Abstract Submitted
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Charge and spin transport in graphene nanostructures SUNGJAE CHO, YUNG-FU CHEN, MICHAEL S. FUHRER — We have studied spin injection from ferromagnetic (permalloy) electrodes into graphene devices using a non-local four-probe geometry. We observe sign reversal of the non-local resistance upon switching of the magnetization direction of the electrodes, indicating injection and detection of a spin current. We report the temperature and carrier density dependence of the spin valve signal. We observe an unusual reversal of the sign of the spin valve signal at some carrier densities. We have also examined the magnetotranport in the low field and quantum Hall regimes in devices with mobilities differing by an order of magnitude. The results will be discussed in terms of the physics of conduction at the Dirac point. Support provided by the Office of Naval Research and the UMD-MRSEC Shared Equipment Facilities.

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