

Bilinear magnetoresistance and planar Hall effect in topological insulators

A.N. Zarejad¹ and A. Dyrda¹

¹*Department of Mesoscopic Physics, ISQI, Faculty of Physics,
Adam Mickiewicz University, 61-614 Poznan, Poland*

Bilinear magnetoresistance and planar Hall effect [1-3] are two nonlinear transport phenomena that scale linearly with the electric and magnetic fields and appear in non-magnetic systems with strong spin-orbit coupling, such as topological insulators (TIs). Using the semiclassical Boltzmann theory and generalized relaxation time approximation, we considered in detailed the bilinear magnetoresistance and bilinear planar Hall effect in an effective model describing surface states of three-dimensional topological insulators. We focused, among others, on the role of magnetic impurities in both of these nonlinear effects.

References:

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