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Competing magnetic fluctuations in iron pnictide superconductors: role of ferromagnetic spin correlations revealed by NMR[1] YUJI FURUKAWA, PAUL WIECKI, BEAS ROY, DAVID C. JOHNSTON, SERGEY L. BUD'KO, PAUL C. CANFIELD, Ames Laboratory, Dept. of Phys. and Astro, Iowa State Univ., COLLABORATION — The role of magnetic fluctuations in iron pnictide superconductors has been extensively studied since their discovery. As the parent materials have antiferromagnetic (AFM) ground states, attention has been focused on stripe-type AFM fluctuations, which are widely believed to give rise to the Cooper pairing in the systems. On the other hand, according to density functional theory calculations, the static magnetic susceptibility is enhanced at not only the stripe-type AFM but also ferromagnetic (FM) wavevectors. Nevertheless, FM fluctuations have not been investigated microscopically. In this talk, based on ^{75}As NMR data [1,2], we report clear evidence for the existence of strong FM correlations in the hole-doped $(Ba_{1-x}K_x)Fe_2As_2$ and electron-doped $Ba(Fe_{1-x}Co_x)_2As_2$. We will discuss the role of FM spin correlations in the occurrence of superconductivity in these systems. [1] P. Wiecki, et al., Phys. Rev. B **91**, 220406 (2015). [2] P. Wiecki, et al., Phys. Rev. Lett. **115**, 137001 (2015).

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