Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad – 500 046

Internal Seminar

A Way to Investigate the Functionality in BIT-Based Ceramics: From Doping Strategies to BIT-BFO Composite Architectures

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This talk presents a comprehensive investigation of the single-phase $Bi_4Ti_3O_{12}$ (BIT) and $BiFeO_3$ (BFO)-based systems, starting from undoped and doped BIT to BIT-BFO diphasic composites in both bulk and thin film forms. Bulk ceramics were synthesized via the molten salt method, while thin films were fabricated using Pulsed Laser Deposition (PLD). Strategic doping at Bi and Ti sites of BIT is explored to overcome limitations like bismuth loss, high leakage, and low polarization. The incorporation of multiferroic BFO enables compositional tuning to enhance ferroelectric, dielectric, and magnetic properties. Thin film processing further refines microstructural control, enabling improved multiferroic performance. Overall, the study highlights the multifunctional potential of BIT-BFO systems for advanced device applications.

Tuesday, May 20th 2025

14:30 Hrs

CR-4, TIFRH