

Abstract Submitted  
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**Effect of electron interactions on the infrared conductivity of a monolayer graphene**<sup>1</sup> M. M. FOGLER, L. M. ZHANG, UCSD — Recent experiments on the infrared spectroscopy of a monolayer graphene has revealed an unexpected non-Lorentzian form of the Drude peak and an anomalously large broadening of the interband absorption edge in this material. We present a theoretical investigation that attributes these features to Coulomb scattering between Dirac quasiparticles. This scattering shows up in the dynamical conductivity because relativistic collisions lead to the current relaxation despite the conservation of the total momentum. This is in contrast to the conventional case where electron-electron scattering along does not cause a finite resistivity.

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