Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Spin-torque-driven ferromagnetic resonance of Co/Cu/NiCo spin valves WENYU CHEN, GREGOIRE DE LOUBENS, JEAN-MARC BEAUJOUR, ANDREW KENT, New York University, JONATHAN SUN, IBM T. J. Watson Research Center — Spin-torque-driven ferromagnetic resonance is a quantitative tool for studying spin-transfer interactions in nanojunctions that enables tests of microscopic models of spin transport [1]. Using this method we have studied Co/Cu/NiCo spin values, in which the NiCo free layer has perpendicular magnetic anisotropy. Perpendicular field swept resonance lines were measured under low amplitude GHz current excitation. The resonance field and linewidth were measured as a function of rf frequency and dc current bias, from which magnetic anisotropy constants and damping parameters were determined [2]. The magnitude of spin transfer torque, $d\tau/dI$, was estimated from both the zero dc bias resonance amplitude and from the change of the resonance linewidth with dc current. These two sets of results are in agreement with each other, and show a sinusoidal dependence of the torque on the angle between the Co and NiCo layer magnetizations in the range studied, 60^o to 80^o. The resulting torque magnitude will be discussed in the context of theoretical models of spin transfer in metallic structures. [1] J. C. Sankey et al., Nature Physics, doi:10.1038/nphys783 [2] W. Chen et al., arXiv/0711.0405

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Date submitted: 27 Nov 2007 Electronic form version 1.4