

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Exchange-coupling modified spin wave spectra in the perpendicularly magnetized permalloy nanodot chain arrays** JIAN DOU, SARAH C. HERNANDEZ, CHENGTAO YU, MICHAEL J. PECHAN, Department of Physics, Miami University, LIESL FOLKS, JORDAN A. KATINE, MATTHEW J. CAREY, San Jose Research Center, Hitachi Global Storage Technologies — Spin wave spectra in exchange coupled nanoscale dot chain arrays were studied using ferromagnetic resonance. The dot chain arrays, with dot diameters of 300 nm and thicknesses of 40 nm, coupled via permalloy bridges of width ranging from 0 to 60 nm, were fabricated using e-beam lithography. In the perpendicularly magnetized isolated dots, multiple sharp ferromagnetic resonant peaks were observed<sup>1</sup>, which is associated with the quantized in-plane wave vector due to the finite dot radius. These spectrum lines shift to higher fields for samples with wider bridges due to the increasing effective demagnetizing factor. Additional higher order spin wave modes were observed as satellite peaks near the resonance peaks at both higher and lower fields, with larger separation between adjacent spin wave peaks for wider bridge samples. These extra spin wave modes, associated with the inter-dot exchange coupling, will be described in detail. This work is supported by US Dept. of Energy at MU.

<sup>1</sup>G.N.Kakazei et al, Appl. Phys. Lett. **85**, 443 (2004)

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Date submitted: 21 Nov 2008

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