



DR.

FARYAL IDREES

ASSOCIATE PROFESSOR
DEPARTMENT OF PHYSICS
UNIVERSITY OF THE PUNJAB
LAHORE, PAKISTAN

RESEARCH INTERESTS

Energy Related materials: Nb₂O₅, VO₂,
Carbon-based materials
Supercapacitors (Symmetric and
Asymmetric)
Li ion batteries
Zinc-Ion Batteries
Photocatalyst
Solar Water-Splitting and Hydrogen
Production
Electrochemistry
Laser-Flash Photolysis
Hydrogen storage

VITALS

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RESEARCH GATE

https://www.researchgate.net/profile/Faryal-Idrees?ev=hdr_xprf&sg=t-wJsGKHrIl78HC2EHeVhHV8HFrDrbpbOqr9kCxSE1aBCCq80iUcDuY6J8Bv9HnuRuFn0_78If7lboYWDt6U7

ADSCIENTIFIC INDEX

<https://www.adscientificindex.com/scientist.php?id=363649>

ORCID

<https://orcid.org/0000-0002-4254-4554>

GOOGLE SCHOLAR

[Dr. Faryal Idrees - Google Scholar](#)

BRIEF PROFILE

- Published 63 SCI papers, and 05 Book Chapters, in impact factor journals.
- Total impact factor of more than 450.
- Citations > 7300, h-index 33, i-10 index 54.
- Working on and worked on 4 highly funded projects.
- Research work presented at several international conferences.
- Total of 5 academic awards.
- 02 PhD and 23 M.Phil research students are supervised and graduated, and 03 PhDs and 02 MPhil students are conducting their research.
- Collaborator of Research and Development Team of SunRay Green Tech Company.
- Associate Editor in [Homogeneous Catalysis](#), (specialty section of Frontiers in Catalysis), Frontiers.
- Editorial Board Member of Pakistan Journal of Emerging Science and Technologies - ISSN 2788-8630, [Editorial Board – PJEST](#).

EXPERIENCE

ASSISTANT PROFESSOR

[2019-TILL DATE]

Department of Physics
University of the Punjab, Lahore

POST-DOCTORAL AWARDED BY ALEXANDER VON HUMBOLDT, GERMANY

[2017-2019]

Institut für Technische Chemie
Leibniz Universität Hannover

ASSISTANT PROFESSOR

[2015-2019]

Department of Physics,
The University of Lahore, 1-Km Raiwind Road, Lahore, Pakistan.

EDUCATION

PHD IN MATERIALS PHYSICS AND CHEMISTRY

[2011-2015]

School of Material Sciences and Engineering
Beijing Institute of Technology

M.PHIL IN HIGH ENERGY PHYSICS

[2009-2011]

Centre for High Energy Physics
University of the Punjab, Lahore.

Grade: A+

CGPA: 4.0 out of 4.0

Position: 4th

B.SC (HONS.) IN COMPUTATIONAL PHYSICS

[2005-2009]

Centre for High Energy Physics

REFERENCES

- Prof. Detlef Bahnemann
(Post-Doctoral Host)
bahnemann@iftc.uni-hannover.de
- Prof. Dr. Munazza Zulfiqar Ali
(Chairperson)
chairman.physics@pu.edu.pk
- Prof. Cao Chuanbao (Ph.D
Supervisor)
cbcao@bit.edu.cn

SKILLS

- Good Communication and Interpersonal Skill.
- Enjoy challenging tasks.
- Independent research project design and conduction.
- XRD, SEM, UV, PL, FTIR, TEM analysis, GC-MS Analysis, Electrochemistry.

COMPUTER SKILLS

- Latex
- Mathematica
- C # , C++
- Origin
- X'Pert High Score

MEMBERSHIP

- Community Associate of ACS Chemistry for Life, 09/08/2023 to date.
- MEMBER of PUNJAB UNIVERSITY PHYSICS ASSOCIATION, "Revival of Punab University Physics Assciation" Est. 1952. approved by VC of University.
- Member Discipline Council of Department of Physics approved by VC of University.

University of the Punjab, Lahore.

Grade: A

CGPA: 3.91 out of 4.0

Position: 4th among all sessions and 3rd among own session

AWARDS AND ACTIVITIES

1. *Catalysts Awards | Best Researcher Award, by ScienceFather*, Posted on 31/12/2024, Link: [Recognition Awards Archives - ScienceFather](#)
2. *Excellent student Award* awarded by Beijing Institute of Technology for 2013-2014.
3. *Outstanding student Award* awarded by Beijing Institute of Technology for 2013-2014.
4. *Outstanding student Award* awarded by Beijing Institute of Technology for 2012-2013.
5. During Bachelors obtained "*HEC-Outstanding Students Scholarship by President*" 2005-2008.
6. University *Merit Scholarship* several times.
7. *4th position holder* in BSc(Hons) among all sessions.
8. *4th position holder* in MPhil and secure 4.0/4.0 CGPA.
9. <http://phys.org/news/2015-03-silk-green-material-next-generation-batteries.html>
10. <http://www.sciencedaily.com/releases/2015/03/150311124431.htm>
11. <https://www.acs.org/content/acs/en/pressroom/presspacs/2015/acs-presspac-march-11-2015/silk-could-be-new-green-material-for-next-generation-batteries.html>
12. Participated in "China Mobile Cup", Walking around Kunming Lake for International Friends 29th October, 2011.
13. Pakistan Higher Education Commission (HEC)-Approved Supervisor.
14. Attended the *Faculty Orientation Program* held of 6th-10th November, 2023 in collaboration with HRDC Nurturing Talent and University of the Punjab.
15. *Juror of PYNT* (Pakistan Young Naturalist Tournament) Program, Held on 2-3 Nov-2024.
16. *Exhibition Judge* of 5th International Conference on Emerging Science and Technology and 8th Science Exhibition (ICEST-2025), Department of Physics, Govt, Islamia Graduate College Civil Lines, Lahore, Pakistan, held on 27th Feb 2025.

