Spin scattering and conductivity in quasi-two-dimensional disordered systems

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We consider the electron transport through quasi-two-dimensional system with structural disorder, additionally doped with magnetic impurities. The interaction of conduction electrons with localized spins is described by means of the exchange term of the Hamiltonian. The effective cross-section is composed of the one responsible for the usual scattering on the disordered array of potentials and the second one which describes the spin-spin scattering. The Fermi sphere splits into separate sheets in the considered system so that the cross-section is calculated for each sheet independently. The transport relaxation time is obtained as a function of the thickness of the system and the concentration of magnetic impurities.

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