AYESHA FAROOQ

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Objective:

To pursue my career in academic/research environment where I can apply and advance my knowledge to the best of my abilities and transfer it to next generation.

Expertise:

Research experience in "Growth of nanostructures and their characterizations, Renewable energy, Solar cells, material Science".

Hands on Experience in operation and maintenance of Electron beam evaporation system, Ultrahigh vacuum systems, Tube and Box Furnaces, Dielectric measurement instruments, X-Ray diffraction, Scanning Electron Microscopy, Electrical Measurements (I-V, C-V-F, C-V-W), Spectroscopy (Raman, FTIR, PL, UV-Vis, XPS), Ellipsometry, Electro-impedance spectroscopy, and Interferometry.

Teaching Experience of fifteen years. I have been teaching BS courses since 2004. Mostly to BS computer sciences. BE computer engineering, BE telecommunication engineering, BS physics and BS electronics. Courses that I taught and am still teaching are Applied Physics, Mechanics and Thermodynamics, Solid State Physics, Heat and Thermodynamics and Lab courses.

Apart from it I have an active part of discipline committee, scholarship awarding committee, time table and examination in-charge, sports committee member and admission committee member.

Qualification:

M.Phil: Solid State Physics, 1st Class **M.Sc:** Physics, 1st Class

Language Proficiency:

IELTS: 7.5 band

Publications:

1. Muhammad Shahzad Riaz, Tahir Nazir, **Ayesha Farooq**, Muhammad Arslan Shehzad, Arshad Saleem Bhatti, "Anomalous photoluminescence and UV light sensing characteristics of ZnO:Ga nanowires—role of Ga content", Journal of Materials Science, Materials in Electronics (2019) 30:15285–15292.
2. Sajjad Hussain, Kamran Akbar, Dhanasekaran Vikraman, Rana Afzal, Woo-Seok Song, Ki-Seok An, **Ayesha Farooq**, Jun-Young Park, Seung-Hyun Chun, and Jongwan Jung, $WS_{(1-x)}Se_x$ Nanoparticles Decorated Three-Dimensional Graphene on Nickel Foam: A Robust and Highly Efficient Electrocatalyst for the Hydrogen Evolution Reaction. *Nanomaterials*. 2018; 8(11):929.
3. Malik Abdul Rehman, Imtisal Akhtar, Woosuk Choi, Kamran Akbar, **Ayesha Farooq**, Yongho Seo, "Influence of an Al2O3 interlayer in a direct grown graphene-silicon Schottky junction solar cell" Carbon Volume 132, June 2018, Pages 157-164.
4. A. S. Bhatti, M. Chaudhry, M. A. Rehman, A. Gul, **A. Farooq** and R. Qamar, "The effect of varied pH environment on the optical efficiency of ZnS nanowires and CdSe/ZnS quantum dots as biomarkers," *2017 Eleventh International Conference on Sensing Technology (ICST)*, Sydney, NSW, 2017, pp. 1-4.
5. F. Saeed, **A. Farooq**, A. Ali, S. Mehmood, C. Cepek, S. Bhardwaj, Anwar Ul-Hamid and A. S. Bhatti, "Anomalous optical behavior in pyramid like Indium Oxide (In_2O_3) nanostructures", Materials Science & Engineering B, 262 (2020) 114781
6. Humaira Arshad, Madeeha Chaudhry, Shahid Mehmood, Ayesha Farooq, Minqiang Wang & A. S. Bhatti, "The electrochemical reaction controlled optical response of cholestrol oxidase (COx) conjugated CdSe/ZnS quantum dots", Scientific Reports, (2020) 10:20439.

Working Experience: Teaching and Research

From December 2004 - to date at COMSATS University Islamabad

Working as Assistant Professor and taught following courses to undergraduates

Solid State Physics, Mechanics, Thermodynamics, Applied physics, Heat and Thermodynamics, Modern physics.

Co-Supervision of MS Physics students.

Academic/Research Projects:

- Currently I am involved in the research related to Zinc Silicate Nanowires, their growth kinematics and characterization, renewable energy sources like solar cells, hydrogen fuel cells and lithium ion batteries etc.
- M.Phil research work was on **"Phase Transition and Optical Characterization of Thin Films"**. During research I have worked on ***Edward 306 vacuum evaporation system*** to deposit Thin Films of $CdSe_{0.1}Te_{0.9}$ and $CdSe_{0.6}Te_{0.4}$ at Center for Excellence in Solid State Physics, Lahore. I have worked on ***Rigaku X-ray Diffractometer*** with high temperature attachment to take the phase transition plots of the above mentioned samples. Also for the study of "Optical Characterization of Thin Films", I have worked on the ***Shimadzu UV-204 Spectrophotometer***. For thickness of the samples I used ***interferometer***.
- M.Sc research work was on **"Dielectric Properties Measurements of Different Materials"**. During research I worked on ***"Dielectric Measuring Apparatus"*** at PCSIR Lahore.

Conferences/Schools/Workshops:

- I won TRIL Fellowship from ICTP to work at MM labs Electra, **Trieste, Italy** from 13th – 22nd October 2019.
- Participated in Pakistan workshop on electrochemical energy storage – batteries & supercapacitors (21st December, 2017), Islamabad Pakistan
- Organized and attended, TUD – CIIT International mini-School on Quantum and Ultrafast Optics: Theory and Experiment (October 04-06, 2017), Islamabad, Pakistan
- "National workshop on X-Ray Photoelectron Spectroscopy (XPS)-2016", 30th -31st May
- Organized and attended, *"joint international workshop on Nanotechnology policy, ethics and science",* at PAK-China, March 25th -27th, 2013, Islamabad Pakistan.
- Attended the workshop on thin film deposition and characterization at Department of Physics, CIIT, April 9th -11th, 2012, Islamabad, Pakistan.
- Organizer of, "*ISESCO-COMSATS-NSF International Conference on Nanomaterials and Nano Ethics*", December 01-03, 2011, Lahore, Pakistan.
- Participant and Organizer of, "*6th International Workshop & Training Course on Microelectronics*", April 9th to 13th, 2007, Islamabad, Pakistan.
- Participant and Organizer of, "*International Mini-Symposium on "Nanoscience and Technology*", Nov 2nd to 3rd, 2006, Islamabad, Pakistan.

- Participant of, "*International workshop on Physics of Renewable Energy, Organized by International Center for theoretical physics*", **Trieste, Italy,** October 17th to 19th, 2005.
- Participant of Seminar on, "*Growth of nano structure*", by John H Weaver, Feb 13th-17th, 2005, Islamabad, Pakistan.
- Participant of 12 Days lecture series by Dr. Suhail Zuberi on, "*Quantum Computing*", 2004, COMSATS IIT Department of Physics, F-8 Islamabad.

References:

Dr. Ishaq Ahmad

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