Abstract Submitted
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**High sensitivity SQUID susceptibility measurements** B. KALISKY, J.R. KIRTLEY, L.C. QIAN, B.L. DWYER, K.A. MOLER, Stanford, J. NGAI, Y. SEGAL, J. REINER, F. WALKER, C. AHN, Yale, A.M. HAMILTON, B. RUTT, A.C. MATIN, Stanford, O.M. AUSLAENDER, Technion, D.A. BONN, R. LIANG, W.N. HARDY, UBC, J.G. ANALYTIS, J.-H. CHU, I.R. FISHER, Stanford — Scanning superconducting quantum interference device (SQUID) sensors have high sensitivity to magnetic flux ($10^{-6}\Phi_0/\sqrt{Hz}$) and magnetic moment ($\sim 100$ electron spins) under reasonable scanning conditions. In addition, a single turn field coil co-centered with the SQUID sensing loop provides excitation for simultaneous measurement of low field susceptibility, with sensitivity of $\chi \sim 10^{-6}$ at a spatial resolution of a few microns. I will present our recent measurements on several systems which exhibit weak susceptometry signals: thin film paramagnetic LaNiO3 that are (hopefully) the precursors to engineered superconducting films; individual magnetotactic bacteria, which are used as MRI contrast agents; and twinned high critical temperature cuprate and pnictide superconducting samples that may experience variations in the superfluid density at the twin boundary.

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