

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Non-local damping effects in Py-Cu-FeMn trilayers ERIC R.J. EDWARDS, LEI WEN, ZEENATH REDDY TADISINA, CLAUDIA K.A. MEWES, SUBHADRA GUPTA, TIM MEWES, Center for Materials for Information Technology, University of Alabama — We report a non-local enhancement of the Gilbert damping in Py-Cu-FeMn trilayers for in-plane ferromagnetic resonance measurements. We observe a $1/t$ dependence, t being the thickness of the permalloy, of the slope of the linewidth vs. frequency measurements indicating non-local contributions to the damping. In view of experimental verification of the adiabatic spin pump theory [1] in ferromagnetic heterostructures [2], these results suggest parallels in exchange biased systems. With the thickness of the non-magnetic layer, Cu, fixed below its spin-diffusion length, we understand this effect to be non-local resulting from the injection of spins by the precessing magnetization at the Py-Cu interface and subsequent scattering at the Cu-FeMn interface.

[1] Tserkovnyak et al., Rev. Mod. Phys. **77**, 1375 (2005).

[2] Heinrich et al. Phys. Rev. Lett. **90**, 187601 (2003)

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Date submitted: 30 Nov 2007

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