Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Control of magnetization alignment in magnetic nanocontacts GAVIN D. SCOTT, Bell Labs/Alcatel-Lucent — Transport measurements together with finite element micromagnetic simulations are used to investigate the magnetoresistance response of permalloy break junction devices. Ferromagnetic nanogap and point contact structures may be used to study the interplay between Kondo correlations and magnetic excitations by tuning the source and drain contact magnetization configuration. However, the magnetization of the leads is not trivially related to the precise arrangement of domain walls at the nanocontact tip region most relevant to transport. The shape anisotropy of elliptical electrodes together with improved fabrication techniques lead to competition between exchange and magnetostatic energies that may result in desirable source-drain magnetization alignments free of vortex states.

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Date submitted: 13 Nov 2013 Electronic form version 1.4