

Abstract Submitted
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Coulomb scattering and transport in graphene¹ DMITRY NOVIKOV, Yale University — The exact transport cross-section off a Coulomb impurity in graphene [1] is proportional to the carrier wavelength. Unexpectedly, the relativistic Coulomb scattering also exhibits a pronounced attraction-repulsion asymmetry [1,2]: Massless carriers are scattered more strongly when they are attracted to a charged impurity than when they are repelled from it. This finding, confirmed recently [3], can be used to separately determine the surface density of donors and acceptors in a graphene monolayer [2]. I will outline quantitative and qualitative differences between the exact result [1] and the commonly used Born approximation for charged impurity scattering. [1] D. S. Novikov, arXiv:0706.1391, Phys. Rev. B (in press); [2] D. S. Novikov, Appl. Phys. Lett. 91, 102102 (2007); [3] J. H. Chen, C. Jang, M. S. Fuhrer, E. D. Williams, M. Ishigami, arXiv:0708.2408v2.

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