EDITORIAL

- Guest editor of special issue on: **“Progression in Photocatalytic Materials for Efficient Performance”** for Catalysts Journal impact factor 4.146.
- Guest editor of special issue on: **“New Trends in Photocatalytic Materials for Efficient Performance”** for Catalysts Journal impact factor 4.146.
- Guest editor of Special Issue on **“WEmpower Materials Science Research on SDGs”** for Materials Innovation.
- Guest editor of Special Issue on **“Recent Advances in Functional Materials: Polymers and Composite Materials”** for Frontiers in Materials, impact factor 3.985.
- Associate Editor in **Homogeneous Catalysis**, (specialty section of Frontiers in Catalysis). Frontiers.

NATIONAL PROJECTS/GRANTS

- “Development of Materials Synthesis Lab”, The University of Lahore, March 2016, Approved and successfully running.
- Development of Photocatalysis Lab under PSF-NSFC project.
- Design and Construction of Photocatalytic Materials for H₂ Generation, URG-PU-2021-2022.
- Hydrothermal Synthesis of Niobium-based Nanostructures for Photocatalytic Applications, URG-PU-2022-2023.
- Co₃O₄-g-C₃N₄ Heterostructures Synthesis and Optimization for Biosensing and Photocatalytic Applications, URG-PU-2024-2025.

CONFERENCES/SEMINARS/WORKSHOPS

ORGANIZED

1. **Conference Secretary** of “3D Printed and Energy Conversion Materials”, January 25-26, 2024.
2. **Chief Organizer** of “First International Conference on Advances in Functional Materials” February 20-22, 2023.
3. **Member of National Advisory Board** of “First International Conference on Advances in Functional Materials” February 20-22, 2023.
4. **International Organizer** of International Conference on Recent Advances in Physics, 7-9th April 2018, Department of Physics, The University of Lahore.
5. **Conference Secretary** of International Conference on Materials Science and Nano Technology, 25th September 2016, Department of Physics, The University of Lahore.
6. Working as a **Mentor of WEmpower Pakistan** group for young scientist, where she has presented her work several times.

ATTENDED

1. 6th International Conference on Advances in Material Science (AIMS 2024) organized by University of Education, Lahore, 03rd-04th December 2025, **Invited Speaker**.
2. (BIOMED 5.0), Emerging Trends and Opportunities in Biomedical Engineering at the Biomedical Engineering Department, UET Lahore, New Campus, Participant, 10th April 2025, **Participant**.
3. 5th International Conference on Advances in Material Science (AIMS 2024) organized by University of Education, Lahore, 26-27th November 2024, **Invited Speaker**.
4. International Conference on Emerging Trends in Physics, 8-9 October (ICETP-2024) organized by Department of Physics, The University of Lahore, Lahore, Pakistan, **Keynote Speaker**.
5. 2nd International Conference on Trends in Material Sciences and Nanotechnology (ICTMSN)" organized by Forman Christian College and Chartered University on 29 Feb-01 March 2024, **Invited Speaker**.
6. KIST Pakistan Alumni Research Symposium, Organized by NUST on 30-31 October 2023, **Participant**.
7. ACS Science Talks, “Turning abundant carbonaceous waste into advanced carbon materials for energy and environmental applications”, on 13 October 2023, **Attendee**.
8. “Synthesis and Characterizations of MoS₂/WO₃ Heterostructures for Efficient Photocatalytic Efficiency”, in International Conference on Catalysis and Chemical Engineering, March 20-21, 2023, Belstay Roma Aurelia, Rome,

