



## FARYAL IDREES

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

## RESEARCH INTERESTS

Energy Related materials:  $\text{Nb}_2\text{O}_5$ ,  $\text{VO}_2$ ,  
Carbon-based materials  
Supercapacitors (Symmetric and  
Asymmetric)  
Li ion batteries  
Photocatalyst  
Hydrogen storage  
Solar Water Splitting and Hydrogen  
Production  
Electrochemistry  
Laser Photolysis

## VITALS

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## RESEARCH GATE

[https://www.researchgate.net/profile/Faryal-Idrees?ev=hdr\\_xprf&sg=t-wJsGKHrll78HC2EHeVhHV8HFrDrbpbOqr9kCxzSE1aBCCHq80iUcDuY6J8Bv9HnuRuFn0\\_78lf7IboyWDt6U7](https://www.researchgate.net/profile/Faryal-Idrees?ev=hdr_xprf&sg=t-wJsGKHrll78HC2EHeVhHV8HFrDrbpbOqr9kCxzSE1aBCCHq80iUcDuY6J8Bv9HnuRuFn0_78lf7IboyWDt6U7)

## 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 57 SCI papers, and 4 Book Chapters, in impact factor journals
- Total impact factor of more than 310
- Citations > 5490, h-index 30, i-10 index 45
- Working on and worked on 4 highly funded projects
- Research work presented in several international conferences
- Total of 5 academic awards.
- 02 PhD and 15 M.Phil research students are supervised and graduated, and 02 PhDs are conducting their research.
- Collaborator of Research and Development Team of SunRay Green Tech Company.

## 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: 4<sup>th</sup>

### B.SC (HONS.) IN COMPUTATIONAL PHYSICS

[2005-2009]

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

Grade: A

CGPA: 3.91 out of 4.0

Position: 4<sup>th</sup>

## REFERENCES

Prof. Detlef Bahnemann  
(Post-Doctoral Host)

[bahnemann@iftc.uni-hannover.de](mailto:bahnemann@iftc.uni-hannover.de)

Prof. Mahmood ul Hassan  
(Chairman)

[chairman.physics@pu.edu.pk](mailto:chairman.physics@pu.edu.pk)

Prof. Cao Chuanbao (Ph.D  
Supervisor) [cbcao@bit.edu.cn](mailto:cbcao@bit.edu.cn)

Dr. Nasir Mahmood (Ex-  
Colleague) [nasir.mahmood@rmit.edu.au](mailto:nasir.mahmood@rmit.edu.au)

## 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

DFT

Latex

Mathematica (5 & 6)

C # , C++

Origin 8

X'Pert High Score

## AWARDS AND ACTIVITIES

- Pakistan Higher Education Commission (HEC)-Approved Supervisor
- International Organizer of International Conference on Recent Advances in Physics, 7-9th April, 2018, Department of Physics, The University of Lahore
- Conference Secretary of International Conference on Materials Science and Nano Technology, 25th September 2016, Department of Physics, The University of Lahore
- Excellent student Award awarded by Beijing Institute of Technology for 2013-2014.
- Outstanding student Award awarded by Beijing Institute of Technology for 2013-2014.
- Outstanding student Award awarded by Beijing Institute of Technology for 2012-2013.
- During Bachelors obtained "HEC-Outstanding Students Scholarship by President" 2005-2008.
- several times.
- <http://phys.org/news/2015-03-silk-green-material-next-generation-batteries.html>
- <http://www.sciencedaily.com/releases/2015/03/150311124431.htm>
- <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>

## CONFERENCES/SEMINARS/WORKSHOPS

### ORGANIZED

- International Organizer of International Conference on Recent Advances in Physics, 7-9th April 2018, Department of Physics, The University of Lahore.
- Conference Secretary of International Conference on Materials Science and Nano Technology, 25th September 2016, Department of Physics, The University of Lahore.
- Working as a Mentor of WEmpower Pakistan group for young scientist, where she has presented her work several times.
- Member of National Advisory Board of "First International Conference on Advances in Functional Materials" February 20-22, 2023.
- Chief Organizer of "First International Conference on Advances in Functional Materials" February 20-22, 2023.

## 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: **“Effective Photo- and Electro-catalysts for Sustainable Future”** for Frontiers in Chemistry, Journal impact factor 5.221.
- 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.

