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Seminar

Institute for Plasma Research

Title : Defects related structural, electrical, optical and magnetic properties of metal oxides thin films

Speaker: Dr. Razia Nongjai
Inter University Accelerator Centre (IUAC),
New Delhi

Date : 2nd December 2021 (Thursday)

Time : 03.30 PM

Venue : Online - Join the talk:

https://meet.ipr.res.in/Dr.RaziaNongjai_PDFTalk

Abstract :

Metal oxides nanostructures have attracted intensive research interests in different strategic research fields such as optoelectronics, sensors, energy-related technologies and spintronics due to their intriguing multi-functional properties. The presence of defects and imperfections in such materials are known to influence the overall functional properties to a great extent. As a matter of example, the presences of surface defects induce ferromagnetism and cation vacancies enhanced the conductivity in NiO while oxygen vacancies lead to highly conducting behaviour in ZnO or Fe₃O₄. Defects can be created during the synthesis of materials or induced post-synthesis via thermal treatment and ion beam irradiation or implantation. Controlling the defects to obtain desired properties of materials is a challenging task. We have synthesized metal oxides nanoparticles and thin films such as doped and undoped Fe₃O₄, NiO, In₂O₃ and employed ion beam irradiation and implantation techniques to introduce controlled defects and impurities in materials for engineering their structural, electrical, optical and magnetic properties. In this talk, I will present some of these results.
