Curriculum Vitae

Dr. Aqsa Arshad

Lecturer

Department of Physics, International Islamic University

Islamabad Pakistan

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Research Profile

Experimental research experience in synthesis, characterization and magnetic properties of graphene, graphene based nanocomposites, metal oxides, and non-metal oxide nanostructures; their photocatalytic and bio-medical applications, transition metal oxide/graphene nanocomposites and low temperature nano-magnetism.

Theoretical research experience on two-dimensional electron gas system and monolayer graphene.

Education

- **Ph. D** (Physics)

  Title of thesis: Fabrication and characterization of carbon based nanostructures

  Department of Physics, International Islamic University, Islamabad, Pakistan, and

  Department of Physics, Durham University, Durham DH1 3LE, United Kingdom.

- **M. Phil** (Physics)

  Title of thesis: Energy loss of charged particles in two-dimensional electron gas systems

  Department of Physics, Quaid-i-Azam University Islamabad, Pakistan

- **M. Sc (**Physics)

  Department of Physics, Quaid-i-Azam University Islamabad, Pakistan

Research and Professional Experience

- **Visiting researcher, Durham University, United Kingdom**
  Oct 2016-April 2017; Aug 2017-Sep 2017; Dec 2017
- **Visiting researcher, ISIS muon and neutron source, STFC Rutherford Appleton Laboratory, Harwell Science and Innovation Campus, Didcot, Oxfordshire, UK.**
  March 2017; Dec 2017.
- **Lecturer, International Islamic University, Islamabad, Pakistan**
  December 2010 to date
- **Lecturer, University of Wah, Rawalpindi, Pakistan.**
  October 2009 to December 2010
- **Visiting lecturer, Bahria University, Islamabad, Pakistan.**
  September 2009- February 2010

Experimental Expertise

1. Design and development of an indigenous photocatalytic chamber.
2. Hands on experience on Physical Properties Measurement System (PPMS)
3. Hands on experience on Magnetic Properties Measurement System (MPMS)
4. Hands on experience on Vibrating Sample Magnetometer (VSM)
5. UV-vis Spectrophotometer
6. Hands on experience on use of various instruments involved in chemical methods of synthesis e.g., blender for shear exfoliation of bulk materials, centrifugation machines, sonicator, hydrothermal autoclaves, drop-casting, use of inert gases, electrical ovens, box and tube furnaces etc.
7. Hands on experience on use of Raman Spectrophotometer (Ramboss) and Photoluminescence Spectrophotometer.

Computer/Software Expertise

1. Operating System: WINDOWS
2. Packages: Origin, WiMDA, Scientific Work Place, Image J, MS Office, Crystalmaker, Endnote, Chemdraw, Adobe Illustrator,

Research Project

1. Local magnetism in graphene/transition metal oxides nanocomposites
As co-investigator

at ISIS, Rutherford Appleton Laboratory, Oxford, United Kingdom and Durham University, Durham, United Kingdom

Refereed Publications

2014- 2018

1. Arshad, A., Iqbal, J., Mansoor, Q., Graphene/Fe_3O_4 nanocomposite: solar light driven Fenton like reaction for decontamination of water and inhibition of bacterial growth, (2018), *Applied Surface Science*, https://doi.org/10.1016/j.apsusc.2018.05.046
2. Arshad, A., Iqbal, J., Mansoor, Q., Ahmad, I., Graphene/Fe_3O_4 nanocomposite: interplay between photo Fenton type reaction and carbon purity for the removal of methyl orange, (2018), *Ceramics International*, 44, 2643
3. Arshad, A., Iqbal, J., Mansoor, Q., NiO-nanoflakes grafted graphene: an excellent photocatalyst and a novel nanomaterial for achieving complete pathogen control, (2017), *Nanoscale*, 9, 16321
4. Arshad, A., Iqbal, J., Mansoor, Q., Ahmad, I., Graphene/SiO_2 nanocomposite: the enhancement of the photocatalytic and biomedical activity of SiO_2 nanoparticles by graphene, (2017), *Journal of Applied Physics*, 121(24), 244901
5. Arshad, A., Iqbal, J., Siddiq, M., Ali, M. U., Ali, A., Shabbir, H., Nazeer, U, B., Saleem, M, S., Solar light triggered catalytic performance of graphene-CuO nanocomposite for waste water treatment, (2017), *Ceramics International*, 43(14), 10654
6. Arshad, A., Iqbal, J., Siddiq, M., Mansoor, Q., Ismail, M., Mehmood, F., Ajmal, M., Abid, Z., Graphene nanoplatelets induced tailoring in photocatalytic activity and antibacterial characteristics of MgO/graphene nanoplatelets nanocomposites, (2017), *Journal of Applied Physics*, 121(2), 024901
7. Mehmood, F., Iqbal, J., Jan, T., Ahmed, W., Ahmed, W., Arshad, A., Mansoor. Q., Ilyas. S. Z., Ismail, M., Ahmed, I., Effect of Sn doping on structural, optical, electrical, and anticancer properties of WO_3 nanoplates, (2016), *Ceramics International*, 42(13), 14334–1434.
8. Iqbal, J., Jan, T., Shafiq, M., Arshad, A., Ahmad, N., Badshah, S., & Yu, R. Synthesis as well as Raman and optical properties of Cu-doped ZnO nanorods prepared at low temperature, (2014), *Ceramics International*, *40*(1), 2091-2095.
9. Iqbal, J., Jan, T., Ismail, M., Ahmad, N., Arif, A., Khan, & Arshad, A. Influence of Mg doping level on morphology, optical, electrical properties and antibacterial activity of ZnO nanostructures, (2014) *Ceramics International*, *40*(5), 7487-7493.
10. Jan, T., Iqbal, J., Ismail, M., Badshah, N., Mansoor, Q., Arshad, A., & Ahkam, Q. M. Synthesis, physical properties and antibacterial activity of metal oxides nanostructures, (2014), *Materials Science in Semiconductor Processing*, *21*, 154-160.

