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NMR spin-echo measurement of driven vortex motion in the superconducting phase of the electron-doped HTSC $Pr_{1.85}Ce_{0.15}CuO_{4-y}$. W.G. CLARK, GUOQING WU, S.E. BROWN, UCLA Dept. of Physics and Astronomy, R.L. GREENE, H. BALCI, Dept. of Phys., Univ. of Maryland — We report modulation of the ^{63}Cu spin echo as a function of arrival time in the superconducting phase of a single crystal of $Pr_{1.85}Ce_{0.15}CuO_{4-y}$. It occurs when the sample is immersed in liquid He, but not in He vapor. Our interpretation is that the RF pulses that form the spin echo excite an ultrasonic oscillation in the NMR coil which is transmitted to the sample via the He liquid. It generates an oscillatory motion of the vortex lattice, which causes the oscillation of the local magnetic field oscillation responsible for the spin echo modulation (near 20 kHz). Two features that support this interpretation are: (1) Adding mass to the NMR coil changes the spin echo oscillation frequency, and (2) the echo modulation disappears when the sample leaves the superconducting phase because the magnetic field is rotated away from the $a-b$ plane. We thank L. Bulaevskii for important comments and the NSF for support from Grants DMR-0334869 (WGC) and DMR-0203806 (SEB).

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