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SCATTERING MECHANISMS FROM ELECTRONIC SURFACE STATES IN TOPOLOGICAL INSULATORS

The uniqueness of topological insulators lies in the presence of the topologically protected electronic surface states. The study of the electronic structure of these states allows us to find new applications for topological insulators in electronics, especially as a material for spintronic devices. The electronic structure of bismuth selenide and compounds with tellurium, which are topological insulators, are investigated. Using approximation methods, the quasi-particle scattering curves were derived, which gave information about contributions of different types of scattering. The study of scattering near the Dirac point revealed the existence of additional contributions that could be caused by magnetic interaction and additional spin ordering.

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