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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  $\text{Bi}_2\text{Te}_3$ ,  $\text{Bi}_2\text{Se}_3$ , and  $\text{Sb}_2\text{Te}_3$  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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