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**Associate Professor**

Physics Department, King Fahd University of Petroleum & Minerals, Saudi Arabia

**Executive Summary:**

**Education:**

- PhD, Physics [Ohio University, USA, 2005]
- MS, Physics [Western Illinois University, USA, 2000]
- BS, Physics [University of Agriculture, Faisalabad, Pakistan, 1998]

**Experience:**

- Postdoctoral Fellow, University of Alberta & National Institute for Nanotechnology (NINT-NRC), Canada, 2006-2009.
- Assistant Professor, Physics Department, King Fahd University of Petroleum and Minerals, Saudi Arabia, 2009-2018.
- Associate Professor, Physics Department, King Fahd University of Petroleum and Minerals, Saudi Arabia, 2018-Present.

**Research Projects**

- “Effect of chromium doping on the electronic, magnetic and optical properties of titanium nitride thin films grown by RF/DC magnetron sputtering” PI-Independent research, (Running) (2021-present), (Principal investigator).
- “Thin film growth and study of magnetic and optical properties of cobalt doped titanium nitride thin films”, Independent research, (Running)(2019-present) -(Principal investigator).
- “Effect of iron doping on the optical, structural and magnetic properties of titanium nitride thin films grown by RF/DC magnetron sputtering”, Completed(2018-2020) (PI-Independent research).
- “Growth and Study of Zn3N2 by RF/DC Magnetron Sputtering”, KFUPM internally funded project #. IN131056, (May2014-Jan2017) (completed) (Principal investigator)
- “Growth and Study of Zn3N2 by RF/Dc Magnetron Sputtering” KFUPM internally funded project #. IN131056, Sep 2014 – Sep 2016 (completed) (Principal investigator).
- “Synthesis of RF-sputtered iron-doped zinc oxide thin films as transparent conductors for solar energy applications – Phase II” NSTIP Project-October2014- (Completed) (co-Investigaor)
- “Growth and Characterization of Ti doped ZnO: A potential dilute magnetic Oxide ”, KFUPM internally funded project #. IN1111035, Sep 2012 – Jan 2015 (Completed) (Principal investigator).
- “Growth and characterization of gallium nitride (GaN) films deposited using pulsed excimer laser deposition”, KFUPM internally funded project no. IN100040, October 2010 – April 2012 (completed) (Principal investigator).
- “Temperature Dependence Study of Superconducting Gap,  $\Delta$  of an Electron-Doped High-Tc Superconductor  $\text{Pr}_{0.88}\text{LaCe}_{0.12}\text{CuO}_{4-\delta}$  (PLCCO)”, Fast Track project, October 2010 – Dec 2011 (completed) (Co-investigator).

**Research Summary**

- Number of Published Papers: 32
- Citations : 572
- H-Index : 12
- Book Chapters: 1
- Article Reviewed (Elsevier, Springer, MDPI):

**Skills and Expertise**

- Thin Film growth of semiconducting, metallic and magnetic materials by RF/DC magnetron sputtering, pulsed laser deposition and molecular beam epitaxy.
- Scanning tunneling microscopy and scanning tunneling spectroscopy of semiconducting and metallic surfaces.
- Atomic force microscopy and scanning electron microscopy of metallic, semiconducting and insulating surfaces.
- Spectrophotometry of thin films to calculate the bandgap or refractive indices.
- X-ray photoelectron spectroscopy to investigate the stoichiometry of the materials and oxidation states of different elements in the material.
- X-ray diffraction to investigate the crystallinity of the grown films.
- Hall effect and other IV measurements to investigate the carrier concentration and mobility of carriers in the material.
- Magnetic susceptibility and magnetization versus temperature measurement of magnetic materials and their analysis.