Rehana Riaz

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Profile

- A hard working and committed person can do research work in any dynamic environment.
- Excellent written and oral communication skills.
- Ability to communicate with others in a polite way.
- A team player with a desire to work hard to deliver the results.

Education

PhD	International Islamic University Islamabad **"Simulation Fabrication and Characterization of Ultra Shallow Junctions in CMOS" Micro Electronic Processing, Microsystem &Technologies, Material, Laser Physics**
M. Phil	**(**Islamia University Bahawalpur**) "Spectroscopic Evaluation of Glow Discharge Plasmas" Advanced Electronic, cold plasma Physics, Computational Physics**
B.Ed	Government Old Degree College Bahawalpur
M. Sc	Islamia University Bahawalpur, **Physics**
B. Sc	**I**slamia University Bahawalpur**) Double Math Physics**
F. Sc	Government Old Degree College Bahawalpur, **Physics, Chemistry, Biology**
SSC	Government Higher Secondary School Model Town 'A' Bahawalpur**)**

Simulation Packages used

- **SRIM**
- **SUSPRE**
- **Sentaurus TCAD**
- **SIMNRA**

Working Experience on Instruments

- **Hall Measurement System HMS3000**
- **CV System**
- **4200 (Keithley Electrical Characterization System)**
- **AFM**
- **FTIR**
- **XRD**
- **Ellipsometry**
- **SEM**
- **PECVD**
- **ALD**

Computer Skills

- **MS-office**
- **Excel, ORIGIN**

Research and Teaching Experience

- One year (2001-2002) research experience on plasma physics (Glow Discharge Plasmas)
- Two year (2002-2004) teaching experience as a lecturer in Government college.
- Four (2006-2011) Years Research Experience on HEC funded project "Formation and Characterization of Ultra-shallow Junctions for Future Generations of CMOS Nano-electronics".
- One and a half year (2010-2011) teaching experience as a visiting lecturer in International Islamic University Islamabad.
- Four years (2011-2015) teaching experience as a lecturer in CESET (Center for Emerging Sciences engineering and Technology).
- May, 2015 - August, 2017 teaching in Federal Urdu University as an Assistant Professor (IPFP)
- From November, 2017 to till now teaching in International Islamic University, as an Assistant Professor (Department of Physics).
- As a PI on HEC funded Start up **Research Grant Program (SRGP)** titled "**Fabrication of graphene with little alteration in Hummer's Method ".**

Courses Taught

BS/M.Sc: **1. Solid State Physics**

2. Nuclear Physics

3. Electricity and Magnetism

4. Optoelectronics

5. Digital Electronics

6. Microelectronic Devices

7. Intro to Nano Science & Technology

MS:

Accelerator Techniques for Material Analysis

Nano Materials and applications

PhD:

1. Advanced Semiconductor Device Processing

2. Optical Fibers Devices and Sensors

3. Advanced Nanoscience and Technology

Trainings Obtained

- Participated in 6th International Workshop and training course on microelectronics Micro and nano-electronics and Photonics held in Islamabad, Pakistan April 2007
- Participated in internship program on Ion Beam Analysis Techniques held in National Center for Physics Islamabad from 26-07-2010 to 19-08-2010
- Attended SILVACO TCAD Training held in International Islamic University Islamabad from March, 3 to March, 5 2010.

Involvement in Departmental/Faculty administration

- Member of the curriculum committee.
- Responsible for exam date sheet.
- Member of committee to make and conduct exams and interviews for BS, MS/PhD.
- Member Graduate Research Committee.
- Member Departmental Board.

- Member Course Exemption Committee

List of Publications

- Rehana Riaz *Capped Co/ZnO nanocomposites: A comparative study of antibacterial activity with alumina, silica, and ceria,* Results in Chemistry. 15(**2025**), 102301
- Maryam Ejaz**, Rehana Riaz** and Shuja Ahmed**, Analyzing the opto electronic dynamics of ZnO/CeO_2 Nano composites at higher annealing temperatures (600˚C and 900˚C).** Physica Scripta**, (2025)**
- **Rehana Riaz**, Muskan Zaheer Mughal. "***Photocatalytic Degradation of Organic Pollutants Using Zinc Doped Cobalt Oxide: A Sustainable Approach for Environmental Remediation***", Am J Biomed Sci & Res. 25 (**2025**) 6.
- **Rehana Riaz** and Syed Ahmed Shuja. "***Examining the Antibacterial Activity of Cerium Oxide, Zinc Doped Cerium Oxide for E. Coliand S. Auerus"***, Am J Biomed Sci & Res. 25(**2024**) 2.
- **Rehana Riaz**, Naza Bano and Waqar-un- Nisa. :"***Antibacterial Potential of Cerium Oxide and Cobalt Doped Cerium Oxide Against E. Coli and S. Aureus***", Am J Biomed Sci & Res. 25(**2024**) 2
- Fatima Gull, **Rehana Riaz**, Komal Ansari, Haleema Atiq "***Examining the Photo catalytic Potency of Annealed and Un-annealed ZnO and Nickel Doped ZnO for Degradation of Organic Pollutants in Waste",*** *Waters Scientific reports 14**(2024)** 21828.*
- Komal. Ansari, **Rehana Riaz**, Fatima Gull, Haleema Atiq. ***"\|Incorporation of zinc oxide and cobalt doped zinc oxide nano-rods in commercial sunscreen sample to optimize its UV-ray absorption***" Physica Scripta, 99(**2024**) 075051.
- S. Ahmed and **Rehana . Mustafa**. "***Fabrication and Structural Characterization of Co-implanted Ultra Shallow Junctions for Integration in Piezoresistive Silicon Sensors Compatible with CMOS Processing***" IOP Conf. Series: Materials Science and Engineering 51(2013) 012004.
- **Rehana Mustafa,** S. Ahmed, S. Shahzada, M. Turab and E. U. Khan "***Ellipsometry and RBS Characterization of Temperature Dependent Silicon Ultra Shallow Junctions for Sub 10nm Applications***" J. Basic. Appl. Sci. Res. 3(6) 178-182 (2013).

