

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Spectral Evolution of Raman Scattering in Sputtered Topological Insulator Films JEFF SECOR, CUNY-CCNY, SIMONE RAOUX, IBM Research - Yorktown Hts, INNA KORZHOVSKA, LIA KRUSIN-ELBAUM, CUNY-CCNY — Raman spectra of sputtered 3D topological insulator films of Bi_2Te_3 and Sb_2Te_3 were measured as a function of annealing temperature. We find that the as grown films which initially show amorphous Raman spectra develop strong and sharp Raman spectral features for annealing temperatures up to 300 degrees Celsius indicating a crystallization of the films. We show the similarities in the phonon energies between single crystal material and MBE grown films, however the phonon spectra remain less sharply defined for the polycrystalline films. Comparisons are made between thickness and film capping layers for the different topological insulators. X-ray measurements and transport data also confirm that these sputtered films show crystalline properties after annealing and so sputtering can be a scalable and rapid growth method for topological electronics.

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Date submitted: 15 Nov 2013

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