in Materials Science and Materials Engineering, 11/2018: pages 1-23; Elsevier, (DOI:10.1016/B978-0-12-803581-8.11373-6).
4. M. Bilal Tahir, N.R. Khalid, T. Iqbal, **M. Rafique**, Habiba Kiran, Chapter entitled "Role of nano-photocatalysis in heavy metal detoxification" in the book edition entitled "Advances in Nanophotocatalysis and Environmental Applications", Springer Publisher (2018).
5. M. B. Tahir, Tuheed Zahra, Tahir Iqbal, **M. Rafique**, M. Shakil, M. Sagir: Hydrogen Production Through Water Splitting Using Nanomaterials Under Solar Energy. Reference Module in Materials Science and Materials Engineering, 01/2019; ISBN: 9780128035818, (DOI:10.1016/B978-0-12-803581-8.11570-X).

PUBLICATIONS

INTERNATIONAL RESEARCH PUBLICATIONS

120 Research Articles have been published in International Journals with more than **360** impact factor having **6000** citations (**43** H-Index).

Sr. No	Year	ISI Publications	Impact Factor
1.	**2017**	**Muhammad Rafique,** Iqra Sadaf, M. Shahid Rafique, and M. Bilal Tahir. "A review on green synthesis of silver nanoparticles and their applications." *Artificial Cells, Nanomedicine, and Biotechnology*, 45(7), 1272–1291 (2017).	**5.605**
2.	**2017**	**Muhammad Rafique**, Ahson J. Shaikh, Reena Rasheed, Muhammad Bilal Tahir, Hafiz FaiqBakhat, Muhammad Shahid Rafique, Faiz Rabbani. "A Review on Synthesis, Characterization and Applications of Copper Nanoparticles using Green Method" *Nano brief reports and reviews*, 12(4), 1750043 1-23 (2017).	**1.025**
3.	**2017**	Khalid, N. R., E. Ahmed, N. A. Niaz, Ghulam Nabi, M. Ahmad, M. Bilal Tahir, **Muhammad Rafique**, Muhammad Rizwan, Yaqoob Khan. "Highly visible light responsive metal loaded N/TiO_2 nanoparticles for photocatalytic conversion of CO_2 into methane" *Ceramics International*, 43(9), 6771-6777 (2017).	**2.986**
4.	**2017**	Shariqa Hassan Butt, M. S. Rafique, Shazia Bashir, Usman Ilyas, K. Siraj, M.S. Awan, Khaliq Mehmood, **M. Rafique**, Amina Afzal. "Influence of Er doping on the structural, optical and luminescence properties of pulsed laser deposited Er:$BaZrO_3$ thin films" *Ceramics International*, 43, 12162–12166 (2017).	**2.986**
5.	**2018**	Tahir Iqbal, Haq Nawaz, Muhammad Sultan, M. B. Tahir, Muhammad Isa Khan, N. R. Khalid, Mohsin Ijaz, **Muhammad Rafique** "Novel Graphene Based Transparent Electrodes for Perovskite Solar Cells", *International Journal of Energy Research*, 42(15) 4866-4874 (2018).	**3.009**
6.	**2018**	M. B. Tahir, Ghulam Nabi, **Muhammad Rafique**, N. R. Khalid "Role of Fullerene to improve the WO_3 Performance for Photocatalytic Applications and Hydrogen Evolution", *International Journal of Energy Research*, 42(15), 4783-4789 (2018).	**3.009**
7.	**2018**	M. B. Tahir, **Muhammad Rafique**, Muhammad Isa Khan, Abdul Majid, Muhammad Faizan Nazar, Muhammad Sagir, Muhammad Farooq, Adeel Ahmed "Enhanced Photocatalytic Hydrogen Energy Production of g-C3N4-WO3 Composites under Visible Light Irradiation", *International Journal of Energy Research*, 42, 4667-4673 (2018).	**3.009**
8.	**2018**	M. Bilal Tahir, Ghulam Nabi, N. R. Khalid, **M. Rafique**, Role of europium on WO_3 performance under visible-light for photocatalytic activity" *Ceramics International*, 44(5), 5705-5709 (2018).	**3.057**
9.	**2019**	**Muhammad Rafique***, Iqra Sadaf, M. Bilal Tahir, M. Shahid Rafique, Ghulam Nabi, Tahir Iqbal, Kalsoom Sughr, "Novel and Facile Synthesis of Silver Nanoparticles using Albizia procera Leaf Extract for Dye degradation and Antibacterial Applications" *Materials Science & Engineering C*, 99, 1313-1324 (2019).	**5.080**
10.	**2019**	**Muhammad Rafique***, Muhammad Shahid Rafique, Shariqa Hassan Butt, Amina Afzal, Umber Kalsoom, "Laser nature dependence on enhancement of optical and thermal properties of copper oxide nanofluids" *Applied Surface Science*, 483, 187-193 (2019).	**4.439**
11.	**2019**	**Muhammad Rafique***, Iqra Sadaf, G. Nabi, M.Bilal Tahir, M. Isa Khan, "Fabrication of Novel Hybrid Composite La2-xCoxCuO4 Electrode for High Performance Supercapacitors" *International Journal of Energy Research*, 43, 2361-2368 (2019).	**3.009**
12.	**2019**	**Muhammad Rafique***, Muhammad Shahid Rafique, Umber Kalsoom, Amina Afzal, Shariqa Hassan Butt, Arslan Usman, Laser ablation synthesis of silver nanoparticles in water and dependence on laser nature, *Optical and Quantum Electronics*, 51:179 (2019). (DOI: 10.1007/s11082-019-1902-0)	**1.168**
13.	**2019**	**Muhammad Rafique***, Huma Nawaz, M. Shahid Rafique, M. Bilal Tahir, G. Nabi, N. R. Khalid "Material and Method Selection for Efficient Solid Oxide Fuel Cell Anode: Recent Advancements and Reviews", *International Journal of Energy Research*, 43, 2423-2446 (2019).	**3.009**
14.	**2020**	G. N. Watto, Muhammad Arshad Kamran, Thamer Alharbi, **Muhammad Rafique**, Muhammad Bilal Tahir, Sajjad Hussain, N. R. Khalid, Tahir Iqbal, M. Shakil, Chuanbao Cao "Gallium Vacancies Role in Hydrogen Storage of Single Crystalline GaN Hexagonal Micro-Sheets" *International Journal of Hydrogen Energy*, 45, 4731-4742 (2020).	**4.084**
15.	**2020**	Muneeb Irshad, Qurat ul Ain, Khurram Siraj, Rizwan Raza, Asif Nadeem Tabish, **Muhammad Rafique**, Raazia Idrees, Fiaz Khan, Shahbaz Majeed, Muhammad Ahsan "Evaluation of BaZr0.8X0.2 (X= Y, Gd, Sm) proton conducting electrolytes sintered at low temperature for IT-SOFC	**4.175**