INTERNATIONAL RESEARCH PROJECTS

- PSF-NSFC Joint Research Proposal entitled, “Solar-Light-Driven Simultaneous Hydrogen Generation and Water Purification by Synergetic Adsorption and Photocatalysis”, Working as Principal Investigator, Current Status: In Progress.
 - PSF-NSFC Joint Research Proposal entitled, “Design and Construction of Photocatalytic Materials for Efficient Hydrogen Generation”, Worked as Co-PI, Current Status: Completed.
 - PSF-NSFC Joint Research Proposal entitled, “Developing a coupled strategy for synthesis of highly efficient photocatalysts for overall water splitting to produce hydrogen fuel”, Working as Participant, Current Status: Just Accepted, 2024.
 - “Facile and Template Free Synthesis of Niobium Based Semiconductors: Applications for Energy Storage and Photocatalysis”, National Natural Science Foundation of China, Research Fund for the Doctoral Program of Higher Education of China, September 2013-July 2015, successfully executed and developed a photocatalysis lab.
 - “Microwave-Assisted Synthesis of Niobium based Nanostructures for Hydrogen Production as a Renewable Energy Resource”, by *Alexander-von-Humboldt-Stiftung*, successfully executed.
- Italy, Organized By: SciSynopsis LLC Atlanta, GA 30326, USA, **Virtual Speaker Presentation.**
9. 4th International Conference on Advances in Material Science (AIMS 2023) organized by University of Education, Lahore, 29-30th November 2023, **Invited Speaker.**
 10. 3rd International Conference on Advances in Materials Science (AIMS-2022) organized by University of Education, Lahore, 15-16 December 2022, **Invited Speaker.**
 11. “An improved photocatalytic activity of H₂ production: A hydrothermal synthesis of TiO₂ nanostructures in aqueous triethanolamine,” 2nd International Conference on Advances in Material Science (AIMS 2021) organized by University of Education, Lahore, 5-6 October 2021, **Invited Speaker.**
 12. “Nb₂O₅/g-C₃N₄ Heterostructures as Highly Efficient Photocatalysts for Molecular H₂ Evolution under Solar Illumination”, 2nd International Physics Conference on Emerging Trends in Material Science & Technology, (Lahore Garrison University), 05-06 Apr 2021, **Invited Speaker.**
 13. “Photocatalysis: Development of Semiconductor Photocatalysts for Energy Conversion Application”, 3rd International Conference on Advances in Theoretical and Applied Physics, (Government College Woman University, Faisalabad), 24-26 Feb 2021, **Invited Speaker.**
 14. “Development of Heterostructures Photocatalytic Application to Nb₂O₅/g-C₃N₄ Heterostructures as Efficient Photocatalyst,” 1st International Conference on Advances in Material Science (AIMS 2020), organized by University of Education, Lahore, 23rd-24th July 2020, **Invited Speaker.**
 15. International Conference in Particle Physics, held at The University of Lahore on April 14, 2019, organized by the Department of Physics, **Participant.**
 16. International Conference on Recent Advances in Physics, 7-9th April 2018, Department of Physics, The University of Lahore, Lahore, Pakistan, **Paper Presentation as an Invited Speaker.**
 17. International Conference on Materials Science and Nano Technology, 25th September 2016, Department of Physics, The University of Lahore, Lahore, Pakistan, **Paper Presentation as a Speaker.**
 18. First Conference on Advances in Medical Physics and Biophysics, held at The University of Lahore on May 15, 2016, organized by the Department of Physics in collaboration with INMOL, **Participant.**
 19. The 10th Postgraduate Forum, School of Materials Science and Engineering”, BIT, May 28, 2013, the paper published in proceedings, **Paper Presentation as a Speaker.**

REVIEWER

- Facile synthesis of porous g-C₃N₄ with enhanced visible-light photoactivity, *Molecules* (ISSN 1420-3049), 02 December, 2021.
- One Pot Synthesis of Chlorophyll-Assisted Exfoliated MoS₂/WS₂ Heterostructures via Liquid Phase Exfoliation Method for Photocatalytic Hydrogen Production, *Nanomaterials* (ISSN 2079-4991), 09-10-2021.
- Ternary Rh-TiO₂-CeO₂ Hybrid Photocatalysts for Efficient Photocatalytic Hydrogen Production, *Nanomaterials* (ISSN 2079-4991), 2021-05-25.
- Bioremoval of toxic malachite green from water through simultaneous decolorization and degradation using laccase immobilized biochar, *Chemosphere*
- Photocatalytic Decomposition of N₂O by Using Nanostructured Graphitic Carbon Nitride/Zinc Oxide Photocatalysts Immobilized on Foam, *Catalysts*, 20-08-2019.
- Surface-Doped Graphitic Carbon Nitride Sensitize Photooxidation of Olefins and Dienes: Chemical Evidence for Singlet Oxygen and Electron Transfer Mechanism, *Catalysts*, 13-07-2019.
- Co₃O₄/g-C₃N₄ Hybrids for Gas-Phase Hg⁰ Removal at Low Temperature, *Processes*, 05-04-2019.
- Cubic Germanium monochalcogenides (pi-GeS and pi-GeSe): Emerging materials for optoelectronic and energy harvesting devices, *Solar Energy*, 25-01-2019.
- TiO₂ Co-doped with Zr and Ag shows highly efficient visible light photocatalytic behavior suitable for treatment of polluted water, *RSC Advances*, 11-07-2020.
- Ternary Hybrid Ag/SnO₂-X/Bi₄O₅I₂ photocatalysts: impressive efficiency for photocatalytic degradation of antibiotics and inactivation of bacteria, *Applied Surface Science*, Elsevier.
- Heterogeneous compositions of oxygen-containing functional groups on biochars and their different roles in rhodamine B degradation, *Chemosphere*, Elsevier
- CdS with tunable crystalline phase structures: controllable preparation and enhanced photocatalytic properties, *Research on Chemical Intermediates*, Springer Nature 21-08-2023

20. BOND21-Joint International Conference on Nanoscience, Engineering, and Management, Malaysia, 19-21 August 2013, the paper published in proceedings, **Paper Presentation as a Speaker.**
21. International Scientific Spring - 2011, March 01-04, 2011, **Participant.**
22. THE 9th ALL PAKISTAN MOBILINK GIKI SCIENCE FAIR held on 22-24 February 2008, **Participated in the Quiz Competition.**
23. SOFTEC '08 held at FAST-NU, Lahore Campus on 30-31 August 2008, **Participated in the Project Competition.**

