

Abstract Submitted
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Effects of Vortex Charge Explored by NMR Spectroscopy in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ANDREW MOUNCE, S. OH, Northwestern University, S. MUKHOPADHYAY, W.P. HALPERIN, A.P. REYES, P.L. KUHNS, K. FUJITA, M. ISHIKADO, S. UCHIDA — We measure nuclear magnetic resonance (NMR) spectra for various dopings of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+y}$ to determine the variations of local magnetic fields generated by the vortex lattice at low temperatures. With increasing the external magnetic field H_0 , the local field variations decrease to values lower than expected by Ginzburg-Landau calculations for an Abrikosov vortex lattice.¹ Taking into account charge accumulation in vortex cores, which has been predicted by theory² and suggested by experiment,³ we are able to identify the amount of charge needed to disturb the vortex lattice and decrease local field variations as in the observed spectra. The amount of charge is found to be $\sim 2 \times 10^{-3}e$ and doping dependent in line with theoretical predictions.² This work is supported by DOE/BES: DE-FG02-05ER46248 and the NHMFL by NSF and the State of Florida.

¹Brandt, E. H., Phys. Rev. Lett. **66**, 3213-3216 (1991).

²Khomskii, D. I. & Freimuth, A. Phys. Rev. Lett. **75**, 1384-1386 (1995).

³Kumagai, *et al.* Phys. Rev. B **63**, 144502 (2001).

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