		synthesized by cost effective combustion method" *Journal of Alloys and Compounds*, 815, 152389 (2020). (DOI: 10.1016/j.jallcom.2019.152389)	
16.	**2020**	N. R. Khalid, M. Bilal, M. B. Tahir, M. Shakil, T. Iqbal, **M. Rafique**, Nadeem Yousaf, S. S. A. Gillani, "Interfacial coupling effect of Ag2O nanorods over MoS2 microflowers for improved photocatalytic activity" *Ceramics International*, 46(5), 6856-6859 (2020). (DOI: 10.1016/j.ceramint.2019.11.179)	**3.450**
17.	**2020**	Muhammad Isa khan, Naveed Ashraf, Abdul Majid, **Muhammad Rafique**, Muhammad Bilal Tahir, "A review of the interfacial properties of 2-D materials for energy storage and sensing applications", *Chinese Journal of Physics*, 66, 246-257 (2020). (DOI: 10.1016/j.cjph.2020.03.035)	**2.544**
18.	**2020**	Ghulam Nabi, Waseem Raza, Muhammad Arshad Kamran, Thamer Alharbi, Muhammad Bilal Tahir, **Muhammad Rafique**, Sajjad Hussain, N.R. Khalid, Nafisa Malik, Rashid S Ahmed, Chuanbao Cao, "Role of Cerium-Doping in CoFe2O4 Electrodes for High Performance Supercapacitors" *The Journal of Energy Storage*, 29, 101452 (2020). (DOI: https://doi.org/10.1016/j.est.2020.101452)	**3.517**
19.	**2020**	**Muhammad Rafique**, Rikza Mubashar, Muneeb Irshad, Syed Sajid Ali Gillani, M. Bilal Tahir, N. R. Khalid, Aqsa Yasmin, Aamir Shehzad, "A Comprehensive Study on Methods and Materials for Photocatalytic Water Splitting and Hydrogen Production as a Renewable Energy Resource", *Journal of Inorganic and Organometallic Polymers and Materials*, 30, 3837–3861 (2020). (DOI: https://doi.org/10.1007/s10904-020-01611-9)	**1.637**
20.	**2020**	**Muhammad Rafique***, Muhammad Bilal Tahir, Muneeb Irshad, Ghulam Nabi, Syed Sajid Ali Gillani, Tahir Iqbal, Maria Mubeen, "Novel Citrus aurantifolia Leaves Based Biosynthesis of Copper Oxide Nanoparticles for Environmental and Wastewater Purification as an Efficient Photocatalyst and Antibacterial Agent", *Optik*, 219, 165138 (2020). (DOI: 10.1016/j.ijleo.2020.165138)	**1.914**
21.	**2020**	Muhammad Bilal Tahir, Tasmia Nawaz, Ghulam Nabi, Muhammad Sagir, **Muhammad Rafique**, Adeel Ahmed, Shabbir Muhammad, "Photocatalytic degradation and hydrogen evolution using bismuth tungstate based nanocomposites under visible light irradiation", *International Journal of Hydrogen Energy*, 45(43), 22833-22847 (2020). (DOI: https://doi.org/10.1016/j.ijhydene.2020.06.146)	**4.084**
22.	**2020**	**Muhammad Rafique***, Muhammad Hamza, Muhammad Bilal Tahir, Muhammad Shabbir, Abdullah G. Al-Sehemi, "Facile hydrothermal synthesis of highly efficient and visible light-driven Ni-doped V2O5 photocatalyst for degradation of Rhodamine B dye" *Journal of Materials Science: Materials in Electronics*, 31(15), 12913-12925 (2020).	**2.195**
