Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Graphene spin relaxation via resonant scattering off magnetic impurities[1] DENIS KOCHAN, MARTIN GMITRA, JAROSLAV FABIAN, University of Regensburg — We will present phenomenological theory, based on first-principles calculations, of the exchange splitting and spin relaxation in graphene with hydrogen adatoms. The phenomenological modeling includes a symmetry based tight-binding model with the adatom interaction and local exchange couplings that are fitted to the first-principles electronic band structure data in the ferromagnetic ground state of hydrogenated graphene. We will show that resonant scattering and the exchange interaction with the paramagnetic impurities at the adatom site can explain the experimentally observed short spin relaxation times, providing a competitive mechanism to that based on spin-orbit coupling.

[1]This work has been supported by DFG SFB 689.

Denis Kochan
University of Regensburg

Date submitted: 14 Nov 2013 Electronic form version 1.4