

Seminar

Institute for Plasma Research

Title : Controlled Growth of Zinc Oxide Nanostructures For Multifunctional Applications

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Date : 26th February 2018 (Monday)

Time : 02.15 PM

Venue : Seminar Hall, IPR

Abstract :

Centuries have passed since the scientists are endeavouring to understand the field of inorganic semiconductor physics through rigorous experiments and theoretical approaches. Among the various semiconducting materials, wide bandgap inorganic metal oxides emerge as an essential class of materials which are acknowledged to cover the upcoming materials research. Over the past few decades, rapid and advanced progress have been made in the field of metal oxides due to the modification in the synthesis process. This help in perpetual discovery of various new and intriguing form of metal oxides nanostructures, such as nanoparticles, nanoribbons, nanoflakes, nanotubes, nanosheets, nanoflowers, nanowires, nanorods, etc. In this presentation, I will highlight how zinc oxide (ZnO) stands out as a diverse functional material and its flexibility towards morphology and multifunctional applications. The preliminary idea is first to prepare undoped/doped ZnO nanostructure followed by a systematic study of its growth mechanism and property alteration with a change in morphology and finally to study the effects of doping on the crystal structure, optical and morphological properties. Then the prepared ZnO nanostructures are implemented in diverse applications including magnetic, field emission studies, optical and gas sensing.



Fig. 1. Controlled morphology of ZnO nanostructures from flowers to rods to tubes