23.	**2020**	Ghulam Nabi, N.R. Khalid, Maria Nazir, Waseem Raza, Muhammad Bilal Tahir, **Muhammad Rafique**, Nafisa Malik, Ayesha Siddiqa, Syed Sajid Ali Gillani, Muhammad Rizwan, M. Shakil, Muhammad Tanveer, "Cogent Synergic Effect of TiS2/g-C3N4 Composite with Enhanced Electrochemical Performance for Supercapacitor", *Ceramics International*, 46, 27601–27607 (2020). (DOI: 10.1016/j.ceramint.2020.07.254)	**3.830**
24.	**2021**	**Muhammad Rafique***, Rabbia Tahir, N.R. Khalid, M. Bilal Tahir, Muneeb Irshad, S.S.A. Gillani, Arslan Usman, Khurram Shahzad, Arshid Mahmood Ali, Shabbir Muhammad, "Hydrothermal synthesis of an efficient and visible light responsive pure and strontium doped zinc oxide nano-hexagonal photocatalysts for photodegradation of Rhodamine B dye" *Applied Nanoscience*, 11, 1045-1056 (2021).	**2.880**
25.	**2021**	**Muhammad Rafique***, Syeda Hajra, Muhammad Zahir Iqbal, Ghulam Nabi, Syed Sajid Ali Gillani, Muhammad Bilal Tahir, "Fabrication of novel perovskite oxide $Ba_xMn_{1-x}O_3$ electrode for supercapacitors", *International Journal of Energy Research*, 45(3), 4145-4154 (2021).	**3.741**
26.	**2021**	**Muhammad Rafique***, Muhammad Sohaib, Rabbia Tahir, M. Bilal Tahir, N. R. Khalid, M. Shakil, S. S. A. Gillani, M. Isa Khan, Hussein Alrobei, Khurram Shahzad, Arshid Mahmood Ali, Shabbir Muhammad, "Novel, Facile and First Time Synthesis of Zinc Oxide Nanoparticles Using Leaves Extract of Citrus Reticulata for Photocatalytic and Antibacterial Activity" *Optik*, 243, 167495 (2021). (DOI: 10.1016/j.ijleo.2021.167495)	**2.187**
27.	**2021**	Muneeb Irshad, Raazia Idrees, Khurram Siraj, Imran Shakir, Muhammad Rafique, Quratul ain, Rizwan Raza, "Electrochemical evaluation of mixed ionic electronic perovskite cathode LaNi1-xCoxO3-δ for IT-SOFC synthesized by high temperature decomposition", *International Journal of Hydrogen Energy*, 46 (17), 10448-10456 (2021).	**4.084**
28.	**2021**	Muneeb Irshad, Mehak Khalid, **Muhammad Rafique**, Naveed Ahmad, Khurram Siraj, Rizwan Raza, Muhammad Sadiq, Muhammad Ahsan, Abdul Ghaffar and Amina Ashfaq, "Evaluation of BaCo0.4Fe0.4Zr0.2 xNixO3 d perovskite cathode using nickel as a sintering aid for IT-SOFC", *RSC Advances*, 11, 14475–14483 (2021).	**3.119**
29.	**2021**	Muneeb Irshad, Khurram Siraj, Rizwan Raza, **Muhammad Rafique**, Muhammad Usman, Qurat ul Ain, Abdul Ghaffar, "Evaluation of densification effects on the properties of 8 mol % yttria stabilized zirconia electrolyte synthesized by cost effective coprecipitation route", *Ceramics International*, 47(2), 2857-2863 (2021). (DOI: https://doi.org/10.1016/j.ceramint.2020.09.140)	**3.830**
30.	**2021**	Muhammad Bilal Tahir, Ghulam Nabi, M. Sagir, **M. Rafique**, Hussein Alrobei, Tasmia Nawaz, Abrar	**4.939**

