

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Investigation of topological characteristics of $\text{Pb}_{0.5}\text{Sn}_{0.5}\text{Te}$ and $\alpha\text{-Sn}$ "

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Abstract: We present results of our research on the MBE growth and investigation of topological characteristics of $\text{Pb}_{0.5}\text{Sn}_{0.5}\text{Te}$ and $\alpha\text{-Sn}$. Theory on the effects of quantum confinement, strain and orientation on the topological characteristics of $\alpha\text{-Sn}$ / CdTe quantum wells, predicted topological phase changes and the observation of Dirac semimetal behavior in magnetotransport measurements of thin layers of $\alpha\text{-Sn}$ will be discussed. We will present results of our research (in collaboration with UMD) on weak-link Josephson junctions, and the magnetoterahertz response and Faraday rotation from massive Dirac fermions (in collaboration with Johns Hopkins Univ.) from the topological crystalline insulator $\text{Pb}_{0.5}\text{Sn}_{0.5}\text{Te}$.

12:00pm noon
Tuesday, May 7, 2019
Duboc Room (4-331)