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Density of states in graphene with charged impurities[1] BEN YU-KUANG HU, University of Akron, E. H. HWANG, S. DAS SARMA, University of Maryland — We discuss the density of states of graphene in the presence of charged screened impurity scattering. The density of states is obtained from the imaginary part of the single-particle Green's function, which is evaluated in the Born and the self-consistent Born approximations, and the screened Coulomb impurity potentials are evaluated within the random phase approximation. The density of states in the presence of impurities is typically larger than that of clean graphene at any given energy. In particular, the density of states at the Dirac point, which is zero in a clean sample, becomes non-zero, with a magnitude that is given by an expression akin to that for the BCS superconducting gap.

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