

Abstract Submitted
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Experiments Using Force-Detected Nuclear Magnetism¹ HAN-JONG CHIA, WEI LU, SAMARESH GUCHHAIT, ROSA CARDENAS, ISAAC ESTEVE, MICHELLE MILLAN, JOHN MARKERT, Department of Physics, University of Texas at Austin, Austin, Tx, 78712, USA — We present progress on our Nuclear Magnetic Resonance Force Microscopy (NMRFM) experiments, interferometer instrumentation, and double-torsional oscillator fabrication. Our new ³He probe is in the final stages of testing and will be utilized to perform single-spin feasibility experiments at 300 millikelvin. We are also currently scanning for the boron resonance in MgB₂ using our ⁴He probe. With our room-temperature probe we are currently studying double and multiple resonance effects in NH₄PF₆ and are preparing to study dynamics and diffusion in soft condensed matter. In addition we will present results from our fabricated double-torsional oscillators using electron beam lithography with a minimum detectable force of $1.8 \times 10^{-18} \text{N}/\sqrt{\text{Hz}}$.

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