PUBLICATIONS

1. Aysha Shaheen, Faryal Idrees, Faheem K. Butt, Adnan Mujahid, Adeel Afzal, Sami Ullah, Tayyaba Asim, Waheed S. Khan, Sadia Z. Bajwa, (June, 2025), "Synthesis and integration of sea urchin-like MnO₂-GCN nanocomposite with imprinted polymers for mass-sensitive detection of chloramphenicol in water", *Composites Communications*, ISSN 2452-2139, IF= 6.5, 56: 102357.
<https://doi.org/10.1016/j.coco.2025.102357>.
2. Shahid W, Idrees F*, Zou JJ, Choi JR, Pan L. (2024 Dec 27), "Solar Light-Driven Efficient Degradation of Organic Pollutants Mediated by S-Scheme MoS₂@TiO₂-Layered Structures." *Nanomaterials*, IF=4.4,15(1):28.
<https://doi.org/10.3390/nano15010028>
3. **BOOK CHAPTER:** Durre Sameen, Saqib Ahmad, Faryal Idrees*, "Optimal Photodeposition of Co-Catalyst Over 2D Heterostructures for Improved H₂ Production/Water-Splitting", BOOK TITLE & ISBN: "*Light-Driven Materials and Devices*", 978-1-83634-770-5, IntechOpen. Submitted: 10 November 2024 Reviewed: 27 November 2024 Published: 20 May 2025. ISBN978-1-83634-769-9
[DOI: 10.5772/intechopen.1008504](https://doi.org/10.5772/intechopen.1008504)
4. Gan L, Zhang X, Guo L, Ajmal M, Jia R, Guo X, Shi C, Pan L, Idrees F, Zhang X, Huang ZF. (2024), "Redirecting surface reconstruction of CoP-Cu heterojunction to promote ammonia synthesis at industrial-level current density." *Chemical Engineering Journal*, IF=13.3, 487:150429.
<https://doi.org/10.1016/j.cej.2024.150429>
5. Javed, A., Idrees, F., JEONG, D., Bahnemann, D.W. and Cao, C., (2024), "Recent Advances in Functional Materials: Polymers and Composite Materials." *Frontiers in Materials*, 11, p.1426738.
<https://doi.org/10.3389/fmats.2024.1426738>
6. Z Xiao, L Yuan, M Ai, F Idrees, ZF Huang, C Shi, X Zhang, L Pan, JJ Zou, (2024), "Z-Scheme Charge Transfer between Conjugated Polymer and α-Fe₂O₃ for Simultaneous Photocatalytic H₂ Evolution and Ofloxacin Degradation", *Journal of Materials Chemistry A, RSC.*, 12 (9), 5366-5376.
<https://doi.org/10.1039/D3TA07217G>
7. M Ai, Z Peng, X Li, F Idrees, X Zhang, JJ Zou, L Pan, (2024), "Piezoelectric-enhanced n-TiO₂/BaTiO₃/p-TiO₂ heterojunction for highly efficient photoelectrocatalysis", *Green Energy & Environment, Elsevier.*, 9 (9), 1466-1476.
<https://doi.org/10.1016/j.gee.2023.12.001>
8. Mariam Afzal, Faheem K. Butt, Yahya Sandali, Syed Shahbaz Ali, Faryal Idrees, Sadia Zafar Bajwa, Durre Sameen, Mohsan Waseem Ather, Muhammad Danish Khan, Anwaar Ahmad, Danish Rehman, (2024), "Novel

REVIEWER

- In-situ Sol-Gel Fabrication of Lanthanum-Doped Nickel Oxide Nanostructures for the Degradation of Rhodamine B, *RSC Advances* **17-01-2023**
- Synthesis and characterization of $\text{Sm}_2\text{FeMnO}_6$ double perovskites nanoparticles supported on graphitic carbon nitride as photocatalyst for the degradation of organic dyes under simulated sunlight light, *RSC Advances* **10-11-2024**
- Synthesis and Performance Evaluation of Zinc Oxide Tubes/Alginate Microfibre Composite for Photodegradation of Methylene Blue: A Novel Reporting Approach, *RSC Advances* **22-05-2024**
- Narrow band gap 1D $\text{g-C}_3\text{N}_4$ /3D- Bi_2MoO_6 self-assembled heterojunction structure with enhanced photocatalytic performance for removal of MB or Cr(VI), *Springer Nature* **17-12-2024**

REVIEWER NATIONAL PROJECTS

- The monolithic integration of flexible perovskite solar cells and supercapacitors PSF-NSFC/202307/339
- Design, Experimental and Simulation Investigation of Flexible and Thermally Conductive Phase Change Films for Improved Energy Yield of Solar Photovoltaic Module PSF-NSFC/202307/201
- HEC/NRPU PROJECT.
- Integrated Utilization of Solar Photovoltaic-Thermal and Radiative Sky Cooling in Buildings: Mechanism of Full-Spectrum Radiation Modulation and Multi-Energy Synergistic Output under "PSF-NSFC JSEP Call, PSF-NSFC/202507/2001.
- Development of high-performance all-solid-state lithium-ion batteries: materials design, interface engineering, and cell prototyping under "PSF-SCO Call, PSF-SCO/202504/1621.

copper vanadium oxide/ $\text{g-C}_3\text{N}_4$ nano-composites for optoelectronic and biosensing properties", *Ceramics International*, ISSN 0272-8842, 50 (8), 13750-13760.

<https://doi.org/10.1016/j.ceramint.2024.01.289>.

