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

Internal Seminar

Fabrication, Interfaces, and Noise: A Unified Research Program in Quantum Materials and Devices

Malavika Chandrasekhar

TIFR, Hyderabad

This talk presents my research progress, focusing on how fabrication, and interfaces influence quantum transport and noise. I will discuss on fabrication-driven studies of correlated quantum materials, highlighting a giant anomalous Hall effect in few-layer Kagome metal KV_3Sb_5 arising from enhanced skew scattering. This is followed by a systematic study on the fabrication and calibration of superconducting Josephson junctions, emphasizing the importance of geometry and interface control for reliable device performance. Emerging work on $TaCo_2Te_2$ is introduced as a platform connecting magnetic materials with superconducting devices. Finally, I will share insights from LIGO related research on low-loss thin films and mechanical dissipation, illustrating how materials processing sets fundamental noise limits in precision measurement technologies.

Thursday, Jan 29th 2026

16:00 Hrs

Seminar Hall, TIFRH