		Inayat, Sajjad Hussain, Gul Naz, Khalid Iqbal, Muhammad Suleman Tahir, "Role of CTF in Bi_2WO_6/ZnO photocatalysts for effective degradation and hydrogen energy evolution", *International Journal of Hydrogen Energy*, 46(80), 39882-39829 (2021). (DOI: 10.1016/j.ijhydene.2021.02.059)	
31.	**2021**	N.R. Khalid, M. Rizwan Kamal, M.B. Tahir, **M. Rafique**, N.A. Niaz, Yasir Ali, Meshal Alzaid, Hussein Alrobei, Shabbir Muhammad, "Fabrication of direct Z-scheme MoO_3/$NeMoS_2$ photocatalyst for synergistically enhanced H_2 production", *International Journal of Hydrogen Energy*, 46(80), 39822-39829 (2021). (DOI: 10.1016/j.ijhydene.2021.09.230)	**4.939**
32.	**2021**	Muneeb Irshad, Mehak Khalid, **Muhammad Rafique**, Asif Nadeem Tabish, Ahmad Shakeel, Khurram Siraj, Abdul Ghaffar, Rizwan Raza, Muhammad Ahsan, Quar tul Ain, Qurat ul Ain, "Electrochemical investigations of $BaCe_{0.7-x}Sm_xZr_{0.2}Y_{0.1}O_{3-\delta}$ sintered at low sintering temperature as perovskite electrolyte for IT-SOFC", *Sustainability*, 13, 12595 (2021).	**3.251**
33.	**2022**	**Muhammad Rafique***, Rabbia Tahir, S. S. A. Gillani, M. Bilal Tahir, M. Shakil, T. Iqbal, M. O. Abdellahi, "Plant mediated green synthesis of zinc oxide nanoparticles from Syzygium Cumini for seed germination and wastewater purification", *International Journal of Environmental Analytical Chemistry*, 102(1), 23-39 (2022).	**2.826**
34.	**2022**	**Muhammad Rafique***, Syeda Hajra, Muhammad Bilal Tahir, Syed Sajid Ali Gillani, Muneeb Irshad, "A review on sources of heavy metals, their toxicity and removal technique using physico-chemical processes from wastewater" *Environmental Science and Pollution Research*, 29, 16772–16781 (2022). (DOI: 10.1007/s11356-022-18638-9)	**4.223**
35.	**2022**	Muneeb Irshad, Quar tul Ain, Muhammad Zaman, Muhammad Zeeshan Aslam, Naila Kousar, Muhammad Asim, **Muhammad Rafique**, Khurram Siraj, Asif Nadeem Tabish, Muhammad Usman, Masood ul Hassan Farooq, Mohammed Ali Assiri, Muhammad Imran, "Photocatalysis and perovskite oxide-based materials: a remedy for a clean and sustainable future", *RSC Advances*, 12, 7009-7039 (2022).	**3.361**
36.	**2022**	Faisal Ali, Khalid Nadeem Riaz, Areeg Gull, Muhammad Bilal Tahir, T. Iqbal, **M. Rafique**, Mohammad A. Assiri, Muhammad Imran, Meshal Alzaid, "Bi-functional green-synthesized of Co3O4 NPs for photocatalytic and electrochemical applications", *Ceramics International*, 48 (21), 32009-32021 (2022). https://doi.org/10.1016/j.ceramint.2022.07.138	**5.532**
37.	**2022**	Muneeb Irshad, Naila Kousar, Muhammad Bilal Hanif, Asif Nadeem Tabish, Abdul Ghaffar, **Muhammad Rafique**, Khurram Siraj, Muhammad Zeeshan Aslam, Mohammed A. Assiri, Muhammad Imran, Michał Mosiałek , Zuzana Zmrhalova and Martin Motola, "Investigating the microstructural and electrochemical performance of novel $La_{0.3}Ba_{0.7}Zr_{0.5}X_{0.3}Y_{0.2}$ (X = Gd, Mn, Ce) electrolytes at intermediate temperature SOFCs" *Sustainable Energy and Fuels*, 6, 5384–5391 (2022). https://doi.org/10.1039/D2SE01147F	**6.813**
38.	**2023**	Jaweria Fatima, M.B. Tahir, Awais Rehman, M. Sagir, **M. Rafique**, Mohammed A. Assiri, Muhammad Imran, Meshal Alzaid, "Structural, optical, electronic, elastic properties and population inversion of novel 2D carbides and nitrides MXene: A DFT study", *Materials Science & Engineering B*, 289, 116230 (2023).https://doi.org/10.1016/j.mseb.2022.116230	**3.407**
39.	**2023**	Khalid Nadeem Riaz, Muntaha Sabir, Faisal Ali, Muhammad Bilal Tahir, Muhammad Arshad Javid, N. A. Niaz, Rizwan Ahmed, **Muhammad Rafique**, Muhammad Imran, Mohammed A. Assiri, "Green synthesis and characterizations of bi-functional Mo-doped ZnO nanostructures for antimicrobial and photocatalytic applications", *Materials Chemistry and Physics*, 296, 127306 (2023). https://doi.org/10.1016/j.matchemphys.2023.127306	**4.778**
40.	**2023**	Muhammad Isa Khan, Muhammad Hassan, Abdul Majid, Muhammad Shakil, **Muhammad Rafique**, "DFT perspective of gas sensing properties of Fe-decorated monolayer antimonene", *Applied Surface Science*, 616, 56520 (2023). https://doi.org/10.1016/j.apsusc.2023.156520	**7.392**
41.	**2023**	N.R. Khalid, Syed Muhammad Hamza, Dr Faisal Ali, Tahir Iqbal, **Muhammad Rafique**, Muhammad Imran, Mohammad A. Assiri, "Synthesis and Photocatalytic Performance of CoMoO4/MoO3 Composite for Wastewater Treatment", *Materials Today Communications*, 35, 105816 (2023). https://doi.org/10.1016/j.mtcomm.2023.105816	**3.662**
42.	**2023**	Muhammad Khalid Hussain, N. R. Khalid, Muhammad Tanveer, T. Iqbal, Maira Liaqat, Sultana Rahman, **M. Rafique**, Muhammad Imran, Mohammad A. Assiri, "In-situ fabrication of MoO_3 hexagonal flowers decorated with Co_3O_4 microrods with enhanced photocatalytic activity and stability under visible light irradiation", *Materials Chemistry and Physics*, 302, 127652 (2023).	**4.778**
43.	**2023**	**Muhammad Rafique***, N.R. Khalid, Muneeb Irshad, Falak Shafiq, Muhammad Usman, Yasser Fouad, Muhammad Imran, Muhammad A. Assiri, Waqar Muhammad Ashraf, "Visible light-active pure and lanthanum doped copper oxide nanostructures for photocatalytic degradation of methylene blue dye and hydrogen production", *Energy Science & Engineering*, 11(7), 2601-2613 (2023). https://doi.org/10.1002/ese3.1476	**4.035**