9. Muhammad Umair Tariq, Detlef Bahnemann, Faryal Idrees*, Saman Iqbal, Fauzia Iqbal, Faheem K Butt, Jeong Ryeol Choi, Muhammad Bilal, (2023/5/28). "Laser flash photolysis study of $\text{Nb}_2\text{O}_5/\text{g-C}_3\text{N}_4$ heterostructures as efficient photocatalyst for molecular H_2 evolution", *Heliyon*, Elsevier, 9 (6).
<https://doi.org/10.1016/j.heliyon.2023.e16772>
10. Aleena Fatima, HM Naeem Ullah, Muhammad Rizwan, Sana Maqbool, Faryal Idrees, Zahid Usman (2023/6/1). "Theoretical description of structural, electronic, elastic, mechanical, and optical response of $\text{Ba}_{1-x}\text{Cd}_x\text{TiO}_3$ for optoelectronic applications", *Materials Today Communications*, Elsevier, 35, 105925.
<https://doi.org/10.1016/j.mtcomm.2023.105925>
11. Wajeehah Shahid, Faryal Idrees*, Muhammad Aamir Iqbal, Muhammad Umair Tariq, Samiah Shahid, Jeong Ryeol Choi*, (2022), "Ex Situ Synthesis and Characterizations of MoS_2/WO_3 Heterostructures for Efficient Photocatalytic Degradation of RhB." (2022/8/28), *Nanomaterials*, 12(17), 2974.
<https://doi.org/10.3390/nano12172974>
12. Farhan Sattar, Wajeehah Shahid, Abdul Waheed Anwar, Muhammad Aamir Iqbal, Maria Malik, Nadia Anwar, Faryal Idrees, Syed Zaheer Ud Din, Qudsia Kanwal (2022/2/1). "Synthesis and characterization of Zn doped AlSb thin films for photovoltaic and energy applications." *Zeitschrift für Naturforschung A*, De Gruyter.
<https://doi.org/10.1515/zna-2021-0335>
13. Wajeehah Shahid, Samiah Shahid, Muhammad Aamir Iqbal, Faryal Idrees, Syed Zaheer Ud Din, Atta Ullah Shah, Khan Alam, Qudsia Kanwal, Sadia Sagar Iqbal (2022/1/1). "Laser irradiation effects on structural, morphological and mechanical characteristics of iron". *Zeitschrift für Naturforschung De Gruyter A*, 77(1), 87-92.
<https://doi.org/10.1515/zna-2021-0208>
14. Saman Iqbal¹, Muhammad Shahid Rafique², Sultan Akhtar³, Nida Iqbal⁴, Faryal Idrees^{1,*}, Arshad Mahmood⁵, (2022), "Role of Hydrogen Flow Rate for the Growth of Quality Nanodiamonds via Microplasma Technique", 2 (8), 214-224, *Materials Innovations*. HEXA PUBLISHERS.
<http://doi.org/10.54738/Mi.2022.2804>
15. **BOOK CHAPTER:** Muhammad Aamir Iqbal, Maria Malik, Wajeehah Shahid, Syed Zaheer Ud Din, Nadia Anwar, Mujtaba Ikram, Faryal Idrees (2022/1/20). "Materials for Photovoltaics: Overview, Generations, Recent Advancements and Future Prospects". *IntechOpen*
16. **BOOK CHAPTER:** Muhammad Aamir Iqbal, Naila Ashraf, Wajeehah Shahid, Deebea Afzal, Faryal Idrees, Raice Ahmad (2021/9/17). "Fundamentals of Density Functional Theory: Recent Developments, Challenges and Future Horizons." *IntechOpen*, DOI: 10.5772/intechopen.99019.
17. **BOOK CHAPTER:** Faryal Idrees, Fauzia Iqbal, Saman Iqbal, Amir Shehzad Shah, Husnain Joan (2021). "Photoelectrochemical Properties for Metal Hybrid Materials Oxide-Carbon (2021)." *Elsevier* DOI: 0.21741/9781644901090.

