Dr. Muhammad Shahid Arshad

Research Assistant

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Personal websites:

https://shahidarshad85.wixsite.com/myprofile

https://www.researchgate.net/profile/Muhammad_Shahid_Arshad

https://scholar.google.com/citations?user=N1VEbFAAAAAJ&hl=en

Education

February 2016-present	**Research Assistant at Department for Environmental Sciences and Engineering, D05, Kemijski inštitut, Ljubljana, Slovenija**
December 2011 – December 2015	**PhD in Nanoscience and Nanotechnology, Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia** Thesis title: *Magnetization distribution and reversal behaviour in 1D Co-Pt-based nanostructures*.
September 2008 – May 2011	**M.Sc Applied Physics, Royal Institute of Technology (KTH), Stockholm, Sweden**
January 2004 - July 2008	**B.Sc (Hons) - Physics, Punjab University, Lahore, Pakistan**

Overview of Research impact

The major contributions achieved are:

- **high quality international peer reviewed journals articles**: 11

published, 1 under process
- **conference oral/poster presentations in national/international vanue:** 21
- Research collaborations with 4 international partners

Professional Memberships

- Member of European and Slovenian Microscopy Society
- Member *IEEE* and *IEEE* Magnetic Society

Research Interest and Activities

- Electrodeposition of 1D nanostructures
- Heterogeneous catalysis
- Plasmonic Photocatalysis
- Physical phenomena: localized surface plasmon resonance, charge carrier dynamics, hot electron injection, Schottky barrier etc.
- Characterizations of nanostructures with SEM, SPM, XRD, XPS, TEM, FTIR, VSM, MFM, etc.
- Photocatalytic reduction of CO_2 to valuable compounds
- Photocatalytic degradation of environmental toxins from water and air
- Utilization of sun-light for photocatalytic activities
- Electronic structure of photocatalytic materials
- Light scattering & localized surface plasmon resonance simulations from spherical and arbitrary shaped nanostructures.

Active Scientific Research Collaborations

- Center for the Development of Nanoscience and Nanotechnology, Departamento de Física, Universidad de Santiago de Chile, Santiago 9170124, Chile
- Instituto de Ciencia de Materiales de Madrid, CSIC, 28049 Madrid, Spain.
- IFIMUP and IN—Institute of Nanoscience and Nanotechnology and Departamento Fisica e Astronomia, Universidade Porto, Rua do Campo Alegre 687, 4169-007 Porto, Portugal.
- IFW-Dresden, Institute for Metallic Materials, P.O. Box 270116, D-01171 Dresden Germany.

Skills

Software/OS	Origin 8.5 & 9.0, Python, Mathematica, Ubuntu, ImageJ, Micrograph (TEM image analysis), scanning probe microscopy images analysis with WSxM, Photo editing & Processing softwares (Corel Draw X6, Corel Photopaint X6, Adobe Photoshop CS6), Movie and animation editing with windows movie maker and Blender, Adobe Acrobat XI Pro, Microsoft Office (Word, Powerpoint, Excel), etc. • Simulation of light scattering from spherical and arbitrary shaped nanoparticles with MieLab, Mieplot 4.42, Light Scatter 2.2, DDSCAT7.6 etc. • Skill on many simulations tools on www.nanohub.org e.g. nanoDDSCAT+, Density Function Theory (DFT), etc.
Hardware	Scanning Probe Microscopy (AFM, MFM etc.), X-Ray Diffraction (XRD), Scanning Electron Microscopy and EDXS (JSM-7600F, Carl Zeiss SUPRA 35VP), Transmission Electron Microscopy (TEM), TEM data analysis, Fourier TIR, UV-Vis DR spectrometer (Perkin Elmer Lambda 650, Lambda 35), Photoelectrochemical measurements with three electrode cell, electrodeposition, Vibrating Sample Magnetometry (Microsense EZ7 & Lakeshore), Low & High temperature electrical Measurement with four probe technique.
Others	• Strong oral and written English communication skills • Excellent experimental, data analysis skills • Collaboration and teamwork skills, • Good administration and organizational skills • Ability to work to tight timescales and deadlines • Regularly participate in marathons and sports activities