Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Magnetization excitations in magnetic nanopillars induced by a d.c. spin polarized current[1] NIKOLETA THEODOROPOULOU, AMIT SHARMA, WILLIAM PRATT JR., JACK BASS, Dpt. of Physics and Astronomy, Michigan State University — We have measured spin-transfer-torque driven magnetization dynamics at 293K in Py(24nm)/Cu(10)/Py(6) magnetic nanopillars, with the top Py(6) magnetic layer and part of the Cu layer shaped into a 140x70 nm^2 ellipse, and the rest left extended. Among the more interesting results are sharp peaks at zero applied field when a large enough negative d.c. current, I, is applied. The oscillations extend from 0.6 to 4 GHz. They disappear when a magnetic field, μ_0H, larger than 10 mT is applied in the plane of the layers, but persist up to 0.2 T when μ_0H is applied perpendicular to this plane. The peaks persist up to 5-9 times the switching current and appear to be current-hysteretic. At μ_0H =0, the frequency of the oscillations increases with I ($\sim$40MHz/mA). Except for the direction of I, these observations seem to be consistent with the vortex dynamics reported by the NIST and Cornell groups. If time permits, we will present results on magnetic nanopillars where the Py(24) layer has been replaced by NiCr, which inverts the spin asymmetry.

[1]Supported in part by NSF grant DMR-05-01013.

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Date submitted: 01 Dec 2007 Electronic form version 1.4