## ATTENDED

- “Synthesis and Characterizations of MoS<sub>2</sub>/WO<sub>3</sub> Heterostructures for Efficient Photocatalytic Efficiency”, Virtual Speaker Presentation in International Conference on Catalysis and Chemical Engineering, March 20-21, 2023, Belstay Roma Aurelia, Rome, Italy, Organized By: SciSynopsis LLC Atlanta, GA 30326, USA.
- “Development of Heterostructures Photocatalytic Application to Nb<sub>2</sub>O<sub>5</sub>/g-C<sub>3</sub>N<sub>4</sub> Heterostructures as Efficient Photocatalyst,” 1st International Conference on Advances in Material Science (AIMS 2020), organized by University of Education, Lahore, 23rd-24th July 2020, Oral Presentation.
- “An improved photocatalytic activity of H<sub>2</sub> production: A hydrothermal synthesis of TiO<sub>2</sub> nanostructures in aqueous triethanolamine,” 2nd International Conference on Advances in Material Science at AIMS 2021 (University of Education, Lahore), 5-6 October 2021, Invited Speaker.
- “Nb<sub>2</sub>O<sub>5</sub>/g-C<sub>3</sub>N<sub>4</sub> Heterostructures as Highly Efficient Photocatalysts for Molecular H<sub>2</sub> Evolution under Solar Illumination”, 2nd International Physics Conference on Emerging Trends in Material Science & Technology, (Lahore Garrison University), 05-06 Apr 2021, Invited Speaker.
- “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.
- 3rd International Conference on Advances in Materials Science (AIMS-2022) organized by University of Education, Lahore, 15-16 December 2022, Invited Speaker.
- Presented paper in “The 10th Postgraduate Forum, School of Materials Science and Engineering”, BIT, May 28, 2013, the paper published in proceedings.
- Presented paper in BOND21-Joint International Conference on Nanoscience, Engineering, and Management, Malaysia, 19-21 August 2013, the paper published in proceedings.
- Participated in THE 9th ALL PAKISTAN MOBILINK GIKI SCIENCE FAIR held on 22-24 February 2008.
- Participated in SOFTEC '08 held at FAST-NU, Lahore Campus on 30-31 August 2008.
- International Scientific Spring - 2011, March 01-04, 2011.

## PUBLICATIONS

1. Muhammad Umair Tariq, Detlef Bahnemann, Faryal Idrees, Saman Iqbal, Fauzia Iqbal, Faheem K Butt, Jeong Ryeol Choi, Muhammad Bilal,

## RESEARCH PROJECTS

### INTERNATIONAL 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.
- “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.

### 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 H<sub>2</sub> Generation, URG-PU.
- Hydrothermal Synthesis of Niobium-based Nanostructures for Photocatalytic Applications, URG-PU

- (2023/5/28). “Laser flash photolysis study of Nb<sub>2</sub>O<sub>5</sub>/g-C<sub>3</sub>N<sub>4</sub> heterostructures as efficient photocatalyst for molecular H<sub>2</sub> evolution”, *Heliyon*, Elsevier. <https://doi.org/10.1016/j.heliyon.2023.e16772>
2. 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 Ba<sub>1-x</sub>Cd<sub>x</sub>TiO<sub>3</sub> for optoelectronic applications”, *Materials Today Communications*, Elsevier, 35, 105925. <https://doi.org/10.1016/j.mtcomm.2023.105925>
  3. Wajeehah Shahid, Faryal Idrees\*, Muhammad Aamir Iqbal, Muhammad Umair Tariq, Samiah Shahid, Jeong Ryeol Choi\*, “Ex Situ Synthesis and Characterizations of MoS<sub>2</sub>/WO<sub>3</sub> Heterostructures for Efficient Photocatalytic Degradation of RhB.” (2022/8/28), *Nanomaterials*, 12(17), 2974.
  4. 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*.
  5. 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.
  6. Saman Iqbal<sup>1</sup>, Muhammad Shahid Rafique<sup>2</sup>, Sultan Akhtar<sup>3</sup>, Nida Iqbal<sup>4</sup>, Faryal Idrees<sup>1,\*</sup>, Arshad Mahmood<sup>5</sup>, “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>, 2022.
  7. **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*
  8. **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.
  9. **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.
  10. **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.
  11. Idrees, F., F. K. Butt, S. B. Hammouda, (2021), **Progression in Photocatalytic Materials for Efficient Performance**, *Catalysts* 11(4):169-472.
  12. Wajeehah Shahid, Samiah Shahid, Muhammad Aamir Iqbal, Jianhua Huo, Rashid Karim, Faryal Idrees (2021/11/1). “An improved photocatalytic activity of H<sub>2</sub> production: a hydrothermal synthesis of TiO<sub>2</sub> nanostructures in aqueous triethanolamine”. *Zeitschrift für Naturforschung A De Gruyter*, 76 (11), 1061-1066.

