Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Sorting Category: 12.8 (T)

Magnetic field dependence of the carrier's effective mass and the g-factor in graphene[1] ANDRII IUROV, Hunter College and Graduate Center, City University of New York, GODFREY GUMBS, OLEKSIY ROSLYAK, Hunter College, City University of New York, DANHONG HUANG, USAF Research Lab (AFRL/RVSS) — It has been established that the intrinsic Zeeman energy is one half of the cyclotron energy for "*bare*" electrons in graphene. Consequently, there could be Landau-level mixing between the energy bands. We investigate how the band mixing is affected by the Coulomb interaction. Pairing of the electrons and holes in the presence of a circularly polarized light is also considered for several filling factors. We calculate the quasiparticle effective mass and effective g-factor for dressed electrons and holes in monolayer graphene. As an intermediate step of these calculations, we obtain the dielectric function for the case of electron dressed states and investigate how the magetoplasmons modes are affected by the electron-photon interaction.

[1]This research was supported by contract # FA 9453-11-01-0263 of AFRL. DH would like to thank the Air ForceOffice of Scientific Research (AFOSR) for its support.

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[X] Prefer Oral Session
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Date submitted: 22 Dec 2011 Electronic form version 1.4