Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Spin and charge transport across cobalt/graphene interfaces MAIRBEK CHSHIEV, SPINTEC, UMR CEA/CNRS/UJF/G-INP, ALAN KALITSOV, OLEG MRYASOV, Univ of Alabama - Tuscaloosa — We report ballistic calculations of in-plane and out-of-plane spin and charge transport through graphene attached to the hcp-Co electrodes. Our calculations are based on the Keldysh non-equilibrium Green Function formalism and the tight binding Hamiltonian model tailored to treat both lateral and vertical device configurations. We present results for (i) vertical device that consists of a one-side fluorinated C_4F graphene sandwiched between two hcp Co electrodes and (ii) lateral device consisting of pristine graphene/C_4F graphene bilayer with two top hcp-Co electrodes Our calculations predict large magnetoresistance with small resistance-area product and significant deviation from sinusoidal behavior of spin transfer torque for the vertical device configuration.

Oleg Mryasov
Univ of Alabama - Tuscaloosa

Date submitted: 14 Nov 2014 Electronic form version 1.4