EXTERNAL VIVA

VOCE

- SYNTHESIS, CHARACTERIZATION AND OPTICAL PROPERTIES OF TIN SULPHIDE NANOSTRUCTURES, MUHAMMAD BABAR, MS Physics, Session Fall 2018-2020, scheduled on 05-05-2021, Division of Science & Technology, University of Education, Township, Lahore
 - Synthesis of Two Dimensional Graphitic Carbon Nitride Nanostructures and their Photoluminescence Properties, JAWAD AHMAD JRAR, MS Physics, Session Fall 2018-2020, scheduled on 05-08-2021, Division of Science & Technology, University of Education, Township, Lahore
 - Synthesis and characterization of Zirconium doped Nickel Sulphide by Faiza Amin (M.Phil)- GCWUF, under supervision of Yusra Arooj, M.Phil, 2022.
 - Gram Scale Synthesis and Characterization of Nickel Vanadium Oxide-Carbon Nitride Composites, Sagar Iqbal MSF 2100264, under supervision of Faheem K Butt, Department of Physics, Division of Science And Technology, University of Education Lahore, 2023.
 - Effect of Activated Carbon On Zinc Vanadium Oxide And Their Biosensing Properties, Ms Javeria Qadir, Student ID: msf2202042, under supervision of Faheem K Butt, Department of Physics, Division of Science And Technology, University of Education Lahore, 2024.
18. **BOOK CHAPTER:** Maria Malik, Muhammad Aamir Iqbal, Wajeehah Shahid, Syed Zaheer Ud Din, Mujtaba Ikram, Nadia Anwar, Samiah Shahid, Faryal Idrees. "Overview of Liquid Crystal Research: Computational Advancements, Challenges, Future Prospects and Applications", IntechOpen. 2022.
 19. Idrees, F., F. K. Butt, S. B. Hammouda, (2021), **Progression in Photocatalytic Materials for Efficient Performance**, *Catalysts* 11(4):169. 472.
 20. Wajeehah Shahid, Samiah Shahid, Muhammad Aamir Iqbal, Jianhua Huo, Rashid Karim, Faryal Idrees (2021/11/1). "An improved photocatalytic activity of H₂ production: a hydrothermal synthesis of TiO₂ nanostructures in aqueous triethanolamine". *Zeitschrift für Naturforschung A De Gruyter*, 76 (11), 1061-1066.
 21. Zia Ur Rehman, Faheem K Butt, Narmina O Balayeva, Faryal Idrees, Jianhua Hou, Zeeshan Tariq, Sajid Ur Rehman, Bakhtiar Ul Haq, Salem Alfaify, Saif Ali, Sher Zaman, (2021/12/1). "Two dimensional graphitic carbon nitride Nanosheets as prospective material for photocatalytic degradation of nitrogen oxides." *Diamond and Related Materials(Elsevier)*, 120,108650.
 22. Maryam Qasim, Jianhua Hou, M. A. Qadeer, Sajid Butt, M. Hassan Farooq, M. Qasim Farooq, Faryal Idrees, M. Tanveer, Jijun Zou, and Muhammad Tahir (2019). **Nitrogen-Doped Carbon Nanosheets Decorated With Mn₂O₃ Nanoparticles for Excellent Oxygen Reduction Reaction**, *Frontiers in Chemistry*(07):741.
 23. J Hou, J Tang, K Feng, F Idrees, M Tahir, X Sun, X Wang (2019). "The chemical precipitation synthesis of nanorose-shaped Bi₄O₅I₂ with highly visible light photocatalytic performance." *Materials Letters* 252, 106-109.
 24. T Jiang, J Jin, J Hou, M Tahir, F Idrees (2019). **Bi₄O₅I₂/nitrogen-doped hierarchical carbon (NHC) composites with tremella-like structure for high photocatalytic performance**, *Chemosphere*, 229:426-433.
 25. J Hou*, T Jiang, R Wei, F Idrees*, DW Bahnemann (2019). **Ultrathin-layer structure of BiOI microspheres decorated on N-doped biochar with efficient photocatalytic activity**, *Frontiers in Chemistry* 7: 378.
 26. Idrees, F., Dillert, R., Bahnemann, D., F. K. Butt, M. Tahir (2019). **"In-Situ Synthesis of Nb₂O₅/g-C₃N₄ Heterostructures as Highly Efficient Photocatalysts for Molecular H₂ Evolution under Solar Illumination."** *Catalysts* 9(2):169.
 27. Fayyaz Ahmad, Farwa Idrees, Fazal-e-Aleem and Faryal Idrees* **Recent Advancements in Microwave-Assisted Synthesis of NiO Nanostructures and their Supercapacitor Properties: A Comprehensive Review**, *Current Nanomaterials*, 2018, 3, (DOI:10.2174/2405461503666180305161202)
 28. Hou, J., K. Jiang, M. Tahir, X. Wu, F. Idrees, M. Shen and C. Cao (2017). **"Tunable porous structure of carbon nanosheets derived from puffed rice for high energy density supercapacitors."** *Journal of Power Sources* 371: 148-155.
 29. Hou, J., K. Jiang, M. Shen, R. Wei, X. Wu, F. Idrees and C. Cao (2017). **"Micro and nano hierarchical structures of BiOI/activated carbon for efficient visible-light-photocatalytic reactions."** *Scientific reports* 7(1): 11665.
 30. Tahir, M., L. Pan, F. Idrees, X. Zhang, L. Wang, J.-J. Zou and Z. L. Wang (2017). **"Electrocatalytic oxygen evolution reaction for energy conversion and storage: A comprehensive review."** *Nano Energy* 37: 136-157.
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EXTERNAL VIVA VOCE

- Effects of solvents on synthesis, characterization and biosensing on manganese vanadium oxide. Rafia Zafar, MPhil-OPS-10-F22, School of Physical Sciences, University of the Punjab, Lahore.
- MXENE BASED SCHOTTKY-JUNCTION FOR UNASSISTED PHOTOELECTROCHEMICAL WATER SPLITTING, Sohaib Khalid, 243980095, FCCU, Lahore.

COURSES TAUGHT

- Nanotechnology and Nanoelectronics
- Solid State Physics-I
- Introduction to Materials Science
- Renewable Energy Resources
- Probability and Statistics
- Linear Algebra
- Computer Science II
- COMPUTATIONAL PHYSICS-I
- Electronic Devices and Circuits
- Physics Lab-III
- Physics Lab-IV
- Heat and Thermodynamics
- Solar Energy
- Projects
- Techniques in statistical physics

COURSES DEVELOPED

- RENEWABLE ENERGY RESOURCES, PH.D/M.PHIL, DEPARTMENT OF PHYSICS, UNIVERSITY OF LAHORE.
- ELECTROCHEMICAL ENERGY SYSTEMS, PHYS 5816, PH.D/M.PHIL, DEPARTMENT OF PHYSICS, UNIVERSITY OF THE PUNJAB, LAHORE

32. Ali, Z., M. Tahir, C. Cao, A. Mahmood, N. Mahmood, F. K. Butt, M. Tanveer, I. Shakir, M. Rizwan and F. Idrees (2016). "Solid waste for energy storage material as electrode of supercapacitors." *Materials Letters* **181**: 191-195.
33. Hou, J., T. Cao, F. Idrees and C. Cao (2016). "A co-sol-emulsion-gel synthesis of tunable and uniform hollow carbon nanospheres with interconnected mesoporous shells." *Nanoscale* **8**(1): 451-457.
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39. Hou, J., C. Cao, F. Idrees and X. Ma (2015). "Hierarchical porous nitrogen-doped carbon nanosheets derived from silk for ultrahigh-capacity battery anodes and supercapacitors." *ACS nano* **9**(3): 2556-2564.
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DEPARTMENT COMMITTEES

- Focal of ORIC
- Incharge Conferences and External Linkages
- Member Department QEC
- Member Discipline Council of Department
- Member Department Technical Evaluation Committee
- INCHARGE PHOTOCATALYSIS AND ENERGY STORAGE LAB
- ASSISTANT MODREN PHYSICS LAB
- Member MPhil/PhD Test Management Committee

