

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Plasma excitations and self energy for gapped graphene in strong magnetic fields** ANDRII IUROV, GODFREY GUMBS, Hunter College, CUNY — The collective plasma excitations of gapped graphene such as may be induced by optically dressed Dirac electrons or by an underlying substrate have been calculated in the presence of a uniform perpendicular magnetic field. The polarization function was obtained using the random phase approximation (RPA). By varying the intensity and frequency of the polarized light, we may tune the energy gap  $E_g$  between the conduction and valence bands. The value of  $E_g$  may reach values by far exceeding that caused by spin-orbit coupling or that caused by a substrate. We report the magnetoplasmon dispersion relations for various energy gaps and for Coulomb coupled double layers with various separations between the graphene layers.

Andrii Iurov  
Hunter College, CUNY

Date submitted: 05 Nov 2012

Electronic form version 1.4