

Abstract Submitted
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Search for Superconductivity in Single Crystals of Topological Insulators¹ PRASENJIT GUPTASARMA², SOMADITYA SEN, JOHN DUDEK, University of Wisconsin Milwaukee, WI, MARY SEVERSON, MARK BISSEN, Synchrotron Radiation Center, Stoughton, WI — Observation of superconductivity in Cu-intercalated Bi₂Se₃, and in Bi₂Te₃ under pressure, open up the possibility of occurrence of superconductivity in other similarly modified structures. Here, we present detailed studies from a comprehensive search for superconductivity in selenides and tellurides of Bismuth and Antimony. High-quality single crystals were intercalated with a number of different elements using both in situ and ex situ techniques, then scanned for a resistive or magnetic transition to superconductivity. With an intent to understand the nature of intercalation in these compounds, we discuss results from our search for superconductivity, together with crystal structure analysis and detailed optical and x-ray photoelectron spectroscopy studies of the cleaved surface.

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