ADVISORY

- SEEKING QS GLOBAL ACADEMIC/EMPLOYER SURVEY PARTICIPATION CONSENT, for University of Education Lahore
- SEEKING QS GLOBAL ACADEMIC/EMPLOYER SURVEY PARTICIPATION CONSENT, for Khwaja Fareed University of Engineering and Information Technology (KFUEIT)
- MEMBER PC-I PREPERATION
- MEMBER FIVE-YEAR PLAN PREPERATION

46. Butt, F. K., M. Mirza, C. Cao, F. Idrees, M. Tahir, M. Safdar, Z. Ali, M. Tanveer and I. Aslam (2014). "Synthesis of mid-infrared SnSe nanowires and their optoelectronic properties." *CrystEngComm* **16**(17): 3470-3473.
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49. Butt, F. K., C. Cao, T. Mahmood, F. Idrees, M. Tahir, W. S. Khan, Z. Ali, M. Rizwan, M. Tanveer and S. Hussain (2014). "Metal-catalyzed synthesis of ultralong tin dioxide nanobelts: Electrical and optical properties with oxygen vacancy-related orange emission." *Materials Science in Semiconductor Processing* **26**: 388-394.
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55. Butt, F. K., M. Tahir, C. Cao, F. Idrees, R. Ahmed, W. S. Khan, Z. Ali, N. Mahmood, M. Tanveer and A. Mahmood (2014). "Synthesis of novel ZnV₂O₄ hierarchical nanospheres and their applications as electrochemical supercapacitor and hydrogen storage material." *ACS applied materials & interfaces* **6**(16): 13635-13641.
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- grown indium selenide microwires." *ACS applied materials & interfaces* **6**(12): 9550-9556.
60. Sajad Hussain Chuanbao Cao, W. S. K., Ghulam Nabi, Zahid Usman, Abdul Majid, Thamer Alharbi, Zulfiqar Ali, Faheem K Butt, Muhammad Tahir, MuhammadTanveer, Faryal Idrees (2014). "**Cu₂O/TiO₂ nanoporous thin-film heterojunctions: Fabrication and electrical characterization.**"
 61. Butt, F. K., C. Cao, W. S. Khan, M. Safdar, X. Fu, M. Tahir, F. Idrees, Z. Ali, G. Nabi and D. Yu (2013). "**Electrical and optical properties of single zigzag SnO₂ nanobelts.**" *CrystEngComm* **15**(11): 2106-2112.
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 63. Aslam, I., C. Cao, M. Tanveer, W. S. Khan, M. Tahir, M. Abid, F. Idrees, F. K. Butt, Z. Ali and N. Mahmood (2014). "**The synergistic effect between WO₃ and gC₃N₄ towards efficient visible-light-driven photocatalytic performance.**" *New Journal of Chemistry* **38**(11): 5462-5469.
 64. Idrees, F., C. Cao, F. K. Butt, M. Tahir, M. Tanveer, I. Aslam, Z. Ali, T. Mahmood and J. Hou (2013). "**Facile synthesis of novel Nb₃O₇F nanoflowers, their optical and photocatalytic properties.**" *CrystEngComm* **15**(40): 8146-8152.
 65. Tahir, M., C. Cao, F. K. Butt, F. Idrees, N. Mahmood, Z. Ali, I. Aslam, M. Tanveer, M. Rizwan and T. Mahmood (2013). "**Tubular graphitic-C₃N₄: a prospective material for energy storage and green photocatalysis.**" *Journal of Materials Chemistry A* **1**(44): 13949-13955.
 66. Mahmood, T., C. Cao, M. Tahir, F. Idrees, M. Ahmed, M. Tanveer, I. Aslam, Z. Usman, Z. Ali and S. Hussain (2013). "**Electronic, elastic, acoustic and optical properties of cubic TiO₂: A DFT approach.**" *Physica B: Condensed Matter* **420**: 74-80.
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 69. Mahmood, T., C. Cao, F. K. Butt, H. Jin, Z. Usman, W. S. Khan, Z. Ali, M. Tahir, F. Idrees and M. Ahmed (2012). "**Elastic, electronic and optical properties of cotunnite TiO₂ from first principles calculations.**" *Physica B: Condensed Matter* **407**(22): 4495-4501.

RESEARCH STUDENTS

Sr No	Year	Thesis Title	Name	Supervisors
PhD				
01	29/07/2015-04/02/2019 Graduated	Synthesis and characterization of Doped and Undoped Metal Oxide Multilayer Thin Films	Mr. Muhammad Iftikhar	Dr. Faryal Idrees Dr. Khurshid Aslam
02	DPH01171001 2022 Graduated	Chalcogenides-based heterostructures for photocatalytic applications	Ms. Wajeehah Shahid	Dr. Faryal Idrees Dr. Sadia Sagar

