

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Surface Acoustic Waves for Traveling Spin-Wave Resonance Spectroscopy** PRAVEEN GOWTHAM, Cornell University, TAKAHIRO MORIYAMA, Institute for Chemical Research, Kyoto University, DANIEL RALPH, ROBERT BUHRMAN, Cornell University, BUHRMAN/RALPH RESEARCH GROUP TEAM — Gigahertz frequency surface acoustic waves (SAWs) can, via the magnetoelastic interaction, generate effective RF pump fields that can resonantly excite spin waves in a thin-film ferromagnet. SAWs provide a powerful means to study spin waves because the pump field excites traveling spin waves with a definite nonzero wave-vector  $\mathbf{q}$ . This enables studies, at fixed  $\mathbf{q}$ , of the spin-wave self-interaction energies and damping. Here we report measurements of the angular dependence of SAW-induced magnetic resonance in Al(10)|AlO<sub>x</sub>(2)|Ni(10)|Pt(15) structures (thicknesses in nm). We characterize the resonances by measurement of both the acoustical transmission loss in a SAW delay line and the inverse spin Hall voltage generated in the Pt layer by spin pumping. The measurements allow quantitative determinations of the effective RF field generated by the SAW, the magnetoelastic coupling, and damping. The angular dependence reveals that, within the range of  $\mathbf{q}$  studied, the spin-wave self-interactions are dominated by dipolar fields rather than exchange.

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Date submitted: 13 Nov 2014

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