Abstract Submitted
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Nodal gap symmetry in $Ba(Fe_{0.93}Co_{0.07})_2As_2$ from NMR measurement in high magnetic field[1] SANGWON OH, S. MUKHOPADHYAY, A.M. MOUNCE, W.P. HALPERIN, Northwestern University, IL, USA, N. NI, S.L. BUD´KO, P.C. CANFIELD, Y. FURUKAWA, Ames Lab, IA, USA, A.P. REYES, P.L. KUHNS, NHMFL, FL, USA — There is conflicting evidence in pnictide superconductors for fully gapped $s_\pm$ wave symmetry or gap nodes at the Fermi surface. Here we report measurements of the ^{75}As NMR Knight shift that suggest existence of gap nodes on an optimally doped single crystal of $Ba(Fe_{0.93}Co_{0.07})_2As_2$. The measurements were done from 2 K to 300 K with external magnetic fields from 6.4 T to 16.8 T. The spin part of the Knight shift at low temperature($< T_c/3$) has linear temperature dependence. The diamagnetic vortex contribution to the Knight shift can be separated from the spin part at high magnetic field. Our results indicate a nodal gap on the Fermi surface, a conclusion also inferred from the penetration depth measurement[1]. Additionally, we have measured the spin-spin relaxation time, T_2, arising from vortex dynamics. Below T_c, T_2 decreases followed by an abrupt increase at the vortex melting temperature, consistent with a 1^{st} order transition. [1]R. T. Gordon *et al.* Phys. Rev. Lett **102**, 127004 (2009)

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