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Spin Transport through Multilayer Graphene[1] MASAYA NISHIOKA, ALLEN GOLDMAN, School of Physics and Astronomy, University of Minnesota — We have demonstrated spin valve behavior in structures in which crystals containing multiple graphene layers were positioned between two ferromagnetic contacts. Graphene is a promising candidate for the spacers of spin valves, because of its small spin-orbit interaction and high mobility. We used a 3nm thick crystal which contained several layers of graphene. Cobalt electrodes with a 100nm gap were fabricated on the crystal using electron beam lithography. The device showed $\sim$0.2% magnetoresistance at 10K using an in-plane magnetic field. The effect was found at temperatures as high as 150K. The observed behavior could be explained by the switching of the magnetizations of the Co electrodes, which was inferred from measurements of their anisotropic magnetoresistance.

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