44.	**2023**	**Muhammad Rafique***, Syeda Hajra, Muneeb Irshad, Muhammad Usman, Muhammad Imran, Mohammad A. Assiri, Waqar Muhammad Ashraf, "Hydrogen Production Using TiO2-Based Photocatalysts: A Comprehensive Review", *ACS Omega*, 8(29), 25640–25648 (2023). https://doi.org/10.1021/acsomega.3c00963	**4.100**
45.	**2023**	Muneeb Irshad, Kiran Baber, Muhammad Salim butt, Muhammad Bilal Hanif, Muhammad Asad, Abdul Ghaffar, **Muhammad Rafique**, Iftikhar Hussain, Murefah mana Al-Anazy, Hryhorii Makarov, Bogna aria Napruszewska, Michał Mosiałek, Martin Motola, "Synergistic role of Biomolecules and Bio-chelating agents in the sustainable development of an efficient $BaCe_{0.97}M_{0.03}O_{3-\delta}$ (M = Sm, Gd) perovskite electrolyte for IT-SOFC" *Ceramics International*, 49 (23) 38360-38366 (2023). https://doi.org/10.1016/j.ceramint.2023.09.170	**5.200**
46.	**2023**	Qurat ul Ain, Dr. Muneeb Irshad, Muhammad Salim Butt, Asif Tabish, Muhammad Bilal Hanif, Rabia Ghaffar, **Muhammad Rafique**, Dur e Shawar, Khurram Siraj, Amal A. Abdel Hafez, Hisham S. M. Abd-Rabboh, Zuzana Zmrhalovahi, Elena Filonova, Dmitry Medvedev, Martin Motola, "Towards Sustainable Electrochemistry: Green Synthesis and Sintering Aid Modulations in the development of BaZr0.87Y0.1M0.03O3−δ (M = Mn, Co, and Fe) IT-SOFC electrolytes", *Frontiers in Chemistry*, 11, 1322475 (2023).	**5.500**
47.	**2024**	N.R. Khalid, Samavia Ilyas, Faisal Ali, Tahir Iqbal, **M. Rafique**, Muhammad Imran, Mohammad A. Assiri, "Novel Sn-doped WO3 photocatalyst to degrade the organic pollutants prepared by green synthesis approach", *Electronic Materials Letters*, 20(1), 85-94 (2024).	**3.151**
48.	**2024**	N.R. Khalid, Muhammad Hasnain, Faisal Ali, Shoaib Siddique, T. Iqbal, **M. Rafique**, Muhammad Imran, Mohammed A. Assiri, "Green synthesized, photocatalytic Co-doped MoO3 nanospheres for wastewater treatment", *Ceramics International*, 50(6), 9640-9649 (2024). https://doi.org/10.1016/j.ceramint.2023.12.282	**5.200**
49.	**2024**	N.R. Khalid, Moazma Riaz, Faisal Ali, T. Iqbal, **M. Rafique**, Mohammad Imran, Mohammad A. Assiri, "Investigation of novel, green synthesized and photocatalytic Sn-doped MoO_3 nanomaterial for the degradation of methyl orange", *Optik*, 300, 171637 (2024). https://doi.org/10.1016/j.ijleo.2024.171637	**3.100**
50.	**2024**	Muneeb Irshad, Muhammad Zeeshan Aslam, Muhammad Salim Butt, Zaheer Ud Din Babar, Muhammad Bilal Hanif, Muhammad Ahsan, Muhammad Zubair Khan, Kun Zheng, **Muhammad Rafique**, Abdul Ghaffar, Muhamad Asad, M.A. Assiri, Martin Motola, "Evaluation of highly conductive cermet cathodes synthesized with organic chelating agents and sintered at low temperatures for IT-SOFCs", *Energy Conversion and Management: X*, 23, 100609 (2024). https://doi.org/10.1016/j.ecmx.2024.100609	**6.300**
