

Electron scattering in graphene by remote nanomagnets

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We consider the electron scattering in graphene by a nonuniform magnetic field formed by remote nanomagnets which are modeled by point like magnetic dipoles oriented transversally and parallel to the graphene plane in specially developed the Born approximation. The magnetic field of "large" remote nanomagnets can be rather large of the order of 0.1T that requires account of the term proportional to the squared vector potential. The obtained electron scattering cross sections are analyzed numerically. It is shown that this mechanism of scattering has nonzero backscattering cross section and can considerably affect the graphene conductivity.

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Figures

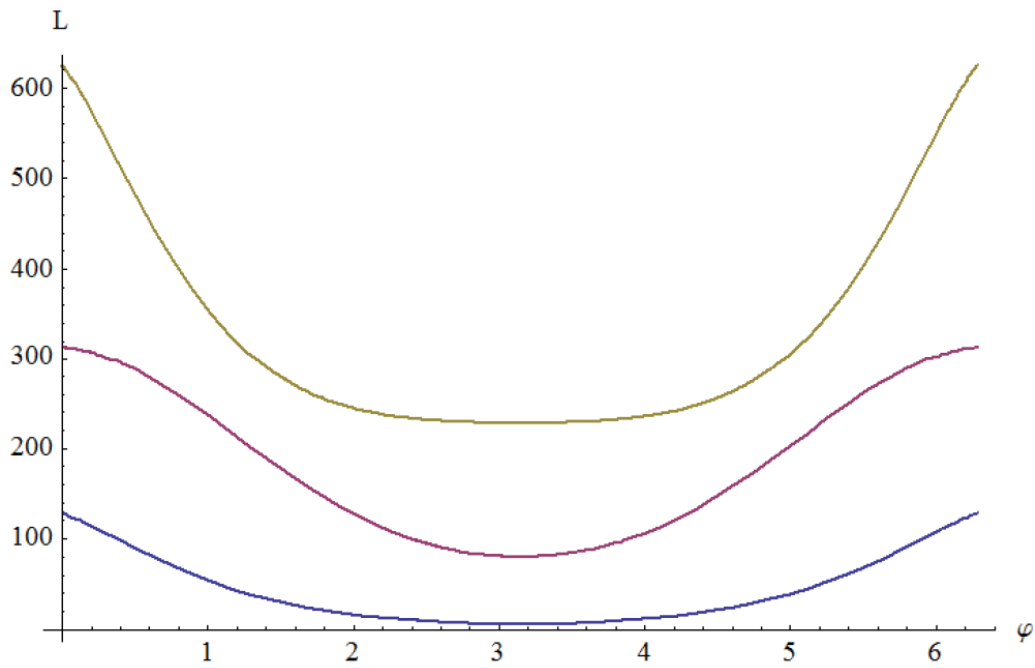


FIG. 1: The differential cross section of electron scattering by remote nanomagnet in graphene versus the scattered angle .

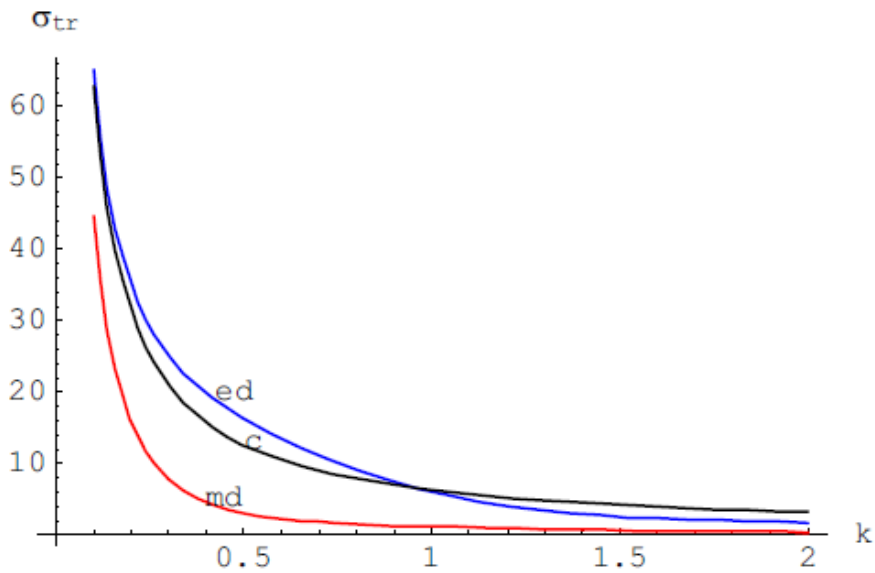


FIG. 2: The transport cross section of electron scattering by impurity (remote nanomagnet) in graphene versus ka and the scattered angle