## REVIWER

- Facile synthesis of porous g-C<sub>3</sub>N<sub>4</sub> with enhanced visible-light photoactivity, *Molecules* (ISSN 1420-3049)
  - One Pot Synthesis of Chlorophyll-Assisted Exfoliated MoS<sub>2</sub>/WS<sub>2</sub> Heterostructures via Liquid Phase Exfoliation Method for Photocatalytic Hydrogen Production, *Nanomaterials* (ISSN 2079-4991)
  - Ternary Rh-TiO<sub>2</sub>-CeO<sub>2</sub> Hybrid Photocatalysts for Efficient Photocatalytic Hydrogen Production, *Nanomaterials* (ISSN 2079-4991)
  - Bioremoval of toxic malachite green from water through simultaneous decolorization and degradation using laccase immobilized biochar, *Chemosphere*
  - Photocatalytic Decomposition of N<sub>2</sub>O 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.
  - Co<sub>3</sub>O<sub>4</sub>/g-C<sub>3</sub>N<sub>4</sub> Hybrids for Gas-Phase Hg<sup>0</sup> 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.
  - TiO<sub>2</sub> 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/SnO<sub>2</sub>-X/Bi<sub>4</sub>O<sub>5</sub>I<sub>2</sub> 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
13. 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.
  14. 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 Mn<sub>2</sub>O<sub>3</sub> Nanoparticles for Excellent Oxygen Reduction Reaction**, *Frontiers in Chemistry*(07):741.
  15. J Hou, J Tang, K Feng, F Idrees, M Tahir, X Sun, X Wang (2019). "The chemical precipitation synthesis of nanorose-shaped Bi<sub>4</sub>O<sub>5</sub>I<sub>2</sub> with highly visible light photocatalytic performance." *Materials Letters* 252, 106-109.
  16. T Jiang, J Jin, J Hou, M Tahir, F Idrees (2019). **Bi<sub>4</sub>O<sub>5</sub>I<sub>2</sub>/nitrogen-doped hierarchical carbon (NHC) composites with tremella-like structure for high photocatalytic performance**, *Chemosphere*, 229:426-433.
  17. 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.
  18. Idrees, F., Dillert, R., Bahnemann, D., F. K. Butt, M. Tahir (2019). "In-Situ Synthesis of Nb<sub>2</sub>O<sub>5</sub>/g-C<sub>3</sub>N<sub>4</sub> Heterostructures as Highly Efficient Photocatalysts for Molecular H<sub>2</sub> Evolution under Solar Illumination." *Catalysts* 9(2):169.
  19. 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)
  20. 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.
  21. 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.
  22. 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.
  23. Idrees, F., J. Hou, C. Cao, F. K. Butt, I. Shakir, M. Tahir and F. Idrees (2016). "Template-free synthesis of highly ordered 3D-hollow hierarchical Nb<sub>2</sub>O<sub>5</sub> superstructures as an asymmetric supercapacitor by using inorganic electrolyte." *Electrochimica Acta* 216: 332-338.
  24. 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.
  25. 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.
  26. Tahir, M., N. Mahmood, X. Zhang, T. Mahmood, F. K. Butt, I. Aslam, M. Tanveer, F. Idrees, S. Khalid and I. Shakir (2015). "Bifunctional catalysts of Co<sub>3</sub>O<sub>4</sub>@ GCN tubular nanostructured (TNS) hybrids for oxygen and hydrogen evolution reactions." *Nano Research* 8(11): 3725-3736.

