

Abstract Submitted
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Micromechanical devices for magnetization measurements at high magnetic fields and low temperatures J. PASTER, K. NINIOS, H.B. CHAN, University of Florida, L. BALICAS, Florida State University — We constructed micromechanical faraday balance magnetometers for measuring the absolute value of the magnetization of very small samples (~ 1 ugram) at high magnetic fields and a wide range of temperatures. The magnetometers consist of a movable polysilicon plate (500 by 500 micrometers) suspended by four springs above a fixed electrode. When small samples of the magnetic material are placed at the center of the movable plate, the magnetic field gradient creates a force on the sample that changes the capacitance between the plate and electrode. The absolute magnetization of the sample can be determined provided that the magnetic field gradient is known. Springs with different shapes are designed to minimize the response to magnetic torque. Experimental results will be compared to numerical simulation.

Corey Stambaugh
University of Florida

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