Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

^{75}As NMR study of spin-spin relaxation and impurity effects in (Ba,K)Fe_2As_2 and $CaFe_2As_2$ S. MUKHOPADHYAY, S. OH, A.M. MOUNCE, M. LEE, W.P. HALPERIN, Department of Physics and Astronomy, Northwestern University, IL, USA, A.P. REYES, P. KUHNS, National High Magnetic Field Laboratory, FL, USA, P.C. CANFIELD, N. NI, S. BUD'KO, Ames Laboratory, Iowa State University, IA, USA — We report here NMR measurements on $Ba_{0.55}K_{0.45}Fe_2As_2$ single crystals ($T_c \sim 30$ K) grown from Sn flux. The variations of the NMR line widths and shifts with temperature (40 – 150 K) and with magnetic field (6.4 – 14 T) are indicative of the presence of local magnetic impurities in these crystals, in contrast with crystals of $CaFe_2As_2$. Both the shift and line width are linearly dependent on the bulk magnetization and are sufficiently large that the impurity magnetic moments must be coupled through the hyperfine interaction to the As nuclei. However, this coupling is somewhat weaker than for impurities in YBCO and ^{17}O NMR [1]. Measurements of the spin-spin relaxation from the Hahn echo decay envelope and CPMG sequences indicate slow magnetic fluctuations, $\approx$ 350 Hz, whose origin will be discussed.

[1] J. Bobroff. Ph. D. Thesis, Universite De Paris-Sud (1997)

S. Mukhopadhyay
Department of Physics and Astronomy, Northwestern University, IL, USA

Date submitted: 17 Nov 2008 Electronic form version 1.4