03	PhD-03F20 (Working, Synopsis Approved)	Hydrothermal Synthesis of Niobium-Based Heterostructures for Photocatalytic Applications	Mr. Muhammad Saad Tanveer	Dr. Faryal Idrees Dr. Saman Iqbal
04	PhD-02F24	Competing Course Work and doing a literature review	Raffia Javed Hashmi	Dr. Faryal Idrees
05	PhD-04F24	Competing Course Work and doing a literature review	Muhammad Irfan	Dr. Faryal Idrees
M.Phil/MS				
01	15-09-2014 28-12-2016 Graduated	Template free microwave-assisted synthesis of NiO with controlled morphology, growth habit and growth mechanism	Fayyaz Ahmad	Dr. Faryal Idrees Ms Farwa Idrees
02	(2015-2017) Graduated	Emission of Ions from Laser Induced Plasma Using Faraday Cups and Fabrication of Faraday Cups	Tariq Hussain	Dr. Faryal Idrees Ms Wajeehah Shahid
03	(2015-2017) Graduated	Detection of Ions from Laser Induced Plasma Using Solid State Nuclear Track Detectors (CR-39)	Zafar Iqbal	Dr. Faryal Idrees Ms Wajeehah Shahid
04	(2016-2018) Graduated	ROLE of TITANIUM DIOXIDE NANOPARTICLES (TiO ₂ -NPs) to REMOVE CADMIUM (Cd) From WASTEWATER	Waseem Gill	Dr. Faryal Idrees Mr. Atif Arshad
05	PHP01173048 2017-2019 Graduated	Nanostructure Fabrication of Iron Oxide for Photocatalysis	Muhammad Qasim Farooq	Dr. Faryal Idrees Dr. Muhammad Tahir
06	PHP01181031 2017-2019 Graduated	Hydrothermal synthesis and Characterization of TiO ₂ nanostructures for Photocatalytic applications	Rashid Karim	Dr. Faryal Idrees Ms Wajeehah Shahid
07	PHP01183050 2018-2020 Graduated	Synthesis and Characterization of Cobalt and Molybdenum doped graphite Carbon Nitride	Imam Yar Baig	Dr.Faryal Idrees Dr.Usman Qadri
08	PHP01183057 2018-2020 Graduated	Synthesis and Characterization of Tungsten based nanostructures for advanced photocatalytic applications	Amir Shehzad	Dr.Faryal Idrees Ms Wajeehah Shahid
09	PHP01183046 2018-2020 Graduated	Synthesis and Characterization of Co doped Nb ₂ O ₅ and Mo doped Nb ₂ O ₅ nanostructures	Sidra Shaheen	Dr.Faryal Idrees Ms Wajeehah Shahid
10	PHP01183058 2018-2020 Graduated	Laser study of GCN/ Nb ₂ O ₅	Muhammad Umair Tariq	Dr.Faryal Idrees Dr.Usman Qadri
11	PHP01183059 2018-2020 Graduated	Laser study of GCN	Muhammad Bilal	Dr.Faryal Idrees Dr.Usman Qadri
12	PHP01183017 2018-2020 Graduated	Synthesis and characterization of Nb ₂ O ₅ to enhanced Photocatalytic activity	Husnain Joan	Dr.Faryal Idrees Ms Wajeehah Shahid
13	2018-2020 Graduated	Molybdenum and Cobalt Doped TiO ₂ synthesis and characterization	Mirza Ammar Afzal Baig	Dr. Faryal Idrees Ms Wajeehah Shahid
14	PHP01183010 2018-2020 Graduated	In-Situ synthesis and characterization of WO ₃ /TiO ₂ heterostructures and TiO ₂ /WO ₃ heterostructures	Sidra Liaqat	Dr. Faryal Idrees Ms Wajeehah Shahid

15	M.Phil-13F21 2021-2023 Graduated	Theoretical description of structural, electronic, elastic, mechanical and optical response of $Ba_{1-x}Cd_xTiO_3$ for optoelectronic applications	Aleena Fatima	Dr. Faryal Idrees Dr. Muhammad Rizwan
16	MS-26F22 2022-2024 Graduated	Nickel Manganese Cobalt Oxide (NMCO) and Nickel Manganese Oxide (NMO) Based Electrodes Studied for Energy Storage Applications	Shoaib Akram	Dr. Faryal Idrees
17	MPhil-OPS-11-F22 2022-2024 Graduated	Development of $Cu_2V_4O_{11}$ Cathodes as Asymmetric Aqueous Zinc-ion Batteries	Dure Sameen	Dr. Muhammad Rizwan Dr. Faryal Idrees
18	MS-11F22 2022-2024 Graduated	Electrochemical measurements of Cellulose /Zirconia nanocomposite as a Battery Separator	Aliya Yousaf	Dr. Saman Iqbal Dr. Faryal Idrees
19	PHYS71F22S027 2022-2024 Graduated	Synthesis and Characterization of Ternary Metal Oxide Nanocomposites for Photocatalytic and Antibacterial Applications	Saqib Ahmad	Dr. Muhammad Zahid Ishaque Dr. Faryal Idrees
20	MS-08F23 2023-2025 Graduated	Engineering Bismuth Oxides for Enhanced Charge Transfer to Improve Electrochemical and Photocatalytic Performance	Razia Shabbir	Dr. Faryal Idrees
21	MS-11F23 2023-2025 Graduated	Enhanced Performance of Ni-Doped Bi_2Se_3 for Stable Zinc-Ion Battery Cycling, Efficient Photocatalytic Degradation, and Photoelectrochemical Applications	Sitara Farooq	Dr. Faryal Idrees
22	MS-16F23 2023-2025 Graduated	Bi-Doped $g-C_3N_4$ for Enhanced Photocatalytic Degradation of Organic Dyes	Muhammad Khushnood	Dr. Faryal Idrees
23	MS-121F23 2023-2025 Working	Green Synthesis of Zirconia Nanoparticles for Enhanced Flame-Retardant Performance in PVA-Coated Cellulose Separators	Ayesha Aslam	Dr. Saman Iqbal Dr. Faryal Idrees
24	MS 2023-2025	Tentative	Zaib-un-Nisa	Dr. Faryal Idrees
25	MS-121F23 2024-2026	Tentative	Muhammad Hassan	Dr. Faryal Idrees