

Abstract Submitted
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Effect of electron-electron interaction on surface transport in three-dimensional topological insulators HRIDIS PAL, DMITRII MASLOV, University of Florida — We study the effect of electron-electron interaction on the temperature dependence of surface charge transport in three dimensional topological insulators. In conventional two dimensional materials at small temperatures, the presence or absence of T^2 dependence in the resistivity is found to depend on the Fermi surface geometry- whether it is concave or convex and whether it is simply connected or multiply connected. In the recently discovered three-dimensional topological insulators such as Bi_2Te_3 , Bi_2Se_3 , and Sb_2Te_3 the Fermi surface of the two dimensional surface states, owing to the underlying lattice symmetry, changes curvature from convex to concave as a function of energy. The contribution from electron-electron interaction is therefore expected to affect the resistivity in these materials which we investigate in this study.

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