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Title:
NMR Investigation of the Quasi 1-dimensional Superconductor $K_2Cr_3As_3$

Abstract:
We report $^{75}$As NMR measurements on the new quasi one-dimensional superconductor $K_2Cr_3As_3$ (T$_c$ ~ 6.1 K) [J. K. Bao et al., Phys. Rev. X 5, 011013 (2015)]. We found evidence for strong enhancement of Cr spin fluctuations above T$_c$ in the $[Cr_3As_3]$$_{\infty}$ double-walled subnano-tubes based on the nuclear spin-lattice relaxation rate 1/T$_1$. The power law temperature dependence, 1/T$_1$ ~ T$^{-\gamma}$($\gamma$ ~ 0.25), is consistent with the Tomonaga-Luttinger liquid. Moreover, absence of the Hebel-Slichter coherence peak of 1/T$_1$ just below T$_c$ suggests unconventional nature of superconductivity.