

Abstract Submitted
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⁷⁵As and ²³Na NMR study in optimally Co doped NaFe_{0.975}Co_{0.025}As¹ SANGWON OH, A.M. MOUNCE, JEONGSEOP A. LEE, W.P. HALPERIN, Northwestern University, C. L. ZHANG, PENGCHENG DAI, The University of Tennessee, A.P. REYES, P.L. KUHNS, National High Magnetic Field Laboratory — The normal and superconducting state of NaFe_{0.975}Co_{0.025}As, single crystals with exceptionally narrow ⁷⁵As and ²³Na NMR spectra, were investigated in external magnetic fields from 6.4 T to 24 T. The Knight shift (⁷⁵*K*) shows an almost linear decrease in the normal state on cooling and a sharp transition to spin-singlet superconductivity below *T_c*. A temperature independent ⁷⁵*K* at low temperature, below 0.4 *T_c*, indicates that there are no gap nodes. The penetration depth, λ_{ab} , was found to be 456 ± 7 nm at zero temperature, after convoluting the normal state spectrum with the vortex field distribution expected from Ginzburg-Landau theory. The spin lattice relaxation rate, $1/T_1$, shows a T^3 behavior in the superconducting state at low field which becomes $T^{1.5}$ at higher fields. Additionally, the average of $1/T_1$ over the vortex unit cell at $T = 4$ K is linear in H^2 .

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