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**Magnetic and magnetotransport properties of organic trilayers of alkanethiol self-assembled monolayers sandwiched between ferromagnetic thin films** WILLIAM RICE, PAUL HOERTZ, JEREMY NISKALA, JEFF HALLER, MIKE FENG, WEI YOU, FRANK TSUI, University of North Carolina at Chapel Hill — Magnetic and magnetotransport properties of organic spin valve structures have been studied. The organic trilayer spin valve structure consists of a self-assembled monolayer (SAM) of alkanethiol and a conducting polymer layer sandwiched between two ferromagnetic metal contacts, a Ni film as the bottom contact and a Co film as the top contact. Each trilayer is confined in a square well-like structure (approximately 40 microns across) surrounded by 500nm thick photoresist to provide both electrical isolation and mechanical support for 4-terminal vertical transport measurements. The SAM was formed on the Ni surface on the bottom of the well. The conducting polymer layer was spin coated on top of the SAM prior to the deposition of the Co film. Magnetooptic Kerr Effect (MOKE) measurements show independent switching of the ferromagnetic layers at approximately 50 and 100 Gauss. Electrical transport measurements were carried out as a function of bias voltage, temperature and field, in order to explore spin-dependent transport through the organic interlayer.

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