

Physics Seminar

Michigan Technological University

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11:00 am

Room 101, Fisher Hall

Phosphors and Nanophosphors

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Abstract

Luminescent materials (phosphors) are one of the essential components of almost all display systems and signage. Luminescence group at NPL-India had been nourishing the display industry by sensible research and development of highly efficient inorganic phosphors for more than 35 years. This talk is intended to highlight the importance of phosphors/nanophosphors with necessary physics, goals achieved so far and steps taken for easy commercialization of the product. The milestones include phosphors for TV picture tube; rare-earth oxysulfides and their screens for high energy x-rays real-time imaging and multicolor long afterglow phosphors for safety signage and dark-vision applications for the use of Indian army. Technology of thin and thick film Electroluminescent panels with rigid and flexible back have been developed indigenously for Indian Space Research program for the use in backlighting of LCD panels. Currently we are engaged in the quantum confinement studies and development of novel Nanophosphors for white LED, Field Emission Displays, Plasma Display Panels and high resolution x-ray imaging plates for dentistry. The group has expertise in designing and developing novel phosphor systems for explicit application that could scale-up to mass production. The group is equipped with required facilities for structural, chemical, morphological, optical and luminescence characterization of phosphor/nanophosphor samples and has the capability of prototype device fabrication.