Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Electronic and magnetic properties of $Ca(Fe_{1-x}Co_x)_2As_2$ studied by ^{75}As NMR[1] YUJI FURUKAWA, BEAS ROY, SHEN RAN, SERGEY L. BUD'KO, PAUL C. CANFIELD, Ames Laboratory and Dept. of Phys. and Astro., Iowa State Univ. — Recently much attention has been paid to $CaFe_2As_2$ because the magnetic and electronic properties of the system can be controlled by changing the heat treatment conditions. $CaFe_2As_2$ annealed at 400 C for 24 hours undergoes a phase transition from a high-temperature tetragonal paramagnetic state to a low temperature orthorhombic antiferromagnetic state at $T_N \sim 160$K. On the other hand, $CaFe_2As_2$ quenched from 960 C to room temperature shows a transition to a collapsed tetragonal non-magnetic phase below $T_s \sim 90$ K. In order to investigate the difference in electronic and magnetic properties of the two different $CaFe_2As_2$ samples from a microscopic point of view, we have carried ^{75}As-NMR spectra and spin-lattice relaxation measurements. We also performed ^{75}As-NMR measurements on Co-doped $CaFe_2As_2$ superconductor. Based on our NMR data, we will discuss similarities and difference in magnetic fluctuations in the systems, and compare the NMR data with inelastic neutron scattering data.

[1]Supported by USDOE under the Contract No. DE-AC02-07CH11358.

Yuji Furukawa
Iowa State University

Date submitted: 13 Nov 2013 Electronic form version 1.4