Curriculum Vitae

Department of Physics
NED University of Engineering and Technology
Karachi, Pakistan
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Dr. UZAIR MAJEED

Education Profile:

PhD in Material Physics
Dec 2011- August 2016
University Tun Hussein Onn Malaysia

Thesis title: "Fabrication and Characterization of Silicon Nitride Thin Film Planar Waveguides Produced by RF Magnetron Sputtering Technique"

Brief Synopsis of Research: Silicon nitride based planar waveguides plays an important role in sensing applications. The silicon nitride thin films are selected as core layer in planar waveguides due to high as well as tunable refractive index, known surface chemistry and low propagation losses. We explored silicon nitride waveguide fabrication through RF magnetron sputtering technique at various sputtering parameters. These waveguides were then characterized for the structural, morphological, elemental, topographical and optical properties. Propagation losses were measured for the waveguides fabricated using optimized sputtering parameters.

M.Sc. in Physics
2005 - 2007
Specialization in Electronics
Federal Urdu University of Arts Science and Technology, Karachi

BSc. in Mathematics, Physics, Geography
2003 – 2004
University of Punjab

FSc. In Pre- Engineering
2001-2002
Govt. Gordon College, Rawalpindi

Professional Experience:

Assistant Professor, Department of Physics
NED University of Engineering and Technology
Karachi, Pakistan
Feb 2017 – To Date

Graduate Research Assistant, Department of Science
Universiti Tun Hussein Onn Malaysia
Dec 2011 – Oct 2016

Sales and Maintenance Officer
Techno World Instrument Service
Karachi, Pakistan
Jun 2009 – Nov2011

Production Supervisor, Moulding department
Otsuka Pakistan Limited
Mar 2008 – Feb2009

Research Experience:

MS level supervision:

- As main supervisor, supervising Ms. Sehrish Riaz for her independent study project titled "Synthesis and characterization of transition metal doped spinal ferrites" 2019.

- As main supervisor, supervising Ms. Shazia Shahnaz for her independent study project titled "Synthesis of egg shell based activated carbon for water treatment application" 2019.

- As main supervisor, supervising Ms. Laraib Abdul Latif for her independent study project titled " Characterization of coconut coir for sound absorption properties" 2019.

BS level supervision:

- **Ongoing final year projects:**
  i) The effect of activating agents on adsorption properties of activated carbon produced by tea waste.

  ii) Treatment of waste water using activated carbon produced by lignocellulosic biomass.

  iii) Characterization of tea waste based activated carbon for dye removal applications.

- **Completed final year projects:**
  i) Removal of heavy metal ion from aqueous samples using activated carbon technique (2019).

  ii) Study of the adsorption properties of activated carbon produced by tea, potato peel and peanut shell waste (2019).

  iii) Characterization of Graphene produced by ultrasonic exfoliation of graphite material in organic solvents (2018).

Core Knowledge and Skill Area:

- **Sample preparation**
  - Various cleaning procedures
  - Si and Glass substrates
- **Thin film deposition**
  - Magnetron Sputtering
  - Thermal Oxidation
  - Chemical Vapor Deposition
- **Characterization Equipments**
  - X-ray Diffractometer (XRD)
  - Field Emission – Scanning Elcetron Microscopy (FESEM)
  - Energy Dispersive Analysis of X-ray (EDAX)
  - Atomic Force Microscopy (AFM)
  - Surface Profiler
  - Spectral Reflectance
  - Fourier Transform Infra Red (FTIR) spectrophotometer
  - Ultraviolet Visible (UV-VIS) spectrosphotometer
- **Softwares**
  - EndNote
  - Mendeley
  - OriginLab
  - SigmaPlot

Research Publications:

- M K Mustafa, **U Majeed** and Y Iqbal. (2018). Effect on silicon nitride thin films properties at various powers of RF magnetron sputtering. International Journal of Engineering & Technology, 7 (4.30) 39-41 (Web of Science)

- **U Majeed**, MK Mustafa, Y Iqbal, S Aman, H Mohani, S Siddiqui, S Hasan (2018). Modification of Hansen solubility parameters in ultrasonic exfoliation technique to

achieve the optimized graphene dispersion. International Conference on Nanoscience and Nanotechnology (ICONN 2018). NUST Main Campus, Islamabad.Pakistan.

- MK Mustafa, Y Iqbal, **U Majeed**, MZ Sahdan (2017). Effect of precursor's concentration on structure and morphology of ZnO nanorods synthesized through hydrothermal method on gold surface. AIP Conference Proceedings 1788 (1), 030120.

