

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Characterization of an MRFM probe in the SPAM geometry DO-
RAN SMITH, US Army Research Laboratory — This talk will describe a new
MRFM probe built by the author that uses in the SPAM geometry, operates in
vacuum at 4 K, up to 9 T, has 3D sample stage motion, uses Cornell cantilevers
with spring constants of 0.1 mN/m with 7 μm diameter nickel spheres mounted on
the cantilever, and spring based vibration isolation that results in Brownian mo-
tion limited behavior at 4 K. The talk will describe the probe's Brownian motion
and frequency deviations noise behavior vs. operating conditions, the cantilever's
frequency and Q dependence vs. background magnetic field, power density spectra
of cantilever fluctuations both far from and near a gold coated GaAs surface, the
importance of cantilever control for noise abatement, and NMR line shapes of Ga69.

Patrick Folkes
US Army Research Lab

Date submitted: 18 Nov 2009

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