51.	**2024**	Muneeb Irshad, Anum Mukhtar, Asif Nadeem Tabish, Muhammad Bilal Hanif, Mahshab Sheraz, Viktoriia Liapun, Muhammad Zubair Khan, Farwa Batool, Muhammad Imran, **Muhammad Rafique**, Jacek Gurgul, Thamraa Alshahrani, Michał Mosiałek, Juran Kim, Richard T. Baker, Martin Motola, "Harnessing Bio-Based Chelating Agents for Sustainable Synthesis of AgNPs: Evaluating Their Inherent Attributes and Antimicrobial Potency in Conjunction with Honey", *Heliyon*, 10, e31424 (2024). https://doi.org/10.1016/j.heliyon.2024.e31424	**4.000**
52.	**2024**	Gul Saira, Syeda Masooma Zaigam, Muhammad Isa Khan, Muhammad Bilal Tahir, **Muhammad Rafique**, Saleh S Alarfaji, "Computational study of Be/Mg-decorated Hexagonal chromium ditelluride (CrTe2) for hydrogen storage applications", *Journal of Energy Storage*, 103, 114221 (2024). https://doi.org/10.1016/j.est.2024.114221	**8.900**
53.	**2024**	**Muhammad Rafique***, Saira Anwar, Muneeb Irshad, M. Isa Khan, M.B. Tahir, Ghulam Nabi, Mohammad A. Assiri, "Novel synthesis and electrochemical performance of 2D molybdenum nitride (MXene) for supercapacitor application", *Journal of Energy Storage*, 103, 114354 (2024). https://doi.org/10.1016/j.est.2024.114354	**8.900**
54.	**2025**	Muhammad Mubeen Parvaiz, Adnan Khalil, Mohammed A. Assiri, Muhammad Bilal Tahir, Abdul Hannan, **Muhammad Rafique**, "Comprehensive DFT analysis of novel transition metal-based $BaTiX_3$ (X = Cl, Br, I) halide perovskites: Structural, electronic, magnetic, optical, mechanical, and thermodynamic properties", *Materials Science and Engineering B*, 311, 117788 (2025). https://doi.org/10.1016/j.mseb.2024.117788	**3.900**
55.	**2025**	Saira Anwar, **Muhammad Rafique***, Muneeb Irshad, M. Isa Khan, Syed Sajid Ali Gillani, Muhammad Shakil, Muhammed Asif Nawaz, Sarmad Masood Shaheen, Mohammed A. Assiri, "Synthesis and electrochemical performance of 2D molybdenum carbide (MXene) for supercapacitor applications" *Electrochemica Acta*, 512, 145508 (2025). https://doi.org/10.1016/j.electacta.2024.145508	**5.500**
56.	**2025**	N.R. Khalid, M. Shabbir Shahid, Faisal Ali, Ghulam Nabi, Hammad Ahmed, **M. Rafique**, Mohammed A. Assiri, "Optimizing the capacitive and photocatalytic properties of bi-functional nickel-doped MoO_3 for supercapacitor and wastewater purification applications", *Materials Chemistry and Physics*, 333 130380 (2025). https://doi.org/10.1016/j.matchemphys.2025.130380	**4.300**

