

Internal Seminar

Designing Quantum Materials and Devices through Fabrication Control

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This talk highlights how fabrication control and interface engineering can be used to design quantum materials and devices. I will first discuss fabrication-driven transport studies in few-layer Kagome metal KV_3Sb_5 , highlighting the observation of a giant anomalous Hall effect arising from enhanced skew scattering. I will then present work on superconducting Josephson junctions, showing how junction geometry and tunnel barrier formation determine device reproducibility and performance. Emerging studies on $TaCo_2Te_2$ are introduced as a bridge between magnetic materials and superconducting devices. Finally, insights from LIGO-related research on low-loss optical coatings and mechanical dissipation are discussed, illustrating how materials processing sets fundamental noise limits in precision measurement technologies.

Thursday, Jan 29th 2026

16:00 Hrs

Seminar Hall, TIFRH