

Abstract Submitted  
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**Searching for ideal bulk insulating Pb-system topological crystalline insulator materials**<sup>1</sup> GENDA GU, R.D. ZHONG, JOHN SCHNEELOCH, T.S. LIU, JHON TRANQUADA, X.G. HE, WEI KU, I. PLETIKOSIC, T. VALLA, Brookhaven Natl Lab, CONDENSED MATTER PHYSICS & MATERIALS SCIENCE, BROOKHAVEN NATIONAL LABORATORY TEAM — The discovery of 3D topological insulator materials opened up a new research field in the condensed matter physics. However, there is no real bulk insulating topological insulator materials available for experimental research so that we can explore the new field. In order to search for the ideal bulk insulating topological insulator materials, we have grown a large number of the single crystals of Pb-system (Pb-Sn-In-Te) topological crystalline insulator. We have measured the physical properties on these single crystals by various techniques. We have studied the effect of crystal growth condition, impurity and composition on the bulk electrical conductivity of these single crystals. We try to find out which composition and crystal growth condition is the best for the ideal bulk insulating topological crystalline insulator materials.

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