

Abstract Submitted
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RF-induced flux lattice annealing (RIFLA) in the electron-doped superconductor $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$.¹ W.G. CLARK, GUOQING 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, this effect is reported for the SC phase of $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$. The distorted FL is prepared by rotating the sample through a small angle in a magnetic field well below the transition temperature, which leaves the FL pinned in a non-equilibrium configuration. Then, the first spin echo has almost no amplitude. Subsequent echoes have a progressively larger amplitude until a final, steady value is reached. The interpretation is that shaking of the distorted vortex lattice by the RF pulses progressively anneals it to a lower free energy configuration. The corresponding change in the local field between the de-phasing and re-phasing pulse for each echo then reduces the height of the echo.

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