Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Ferromagnetic resonance studies of CoFeB-MgO[1] ERIK SHIPTON, UC San Diego, KEN LEE, Qualcomm Corporation, JONATHON SAPAN, JIMMY KAN, KEITH CHAN, UC San Diego, ERIC FULLERTON — There has been much interest in ferromagnetic magnetic tunnel junctions (MTJs) as a potential candidate for spin transfer torque memories. Many parameters are important in order to optimize the spin transfer torque effect to minimize the critical switching current density (J_c) without compromising an energy barrier (E_B) between stable states. CoFeB/MgO systems have many desirable properties including high spin polarization and, thereby high tunnel magnetoresistance. Recently, Ikeda et al. reported that Fe-rich CoFeB/MgO MTJs can induce perpendicular anisotropy that is strong enough to overcome the in-plane shape anisotropy, demonstrating CoFeB-based perpendicular MTJs [1]. In this work, we have performed FMR studies as a function of alloy composition, layer thickness, pre and post annealing of CoFeB/MgO systems. Coplanar waveguide method VNA FMR experiments were performed [2]. From the FMR resonance frequency and linewidth we were able to extract the Gilbert damping as well as the effective magnetization. Experimental details as well as results will be presented.

[1] S. Ikeda et al, *Nature Materials* **9**, 721 - 724 (2010)
[2] J.M. Beaujour et al, Eur. Phys. J. B **59**, 475–483 (2007)

[1]This research was partially supported by NSF award # DMR-1008654 and DOE-BES Award # DE-SC0003678.

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Date submitted: 28 Nov 2010 Electronic form version 1.4