- **Rehana Mustafa,** S. Ahmed and E. U. Khan. "***Formation of co-implanted Silicon Ultra Shallow Junctions for Low Thermal Budget Application***" Chin. Phy. Lett. 30(1), 016101-1- 016101-4 (2012).
- **Rehana Mustafa,** S. Ahmed and E. U. Khan "***Post implant annealing dynamics for next generation ultra-shallow junctions in CMOS nanoelectronics***" Submitted in J. Appl. Phy.
- S. Ahmed, **R. Mustafa**, S. Abdullah and E. U. Khan "***Post implant annealing dynamics for next generation ultra-shallow junctions in CMOS nano-electronics" National Conference***, NCP Islamabad, March, **2011**
- **Rehana Mustafa**, A. A. Khurrum, E. U. Khan "***Characterization of Metal Oxide Semiconductor Field Effect Transistor (MOSFET) Gate Electrode Reduction*** "National Conference, NCP Islamabad, Jan, **2010**

- **R. Mustafa**, S. Ahmed, C. Wang, S. Abdullah and E. U. Khan "***Smart Junction Formation in Nano-electronic Devices for Applications in Power Generation Systems***" International Conference on Power Generation Systems and Renewable Energy Technologies, Islamabad Nov 29 to Dec. 02, **2010**

- **R. Mustafa**, S. Ahmed, C. Wang, S. Abdullah and E. U. Khan "***Smart Junction Formation in Nanoelectronic Devices for Applications in Power Generation Systems***" International Conference on Power Generation Systems & Renewable Energy Technologies, International Islamic University , Islamabad, 29th November to 2nd December **2010**

- Q. M. Ahkam, S. Ahmed, A. , E. U. Khan, **R. Mustafa** and M. Mumtaz "***Defect Engineering of Silicon Substrate for Future Generation Photovoltic Cell Fabrication***" International Conference on Power Generation Systems & Renewable Energy Technologies, International Islamic University , Islamabad, 29th November to 2nd December **2010**

- **Rehana Mustafa** and E. U. Khan "***Characterization of Metal Oxide Semiconductor Field Effect Transistor (MOSFET) Gate Electrode Reduction*** "First Science Conference CIIT Abotabad 28-29 July **2009**
- **R. Mustafa**, A. Mehmood, A. Fouda, T. Al-Zanki, B. Sealya, S. Biswas and A. Shuja "***Fabrication of ultra-shallow junctions for sub 45 node technology***" 6th International Workshop and Training Course on Micro-electronics, (COMSATS – NAM

S&T), Islamabad, Islamabad 09-13 April **2007**

- **R. Mustafa**, A. Mehmood, A. Fouda, T. Al-Zanki, B. Sealya, S. Biswas and A. Shuja "***Next generation ultra-shallow junctions for sub 45 node technology***" 10th International Symposium on Advanced Materials (ISAM), Islamabad 03-07 September **2007**

- M. Ramzan, **R. Mustafa** and K. A. Chaudhary "***Synthesis and Characterization of a – C:H Films by Thermal and Photo CVD Techniques***" 8th International Symposium on Advanced Materials (ISAM), Islamabad 08-11 September **2003**

- T. Batool, **R. Mustafa**, Z. Iqbal, M. S. Ghauri and K. A. Chaudhary "***Chemical Modulation of Plastic Sheets***" 8th International Symposium on Advanced Materials (ISAM), Islamabad 08-11 September **2003**

- S. Sarwar, Zafer Iqbal, **Rehana Mustafa** and Khaliq Chaudhary "***Spectroscopic Analysis of Low Pressure Hydrogen Cold Plasma***" Journal of Pure and Applied Sciences Vol. 21 No. 1 June **2002**, pp 13-20 ISSN 3643