

Abstract Submitted
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Characterization of the High Coercivity Magnetic Probe Tips for Magnetic Resonance Force Microscopy I.H. LEE, J. KIM, YU OBUKHOV, P. BANERJEE, D.V. PELEKHOV, P.C. HAMMEL, The Ohio State University — Magnetic Resonance Force Microscopy on ferromagnetic systems calls for high coercivity probe magnets needed for exciting localized Ferromagnetic Resonance (FMR) modes in the sample under investigations. We have characterized high coercivity Sm₂Co₁₇ MRFM probes fabricated by Focused Ion Beam (FIB) micro machining and mounted on a commercial Si cantilever (characteristic dimension 1 μm x 1 μm x 1 μm). We report vibrating cantilever magnetometry measurements of probe coercivity. Low temperature (4 K) probe coercivity as high as 1 T has been observed. Probe characteristics have also been deduced from deconvolution of MFM data obtained on 5.3 μm diameter permalloy dots. We also discuss energy dissipation in the micromechanical cantilever when the probe magnet approaches a ferromagnetic sample.

I.H. Lee
The Ohio State University

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