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Minimal conductivity of graphene: role of the Coulomb interaction VLADIMIR JURICIC, IGOR F. HERBUT, Department of Physics, Simon Fraser University, Canada, OSKAR VAFEK, National High Magnetic Field Laboratory and Department of Physics, Florida State University, USA — The effect of the Coulomb interaction on the zero-temperature low-frequency conductivity in undoped graphene is studied. We will show that the Coulomb interaction introduces a universal and positive leading logarithmic correction to the gaussian value of the dc conductivity [1]. This finding suggests that the origin of the unusually large minimal conductivity observed in graphene may be intrinsic, and arises from the Coulomb correction effectively cut off by finite temeperature/disorder/size effects. A mechanism of such a cutoff based on the non-trivial interplay between the Coulomb interaction and the ripples, both unavoidably present in the graphene sheet, will be briefly discussed. References: [1] I. F. Herbut, V. Juricic, and O. Vafek, arXiv.0707.4171.

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