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Coherent transport of topological insulator surface states PIERRE ADROGUER, DAVID CARPENTIER, EDMOND ORIGNAC, Laboratoire de physique, Ecole Normale Superieure de Lyon, France, JEROME CAYSSOL, LOMA, University Bordeaux-1, France — Topological insulators (TIs) are a new state of matter recently predicted theoretically[1,2] and realized experimentally. In 3D they are characterized by the presence of gapless surface states which exhibit a linear dispersion, typical of Dirac fermions. Moreover, contrary to conventionnal materials, these Dirac cones occur in an odd number of Dirac fermions at the surface: ARPES experiments[3,4] have found a single Dirac cone at the surface of Bi2Se3, Bi2Te3. This work focuses on the electronic transport properties calculations in the diffusive limite of a single Dirac cone. Specificities of the TI surface states, like the hexagonal warping coupling are taken into account.

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