## EXTERNAL VIVA VOICE

- 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.
27. Butt, F. K., F. Idrees, M. Tahir, C. Cao, R. Hussain, R. Ahmed and B. U. Haq (2015). "Fabrication of ZnV<sub>2</sub>O<sub>6</sub> nanostructures: Their energy storage and PL properties." *Materials Letters* **155**: 15-17.
  28. Butt, F. K., C. Cao, F. Idrees, M. Tahir, R. Hussain, R. Ahmed and W. S. Khan (2015). "Novel Zn<sub>2</sub>V<sub>2</sub>O<sub>7</sub> hierarchical nanostructures: Optical and hydrogen storage properties." *international journal of hydrogen energy* **40**(30): 9359-9364.
  29. Tahir, M., N. Mahmood, J. Zhu, A. Mahmood, F. K. Butt, S. Rizwan, I. Aslam, M. Tanveer, F. Idrees and I. Shakir (2015). "One dimensional graphitic carbon nitrides as effective metal-free oxygen reduction catalysts." *Scientific reports* **5**: 12389.
  30. Idrees, F., C. Cao, R. Ahmed, F. K. Butt, S. Butt, M. Tahir, M. Tanveer, I. Aslam and Z. Ali (2015). "Novel nano-flowers of Nb<sub>2</sub>O<sub>5</sub> by template free synthesis and enhanced photocatalytic response under visible light." *Science of Advanced Materials* **7**(7): 1298-1303.
  31. 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.
  32. Tanveer, M., C. Cao, I. Aslam, Z. Ali, F. Idrees, W. S. Khan, M. Tahir, S. Khalid, G. Nabi and A. Mahmood (2015). "Synthesis of CuS flowers exhibiting versatile photo-catalyst response." *New Journal of Chemistry* **39**(2): 1459-1468.
  33. Aslam, I., C. Cao, M. Tanveer, M. H. Farooq, W. S. Khan, M. Tahir, F. Idrees and S. Khalid (2015). "A novel Z-scheme WO<sub>3</sub>/CdWO<sub>4</sub> photocatalyst with enhanced visible-light photocatalytic activity for the degradation of organic pollutants." *RSC Advances* **5**(8): 6019-6026.
  34. Khalid, S., C. Cao, A. Ahmad, L. Wang, M. Tanveer, I. Aslam, M. Tahir, F. Idrees and Y. Zhu (2015). "Microwave assisted synthesis of mesoporous NiCo<sub>2</sub>O<sub>4</sub> nanosheets as electrode material for advanced flexible supercapacitors." *Rsc Advances* **5**(42): 33146-33154.
  35. Aslam, I., C. Cao, M. Tanveer, M. H. Farooq, M. Tahir, S. Khalid, W. S. Khan, F. Idrees, M. Rizwan and F. K. Butt (2015). "A facile one-step fabrication of novel WO<sub>3</sub>/Fe<sub>2</sub>(WO<sub>4</sub>)<sub>3</sub>·10.7H<sub>2</sub>O porous microplates with remarkable photocatalytic activities." *CrystEngComm* **17**(26): 4809-4817.
  36. Butt, F. K., C. Cao, F. Idrees, M. Tahir, R. Hussain and A. Z. Alshemary (2015). "Fabrication of V<sub>2</sub>O<sub>5</sub> super long nanobelts: optical, in situ electrical and field emission properties." *New Journal of Chemistry* **39**(7): 5197-5202.
  37. Butt, F. K., C. Cao, Q. Wan, P. Li, F. Idrees, M. Tahir, W. S. Khan, Z. Ali, M. J. Zapata and M. Safdar (2014). "Synthesis, evolution and hydrogen storage properties of ZnV<sub>2</sub>O<sub>4</sub> glomerulus nano/microspheres: a prospective material for energy storage." *international journal of hydrogen energy* **39**(15): 7842-7851.
  38. 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.
  39. Idrees, F., C. Cao, F. K. Butt, M. Tahir, I. Shakir, M. Rizwan, I. Aslam, M. Tanveer and Z. Ali (2014). "Synthesis of novel hollow microflowers (NHMF) of Nb<sub>3</sub>O<sub>7</sub>F, their optical and hydrogen storage properties." *international journal of hydrogen energy* **39**(25): 13174-13179.
  40. Aslam, I., C. Cao, W. S. Khan, M. Tanveer, M. Abid, F. Idrees, R. Riasat, M. Tahir, F. K. Butt and Z. Ali (2014). "Synthesis of three-dimensional WO<sub>3</sub> octahedra: characterization, optical and efficient photocatalytic properties." *RSC Advances* **4**(71): 37914-37920.

