

Abstract Submitted
for the NES18 Meeting of
The American Physical Society

The Synthesis and Characterization of Indium-doped Tin Telluride Nanowires JULIA WEI, PENGZI LIU, JUDY CHA, Yale University — Tin telluride (SnTe) is a topological crystalline insulator that possesses robust surface electron states that are spin-polarized and Dirac-dispersive. Doping SnTe with indium (In) induces superconductivity and yields a candidate topological superconductor that is potentially suitable for fault-tolerant quantum computation. We are interested in using transport measurements to investigate the topological metallic surface states of In-doped SnTe and the superconducting phase transition in these surface states. We study In-doped SnTe nanowires in particular because their high surface to volume ratio enhances surface-state effects and enables phase-sensitive transport measurements; importantly, nanowires are also expected to host Majorana fermions. The results from our synthesis of In-doped SnTe nanowires will be shown. We have also characterized the topography and composition of the nanowires using low-voltage scanning electron microscopy and energy-dispersive X-ray spectroscopy. Currently, electronic transport properties on these nanowires are being measured by fabricating nanodevices.

Julia Wei
Yale University

Date submitted: 27 Feb 2018

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