Conferences, Workshops and Seminars

1. A day with women physicists of Pakistan, 21st April 2014, at National Centre of Physics, Islamabad, PK as **participant**
2. The 3rd ASEAN-Pakistan Conference on Materials Science (APCoMS-3) November 25-27, 2014, at School of Chemical & Materials Engineering (SCME), NUST, Islamabad, PK as **poster presenter.**
3. Workshop on contemporary topics in nano-magnetism, Feb 23-26, 2015, at National Centre for Physics, Islamabad, PK as **participant**.
4. First CIIT International Spring School on Computational Materials, May 21-29, 2015, at CIIT Islamabad, PK as **participant.**

5. The 2nd Conference on Materials and Processes 2015 (CEMP 2015), Dec 22-23, 2015, at School of Chemical and Materials Engineering (SCME) NUST, Islamabad, PK as **oral presenter.**
6. ISESCO, Women in Science Conference 2016, March 08, 2016, at Quaid i Azam University, Islamabad, PK as **poster presenter.**
7. National Workshop on X-ray Photoelectron Spectroscopy, May 02-03, 2016**,** at National Centre for Physics, Islamabad, PK as **participant.**
8. National Workshop on Ion Beam Applications, June 02-03, 2016, at National Centre for Physics, Islamabad, PK as **participant.**
9. Building Brains, March 01, 2017 at Department of Physics, **Durham University**, Durham, UK as **participant**.
10. Advance Energy Materials, Sep 11-13, 2017 at **University of Surrey**, Guildford, United Kingdom as **oral presenter**.

Teaching

Solid State Physics I and II, Quantum Mechanics I and II, Electricity and Magnetism I and II, Classical Mechanics, Material Science, Physics at Nanoscale, and Under graduate laboratories.

Research Students Supervision

M. Phil Students

1. Aniqa Nawaz; (In process); (A study of $La_2O_3/La(OH)_3$ nanoribbons assembled mesoflowers and their nanocomposites with graphene)

2. Tahira Qammar; (In process); (SnO_2 nanorods decorated graphene: synthesis and physical properties)

3. Sadaf Siddique; (In process); (Synthesis and optical properties of Ni doped La_2O_3 nanoflowers)

4. Wajiha Fatima; (In process); (Synthesis and Characterization of Cu doped TiO_2 nanoparticles)

5. Bilqees; (In process); (Synthesis and Characterization of Co doped TiO_2 nanoparticles)

M. Sc. Students

1. Zubia Abid and Uzma Naheed; (co-supervision); (Cobalt oxide and titania nanocomposites)

BS Students

1. Sarosh Shamsi and Saira Qayyum; (Synthesis, characterization and optical properties of ZnO nanostructures)
2. Ummara Komal, Faiza Arif, Ammara Irshad; (Synthesis and characterization of MgO nanostructures)
3. Sidra Ibadat; (Synthesis and characterization of nanograss free TiO_2 nanotubes via anodization)
4. Sadia Ehsan; (Synthesis of In_2O_3 nanoparticles by electrochemical anodization and their characterization)
5. Mehrosh Fatima, Iqra Murtaza, Sehrish Kazmi; (co-supervision) (Synthesis and characterization of $W_xZn_{1-x}O$ hexagonal cylindrical structures)