Abstract Submitted
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Crystal growth and physical property of Bi-Sb-Te-Se topological insulator materials, and Cu-Bi-Se and Sn-In-Te topological superconductors[1] GENDA GU, ALINA YANG, J. SCHNEELOCH, R.D. ZHONG, Z.J. XU, J.M. TRANQUADA, Z.H. PAN, W.D. SI, X.Y. SHI, Q. LI, T. VALLA, Brookhaven National Laboratory — The discovery of 3D topological insulator materials and topological superconductor opens up a new research field in the condensed matter physics. We have grown a number of Bi-Sb-Te-Se topological insulator, and Cu-Bi-Se and Sn-In-Te topological superconductor single crystals. We have measured the physical properties on these single crystals. We have studied the effect of growth condition and impurity on the bulk electrical conductivity of these single crystals. We try to answer two questions for the topological insulator materials if it is possible to grow the bulk-insulating topological insulator single crystals and Which maximum resistivity of these topological insulator single crystals we can grow. For the topological superconductor, we have got the bulk superconducting single crystals with a maximum Tc=4.5K.

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