Ambreen Ayub, Ph.D.

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PROFESSIONAL SUMMARY

A researcher skilled in synthesis of Quantum Dots, Polymers and their Composites. Enthusiastic to improve the efficiency of Quantum Dot Sensitized Solar Cell technology and discussed their characterizations. Acquired research training from the prestigious Quaid-i-Azam University, Islamabad, Pakistan and the prestigious Pakistan Council of Renewable Energy Technology, Islamabad.

EMPLOYMENT HISTORY

Contract Faculty (Lecturer) 1st Aug, 2005 – 24th Feb, 2012
University of Wah | Wah Cantt, Pakistan.
Taught many 3 credit hours courses to BS and MSc students:

- Mechanics I & II
- Classical Mechanics
- Experimental Physics
- Nuclear Physics

PhD candidate/ Research Scholar March 2011 - Dec 2018
Quaid-i-Azam University | Islamabad, Pakistan
Worked on various Characterizations and Applications in order to improve the efficiency of Quantum Dot Sensitized Solar Cells.

- Produced three research papers in peer-reviewed journals.
- Got training in X-Ray Diffraction analysis, FTIR analysis, UV-vis Spectroscopy for study of inorganic material used in solar cells.

Contract Faculty (HOD/Assistant Professor) Jan 2020 to May 2023
Women University Swabi| Swabi, Pakistan
Additionally worked as the Head of Department (Physics).
Taught many 3 credit hours courses to BS and MSc students:

- Plasma Physics
- Modern Physics
- Electrodynamics I & II
- Experimental Physics

- Increased the efficiency by 80 % by strengthening the Department with state-of-the-art Physics Laboratory.
- Conducted First Board of Studies of Physics Department.
- Organized one day workshop on optics.

Contract Faculty (Provost) Jan 2020 to Oct 2022
Women University Swabi| Swabi, Pakistan
Duties

- All societies worked under Provost Section.
- Discipline of University Students is also checked by Provost Office.
- All events of University are also supervised by Provost Office
- All competitions are also conducted under Provost Office.
- Gate Passes to female students are also issued by Provost Office
- Clearance forms are also signed by Provost Office.

Contract Faculty (Director ORIC) Oct 2022 to May 2023
Women University Swabi| Swabi, Pakistan
Duties

- All events of University are also supervised by ORIC Office
- All seminars, workshops, trainings. Symposium and conferences are also conducted under ORIC Office.
- Research, Innovation and Commercialization is also facilitated by ORIC office

Permanent TTS Faculty (Assistant Professor) May 2023 to date
Women University Mardan| Mardan, Pakistan
Taught many 3 credit hours courses to BS and MSc students:

- Nuclear Physics
- Solid State Physics
- Electrodynamics
- Experimental Physics
- Mathematical Method of Physics

EDUCATION

Ph. D., Physics (Specialization: Materials Science/Nanotechnology/Solar Cell Technology) 2019
Quaid-i-Azam University | Islamabad, Pakistan

Master of Philosophy, Physics (Specialization: Materials Science/Thin Film Technology) 2004
University of the Punjab | Lahore, Pakistan

Master of Science, Physics 2001
University of the Punjab | Lahore, Pakistan

Bachelor of Science, Pre-Engineering 1998
University of the Punjab | Lahore, Pakistan

SKILLS

1. Spin Coater and Heating Magnetic Stirrer for the Fabrication of Fourth Generation Solar Cell (PCRET, Isb)
2. Fourth Generation Solar Cell characterization using Xenon Lamp inside Glove Box (PCRET, Isb)
3. Resistive Heating System in order to prepare Films and Contacts (PCRET, Isb)
4. LCR Meter in order to find AC conductivity Graphs by Changing Frequency and Temperature (PCRET, Isb)
5. LCR Meter in order to find AC Dielectric Measurements by Changing Frequency and Temperature (PCRET, Isb)
6. UV/VIS/NIR absorption spectrophotometer (PCRET, Isb)
7. Potentiostat in order to find out Electrochemical Impedence Spectroscopy and Cyclic Voltametry (PCRET, Isb)
8. Heating Magnetic Stirrer for the Chemical Synthesis of Quantum Dots, Conducting Polymers and their Nanocomposites (QAU, Isb)
9. Centrifuge Machine for Washing of Synthesized Quantum Dots, Conducting Polymers and their Nanocomposites (QAU, Isb)
10. Meta Press Machine Metkon for making Pellets of samples (QAU, Isb)
11. Four Probe Method in order to find out DC Conductivity by varying Temperature (QAU, Isb)

12. Edward 306 Vacuum Evaporation system to deposit thin films (PU, Lhr)
13. Rigaku X-Ray Diffractometer with high temperature attachment to take the phase transition plots of the above mentioned sample (PU, Lhr)

ACHIEVEMENTS

2011-2015 Higher Education Commission Indigenous Scholarship for Ph.D. Studies.
Successfully Qualified GRE (Physics) Exam conducted by ETS in November, 2012.

WORKSHOPS

Oct, 2020 Organized and worked as a resource person in a one-day workshop on Optics at Department of Physics, Women University Swabi, Swabi, Pakistan.

