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NMR investigation of a hole doped CeCoIn5 R. R. URBANO, N. J. CURRO, V. A. SIDOROV, J. D. THOMPSON, Los Alamos National Laboratory, Los Alamos-NM, 87545, U. S. A., L. D. PHAM, University of California, Davis-CA, 95616, U. S. A., Z. FISK, University of California, Irvine-CA, 92697, U. S. A. —
We have investigated the local environment of In and Co sites of the heavy fermion compound $CeCo(In_{1-x}Cd_x)_5$ ($x = 0.0$, 0.10 and 0.15) using Nuclear Magnetic Resonance (NMR) and Nuclear Quadrupole Resonance (NQR) measurements. Recently, it was found that Cd-doping acts as an electronic tuning agent in $CeCoIn_5$ and that superconductivity (SC) and antiferromagnetism (AFM) coexist at ambient-pressure for $0.05 < x < 0.15$. It has also been observed on Cd doped compounds that pressure P recovers the SC ground-state observed for the undoped compound suggesting it as a reversible tuning parameter. In this work we report data indicating that these phases indeed coexist microscopically. The NMR/NQR spectra of In and Co indicate the presence of electronic inhomogeneity, and the spin-lattice relaxation measurements T_1^{-1} suggest that Cd doping induces changes to the low frequency spin dynamics only below $T \simeq 5K$. Furthermore, T_1^{-1} measurements for $x = 0.10$ under pressure show a different spin dynamics response in the paramagnetic state, in contrast with the effect of the chemical pressure. We show that chemical doping and pressure are not equivalent.

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