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Transport properties of SnPbTe topological crystalline insulator films[1] BADIH A. ASSAF, Dept. of Physics, Northeastern University, FERHAT KATMIS, Francis Bitter Magnet Lab, Dept of Physics, MIT, PENG WEI, Francis Bitter Magnet Lab, MIT, JAGADEESH S. MOODERA, Francis Bitter Magnet Lab, Dept of Physics, MIT, DON HEIMAN, Dept. of Physics, Northeastern University
— A new phase of topological insulators, the topological crystalline insulator, has been recently predicted to arise in band-inverted Sn-Pb chalcogenides, where the topological surface states are protected by crystal symmetry instead of spin-orbit coupling [1]. We grew epitaxial thin films of SnTe and $Sn_{1-x}Pb_xTe$ by MBE and sputtering on (100) and (111) surfaces of BaF_2 and Si. We report on magnetotransport measurements on SnTe films having hole densities ranging between 10^{20} and 10^{21} cm^{-3} and mobilities up to 200 cm^2/Vs. Weak antilocalization is observed in all films, allowing us to study the behavior of the phase coherence length versus temperature in an attempt to shed light on the dimensionality of the transport as a function of the Fermi level. Some evidence of 2D transport is found in low carrier density films. [1]T. H. Hsieh et al. *Nature Communication* **3,** 982 (2012).

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