PUBLICATIONS

1. **Ambreen Ayub**, A. Shakoor, A. Elahi, and T. Z. Rizvi, "Optical and electronic properties of layer-by-layer and composite polyaniline-cadmium selenide quantum dot films, Superlattices Microstructures. **84**, 154 (2015) [IF: **3.3**]
2. **Ambreen Ayub,** A. Shakoor, A. Elahi, and T. Z. Rizvi, "Study of Structural, Electrical and Dielectric Behavior of Cadmium Selenide Quantum Dots/Polyaniline Nanocomposites, Polymer Science, Series A, **59**, 233–241 (2017) [IF: **1.0**]
3. **Ambreen Ayub**, Afzal H. Kamboh, Muhammad Imran, Tasneem Z. Rizvi, Nawazish A. Khan, "Cadmium Sulphide/Cadmium Selenide Quantum Dot Solar Cells with Inexpensive Electrodeposited Silver/Polyanniline Composite Counter –Electrode", Journal of Renewable and Sustainable Energy, **9**, 063703 (2017) [IF: **2.1**]
4. I. Mehmood, A. K. Shah, S. A. Khan, M. Kiani, N. Z. Khan, A. Saeed, **Ambreen Ayub**, F. Khan, H. Jincheng, S. Muhammad, L. Jiang, L. Guijun, S. Agathopoulos, "Effect of Mg-doped CdS co-sensitization on performance of CuInSe2 quantum dot sensitized solar cells", Journal of Physics and Chemistry of Solids, **162**, 110502 (2021) [IF: **4.3**]
5. T. Abbas, E. U. Haq, **Ambreen Ayub**, A. Dawood, " Entropy- dependent solitons in ETG-drivcn magneto plasma", VFast Transactions on Mathematics, **10**, 35-51 (2022) [IF: **0.7**]
6. A. Dawood, N. Ahmed, S. Bashir, A. Hayat, S. M. A. Sarfraz, **Ambreen Ayub, "**Laser Ablation of Copper Alloy under Varying Environmental Conditions to Achieve Purpose-Built Surface Structures", Coatings, **12** (2022) [IF: **3.1**]
7. T. Abbas, R. Zafar, S. Anjum, **Ambreen Ayub**, Z. Hussain, "An Innovative Soft Rough Dual Hesitant Fuzzy Sets and Dual Hesitant Fuzzy Soft Rougfh Sets", VFast Transactions on Mathematics, **11,** 17-27 (2023) [IF: **0.7**]
8. A. Fatima, S. Iqbal, T. Fazal, B. Ismail, M. Shah, **Ambreen Ayub**, Q. Mahmood, N. S. Awwad, H. A. Ibrahium, F. F. Al-Fawzan, E. B. Elkaeed, "Optimization of Deposition Conditions of $SrZrS_3$ Perovskite Thin Films Grown by Chemical Bath Deposition", Journal of Electronic Materials, (2023) [IF: **2.2**]
9. S. Iqbal, G. Parveen, **Ambreen Ayub**, S. Gul, T. Batool, N. Tara, A. Sami, A. H. Khowaja, "Formulation Of Nano-Fertilizer And Phytochemical Screening Of Orange

Peel Utilized To Enhance The Growth Of *Vigna Radiata,"* International Journal of Phytopathology, **12**, 261-271 (2023) [IF: **0.61**]

10. S. Shad, A. Ibrar, A. Bibi, **Ambreen Ayub**, M. Iqbal, B. Lal, B. S. Al-Anzi,, K. H. Thebo, "Single-step wet chemical synthesis of Co-doped Bi_2O_3 photoanode for dye sensitized solar cells", Emergent Materials, (2024) [IF: **4.8**]
11. L. Kareem, S. Shad, M. Siddiq, M. Farooq, A. Haleem, **Ambreen Ayub**, A. Ibrar M. Iqbal, "Facile synthesis and characterization of palladium-loaded hydrophilic cryogels for catalytic and bactericidal applications", Emergent Materials, (2024) [IF: **4.8**]
12. **Ambreen Ayub,** A. Dawood, U. Kalsoom, S. sultan, F. Z. Duraihem, S. Ullah, Q. Malik, M. Javed, M. A. Khan, "The influence of laser fluences on surface properties, plasma formation, and microhardness of Mg-alloy", Nuclear Instruments and Methods in Physics Research B, **549,** 165295 (2024) [IF: **1.4**]
13. A. Dawood, M. A. Khan, S. Bashir, **Ambreen Ayub**, A. Hayat, J. H. Sanderson, N. A. Chishti, "Examining The Role Of Magnetic Fields In Plasma Behavior And Surface Evolution Of A Mg Alloy With Varied Irradiances In A Femtosecond Laser Treatment," Applied Optics, **63**, 13 (2024) [IF: **1.905**]
14. A. Dawood, M. A. Khan, S. Ullah, I. Ali, S. Saghir, Z. Ullah, **Ambreen Ayub**, Z. Jabeen, J. Ahmad, M. S, Khan, "High-Performance Nano Assemblies for Heavy-Metal Filtration from Waste Water", Nano-Structures and Nano-Objects, 39, 101209 (2024) (IF: **5.914**]
15.

Total IF: **36.829**

REFERENCES

1. **Dr. Nawazish A. Khan**
   Professor
   Materials Science Lab, Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan.
   Tel # +923335350599 E-mail: nawazishalik2@yahoo.com
2. **Dr. Afzal H Kamboh**
   Director General
   Pakistan Council of Renewable Energy Technologies (PCRET), Islamabad, Pakistan
   Tel # +923215065303 E-mail: afzal8isb@yahoo.com
3. **Dr. Uzma Ghazanfar**
   Professor
   Dean Natural Sciences

   Department of Physics, University of Wah, Wah Cantt, Pakistan

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