Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Magnetic field effects on the local electronic structure near a single impurity in Graphene[1] LING YANG, Department of Physics and Astronomy, University of California, Riverside, California, 92521, JIAN-XIN ZHU, Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, SHAN-WEN TSAI, Department of Physics and Astronomy, University of California, Riverside, California 92521 — Impurities in graphene can have a significant effect on the local electronic structure of graphene when the Fermi level is near the Dirac point. We study the problem of an isolated impurity in a single layer graphene in the presence of a perpendicular magnetic field. We use a linearization approximation for the energy dispersion and employ a T-matrix formalism to calculate the Green's function. We investigate the effect of an external magnetic field on the Friedel oscillations and impurity-induced resonant states. Different types of impurities, such as vacancies, substitutional impurities, and adatoms, are also considered.

[1]LY and SWT acknowledge financial support from NSF(DMR-0847801)and from the UC Lab Fees Research Program.

Ling Yang
Department of Physics and Astronomy, University of California,
Riverside, California 92521, USA

Date submitted: 24 Nov 2010 Electronic form version 1.4