## COURSES TAUGHT

- NANOTECHNOLOGY AND NANO ELECTRONICS
- 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

41. 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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## COURSES DEVELOPED

ELECTROCHEMICAL ENERGY SYSTEMS, PHYS 5816, DEPARTMENT OF PHYSICS, PH.D/M.PHIL.

- $\text{gC}_3\text{N}_4$  micro strings with high surface area and versatile photodegradation ability." *CrystEngComm* **16**(9): 1825-1830.
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## RESEARCH STUDENTS

Sr No	Year	Thesis Title	Name	Supervisors
<b>PhD</b>				
01	29/07/2015-04/02/2019	Synthesis and characterization of Doped and Undoped Metal Oxide Multilayer Thin Films	Mr. Muhammad Iftikhar	Dr. Faryal Idrees Dr. Khurshid Aslam
02	DPH01171001 2022	Chalcogenides-based heterostructures for photocatalytic applications	Wajeehah Shahid	Dr. Faryal Idrees Dr. Sadia Sagar
<b>M.Phil</b>				
01	PHP01173048 2017-2019 Graduated	Nanostructure Fabrication of Iron Oxide for Photocatalysis	Muhammad Qasim Farooq	Dr. Faryal Idrees Dr. Muhammad Tahir
02	PHP01181031 2017-2019 Graduated	Hydrothermal synthesis and Characterization of $\text{TiO}_2$ nanostructures for Photocatalytic applications	Rashid Karim	Dr. Faryal Idrees Ms Wajeehah Shahid



03	PHP01183050 2018-2020 Graduated	Synthesis and Characterization of Cobalt and Molybdenum doped graphite Carbon Nitride	Imam Yar Baig	Dr.Faryal Idrees Dr.Usman Qadri
04	PHP01183057 2018-2020 Graduated	Synthesis and Characterization of Tungsten based nanostructures for advanced photocatalytic applications	Amir Shehzad	Dr.Faryal Idrees Ms Wajeehah Shahid
05	PHP01183046 2018-2020 Graduated	Synthesis and Characterization of Co doped Nb <sub>2</sub> O <sub>5</sub> and Mo doped Nb <sub>2</sub> O <sub>5</sub> nanostructures	Sidra Shaheen	Dr.Faryal Idrees Ms Wajeehah Shahid
06	PHP01183058 2018-2020 Graduated	Laser study of GCN/ Nb <sub>2</sub> O <sub>5</sub>	Muhammad Umair Tariq	Dr.Faryal Idrees Dr.Usman Qadri
07	PHP01183059 2018-2020 Graduated	Laser study of GCN	Muhammad Bilal	Dr.Faryal Idrees Dr.Usman Qadri
08	PHP01183017 2018-2020 Graduated	Synthesis and characterization of Nb <sub>2</sub> O <sub>5</sub> to enhanced Photocatalytic activity	Husnain Joan	Dr.Faryal Idrees Ms Wajeehah Shahid
09	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
10	(2015-2017) Graduated	Emission of Ions from Laser Induced Plasma Using Faraday Cups and Fabrication of Faraday Cups	Tariq Hussain	Dr. Faryal Idrees Wajeehah Shahid
11	(2015-2017) Graduated	Detection of Ions from Laser Induced Plasma Using Solid State Nuclear Track Detectors (CR-39),	Zafar Iqbal	Dr. Faryal Idrees Wajeehah Shahid
12	(2016-2018) Graduated	ROLE of TITANIUM DIOXIDE NANOPARTICLES (TiO <sub>2</sub> -NPs) to REMOVE CADMIUM (Cd) From WASTEWATER	Waseem Gill	Dr. Faryal Idrees Atif Arshad
13	2018-2020 Graduated	Molybdenum and Cobalt Doped TiO <sub>2</sub> 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 <sub>3</sub> /TiO <sub>2</sub> heterostructures and TiO <sub>2</sub> /WO <sub>3</sub> 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 <sub>1-x</sub> Cd <sub>x</sub> TiO <sub>3</sub> for optoelectronic applications	Aleena Fatima	Dr. Faryal Idrees Dr. Muhammad Rizwan