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Spatial distribution of internal magnetic field in Hight - T_c superconductors with pancake vortices W.P. HALPERIN, S. MUKHOPADHYAY, A.M. MOUNCE, S. OH, Department of Physics and Astronomy, Northwestern University, IL, USA, A.P. REYES, P. KUHNS, National High Magnetic Field Laboratory, FL, USA, H. TAKAGI, Department of Physics, University of Tokyo, Tokyo, Japan, S. UCHIDA, Department of Advanced Materials Science, University of Tokyo, Chiba, Japan — We report here ^{17}O T_1 measurements in single crystals of slightly overdoped ($T_C = 82$ K) Bi2212 at 5 K, in magnetic fields from 15 – 30 T. In previous work the internal magnetic field distribution in YBCO aligned powders at high magnetic fields has been probed by NMR imaging experiments [1]. Our results for single crystals of the highly anisotropic superconductor, BSCCO, are remarkably different, and is inconsistent with present theoretical predictions. At 5 K the system is in a 2-D vortex solid phase [2]. We conclude that the magnetic field distribution for 2-D vortices in the presence of interlayer magnetic and Josephson coupling is radically different from a London vortex lattice.
[1]V. F. Mitrović *et.al.*, Nature **413**, 501 (2001).
[2]Bo Chen *et.al.*, Nature Physics **3**, 239 (2007).

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