- Mustafa, M. K., **Majeed, U.**, & Nayan, N. (2016). "Characterization of silicon nitride waveguide produced by RF sputtering technique." *ARPN Journal of Engineering and Applied Sciences*, 11(16). 9694-9698. (Web of Science)

- **Majeed, U.**, Mustafa, M. K., & Nayan, N. (2015). Effect on silicon nitride thin films properties at various pressure of RF magnetron sputtering. *Malaysian Journal of Fundamental and Applied Sciences*, *11*(2). 1-5. (Web of Science)

- Mustafa, M. K., **Majeed, U.**, & Nayan, N. (2014). Influence of target-to-substrate spacing on the RF magnetron sputtered silicon dioxide thin films. International Conference of Physics (ICP 2014), Yogyakarta, Indonesia.

- **Majeed, U.**, Mustafa, M. K., & Nayan, N. (2013). Dry phase detection of ultra thin multilayer poly electrolyte films using spectral reflectance technique. Seminar Kebangsaan Aplikasi Sains & Matematik (SKASM 2013), Batu Pahat, Malaysia.

Seminars Attended:

- "The Twelfth Regional Annual Fundamental Science Symposium (12th RAFSS) 2014 on 8th – 10th September 2014 at Persada Johor International Convention Center, Johor, Malaysia.

- "Seminar Kebangsaan Aplikasi Sains Dan Matematik (SKASM) 2013" on 29th – 30th October 2013 at University Tun Hussein Onn Malaysia.

- "Postgraduate 3 Minutes Thesis (PG 3MT) on 15th July 2013 at University Tun Hussein Onn Malaysia.

- "Research Sharing Seminar" on 28th February 2013 at University Tun Hussein Onn Malaysia.

- "Thesis Writing for Postgraduate Students" on January 30th ,2013 at University Tun Hussein Onn Malaysia.

- "Seminar on Mendeley and Sharing Experience" on 26th September 2012 at University Tun Hussein Onn Malaysia.

- "Research Seminar Lembangan Muar River" on 6th September 2014 at Hotel Classic, Muar, Johor, Malaysia.

- "The Research Journey" on 17th July 2012 at University Tun Hussein Onn Malaysia.

Trainings and Courses:

- "Material Analysis Seminar: X-Ray Photoelectron Spectroscopy (XPS) seminar" on 21st – 22nd August 2014 at National R&D Center, MIMOS Bhd. Kuala Lumpur, Malaysia.
- "Advanced Microscopy and Application" on 23rd May 2013 by Hi-Tech Instruments Pte Ltd, Singapore.
- "Principle and Operation of JEOL Field Emission Scanning Microscope (FESEM)" on 27th March 2013 by JEOL Asia Pte Ltd.
- "Short Course in Computer Interfacing Using EZi Comint USB Interface Card and Java Programming" on 18th – 19th September 2012 by Physics Department, University Technology Malaysia, UTM.

Poster Presentation:

- "Research and Innovation Festival 2014" on 2nd – 3rd November 2014 at University Tun Hussein Onn Malaysia.
- "Inaugural MiNT-SRC Research Seminar (MRS) 2013" on 2nd July 2013 at (MiNT-SRC), UTHM.

Awards and Fellowships:

- Bronze medal in poster presentation in Research and Innovation Festival (R&I Fest.) 2014" on 2nd – 3rd November 2014.
- Geran Insentif Penyelidik Siswaza(GIPS) no: 1027
- Fundamental Research Grant Scheme (FRGS) no: 1048
- Multidisciplinary Research (MDR) Grant no: U094

Professional Membership:

Ordinary member of Malaysian Institute of Physics, Membership no: MIPM 1380

References:

- **Assoc. Prof. Dr. Mohd Kamarulzaki Mustafa (Supervisor)**
  Science Department, Faculty of Science, Technology and Human Development
  University Tun Hussein Onn Malaysia
  kamarulz@uthm.edu.my
- **Assoc. Prof. Dr. Nafarizal Nayan**
  Micro and Nanotechnology Shamsuddin Research Centre (MiNT- SRC)
  University Tun Hussein Onn Malaysia
  nafa@uthm.edu.my
- **Prof. Alexei Nabok**
  Materials and Engineering Research Institute,
  Sheffield Hallam University, United Kingdom
  a.nabok@shu.ac.uk