

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Magnetic measurement of RF-induced flux lattice annealing (RIFLA) in the electron-doped superconductor $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$. W.G. CLARK, G. GAIDOS, G. WU, S.E. BROWN, UCLA Physics and Astronomy, R.L. GREENE, U. of Maryland Physics, H. BALCI, UIUC Physics — A strained flux lattice (FL) in a superconductor (SC) can be annealed to a lower free energy by the RF-field used to generate an NMR spin-echo signal [W.G. Clark et al., J. Phys. IV Proceedings **9**, Pr10-49-52 (1999)]. Here, we report the change in the rf magnetic susceptibility (χ) in the SC phase of a single crystal of $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$ with a strained FL by successive RIFLA pulses. The distorted FL is prepared by rotating the sample through a small angle in a magnetic field well below the SC transition temperature, leaving the FL pinned in a non-equilibrium configuration. RIFLA pulses then reduce χ , which is measured by the change in the inductance of a coil surrounding the sample using an NMR probe and spectrometer. The interpretation is that shaking the FL by the RF pulses progressively anneals it to a lower free energy configuration, which has a smaller χ . These measurements provide a very sensitive measure of the RIFLA effect. Work at UCLA was supported by NSF Grants DMR-0334869 (WGC) and DMR-0520552 (SEB).

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Date submitted: 20 Nov 2006

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