

Abstract Submitted
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Quantum Oscillations in a topological insulator Bi_2SeTe_2 with large bulk resistivity¹ JUN XIONG², DONGXIA QU, ROBERT CAVA, N. PHUAN ONG, Princeton University — To date, transport experiments on Topological Insulators are seriously hampered by bulk conductance G_b arising from impurity bands or band bending. Because of the large G_b , the surface currents carried by the massless Dirac surface states have been very difficult to resolve. We report measurements on the new topological insulator Bi_2SeTe_2 which has an unusually highly bulk resistivity ρ (6 Ωcm at 4 K, or 1,000 times higher than in Bi_2Te_3). Despite the large ρ , Shubnikov-de Haas (SdH) oscillations are clearly resolved in the Hall conductance up to 38 K, which implies a very high surface mobility. In a field B of 14 T, Landau Levels (LLs) $n = 4-9$ are well resolved. We will describe the value of the Onsager phase γ fixed by the index plot of the LLs.

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