57.	**2025**	**Muhammad Rafique***, Saira Anwar, Muneeb Irshad, Muhammad Shahid Rafique, Mohammed A. Assiri, "Materials design to novel properties of MXenes: A comprehensive review on compositions, structures, characteristics, synthesis strategies and electrochemical properties", *Journal of Energy Storage*, 121, 116470 (2025,). https://doi.org/10.1016/j.est.2025.116470	**8.900**
58.	**2025**	Muneeb Irshad, Muhammad Asif, Muhammad Salim Butt, Muhammad Rafique, Misbah Durrania, Ahmed M. Foudad, "Novel bio-chelating agent-assisted eco-friendly synthesis of Sr0.9X0.1CoO3d (X = Ba, Ce) perovskite electrodes for supercapacitor applications" Materials Advances, published in May 2025. https://doi.org/10.1039/D4MA01199F	**5.200**

Total Impact Factor

Invited and Presented Talks in National Conferences & Seminars

1.	**M. Rafique**, Reena Rashid, "An Alternative Method for Synthesis of Copper Nanoparticles", 1st International Conference on Emerging Technologies for Waste Water and Alternative Energy Processes at University of Gujrat, Gujrat, Pakistan, 1-2 June, 2016.
2.	**M. Rafique**, Iqra Sadaf, "Green Synthesis of Silver Nanoparticles", 1st International Conference on Emerging Technologies for Waste Water and Alternative Energy Processes at University of Gujrat, Gujrat, Pakistan, 1-2 June, 2016.
3.	Tahir Iqbal, Sumeera Afsheen, M. B. Tahir, N. R. Khalid, **Muhammad Rafique** "Plasmonic devices for Biosensing applications" 2nd International Conference on Materials Science and Nanotechnology at GCUF, Pakistan, 19-21 February 2108.
4.	Tahir Iqbal, M. B. Tahir, N. R. Khalid, Muhammad Isa Khan, **Muhammad Rafique**, Ghulam Nabi "Factors affecting coupling Efficiency of Surface Plasmon Polaritons Excited by 1D metallic Gratings: Role of Minimum number of slits" National Conference on New Frontiers in Experimental and Theoretical Physics at Department of Physics, University of Agriculture Faisalabad, Pakistan, 16-17 April 2018.
5	Invited Guest-Speaker in International conference on Physical Sciences & Engineering 2021 at Khwaja Fareed University of Engineering and Information Technology (KFUEIT), Rahim Yar Khan on 14-16 December, 2021.
6	Key-note Speaker in one-day seminar on "Pure & Applied Physics" at Education University Lahore, Vehari Campus on 21 February 2022.
7	Invited Speaker and member of organizing committee in "International Conference on Emerging Trends in Physics-2022 (ICETP-22) at the Islamia University of Bahawalpur, Bahawalpur on 23-24 May 2022.
8	Invited Speaker in 03 Days National Symposium "17th National Symposium on Frontiers in Physics" at Government College University (GCU), Lahore on 01-03 December 2022.
9	Invited Speaker in 03 Days International Conference on "Physical Sciences and Engineering" at Khwaja Fareed University of Engineering and Information Technology (KFUEIT), Rahim Yar Khan on 14-16 December 2022.
10	Invited Speaker in 03 Days "6th International Conference on Materials Science And Nanotechnology (MSNANO-23)" at Govt. College University, Faisalabad Pakistan on 25-27 September 2023.
11	Invited Speaker in 02 Days "4th International Conference on Advances in Materials Science (AIMS-23)" at University of Education, Lahore on 29-30 November 2023.
12	Invited Speaker in 03 Days "4th International Conference on Physical Sciences and Engineering (ICPSE-2024)" at Khwaja Fareed University of Engineering and Information Technology (KFUEIT), Rahim Yar Khan on 14-16 February 2024.
13	Invited Speaker in "2nd International Conference on Trends in Material Sciences and Nanotechnology (ICTMSN)" at the Department of Physics, Forman Christian College (A chartered University), Lahore, Pakistan on 29 Feb-01 March 2024.

ADDITIONAL INFORMATION

	Role	Organized Events
Organization of Conferences / Symposiums / Seminars / Trainings	Chief Organizer & Coordinator	A one day "Workshop on Vacuum Science & Technology" organized at University of Sahiwal on January 20, 2020.
	Symposium Organizer	2020 Research Symposium in Business, Economics and Psychology, organized at University of Sahiwal on February 01, 2020.
	Symposium Coordinator	2020 Research Symposium in Chemistry & Physics, organized at University of Sahiwal on February 29, 2020.
	Symposium Coordinator	2021 Research Symposium in Physics and Chemistry, organized at University of Sahiwal on February 20, 2021.
	Symposium Organizer	2021 Research Symposium in Business & Economics, organized at University of Sahiwal on March 13, 2021.
	Seminar Coordinator	A one day seminar on "Clean Energy materials and Climate Change" organized at University of Sahiwal on 17 January 2022.
	Seminar Coordinator	A one day seminar on "Recent Trends in Plasma Processing Technology" organized at University of Sahiwal on 28 January 2022.
	Seminar Coordinator	A one day seminar on "Photocatalysis: Fundamentals and Applications" organized at University of Sahiwal on 01 February 2022.
	Seminar Coordinator	A one day seminar on "Antenna Design for Future Devices" organized at University of Sahiwal on 03 February 2022.
	Symposium Coordinator	One day research symposium on "Recent Trends in Theoretical Physics" organized by Department of Physics, University of Sahiwal on 01 June 2022.
	Symposium Secretary	One day research symposium on "1st Natural Sciences Symposium (2023)" organized by University of Sahiwal on 30 May 2023.
	Symposium Secretary	One day research symposium on "2nd Natural Sciences Symposium (2024)" organized by University of Sahiwal on 23 May 2024.

Participation in Conferences / Seminars / Trainings

- Pakistan Institute of Physics (PIP) National Conference, 2011 (UET LHR), Member of Organizing Committee (Technical & Refreshment)
- One Day Workshop on Lasers and Photonics, 2012 (UET LHR), Member of Organizing Committee (Reception Committee)
- One day Workshop on Nanomaterials and their Applications, 2012 (LCWU LHR)
- International Scientific Spring, 2012 (NCP ISLAMABAD)
- One Day International Workshop on Nano Sciences, 2012 (NCP ISLAMABAD)
- One Day Workshop on Lasers and Nanotechnology, 2012 (UET LHR), Member of Organizing Committee (Reception Committee)
- Alumni Physics Department, Annual Gathering and Dinner, 24-05-2014 (UET LHR), Member of Organizing Committee (Program Committee)
- 1st International Conference on Emerging Technologies for Waste Water and Alternative Energy Processes , University of Gujrat, Gujrat, 1-2 June, 2016. (As a speaker)
- 1st National Symposium on Laser Matter Interaction (LMI), September 13-14 (NCP Islamabad), 2017
- 15th National Symposium on Frontiers in Physics, January 29-31, GCU Lahore, 2018
- 16th National Symposium on Frontiers in Physics, January 29-31, GCU Lahore, 2019
- Three-day online training on "Online Education: Tools and Strategies" organized by Punjab Higher Education Commission (PHEC), July 14-16, University of Okara, 2020
- A three-day Faculty Development Program (FDP) on "Advancing Teaching Excellence: Strategies for Effective Higher Education Instruction and Professional Development" arranged by Punjab Higher Education Commission (PHEC), Lahore, January 16-18, 2024
- A five-day training program on "Capacity Building Program For University Management" arranged by National Academy of Higher Education (NAHE), Higher Education Commission (HEC), Islamabad at University of Sahiwal from April 28, 2025 to May 02, 2025.