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NMR study of over-doped NaFe_{1-x}Cu_xAs Single Crystals¹ YIZHOU XIN, PETER JEONGSEOP LEE, INGRID STOLT, WILLIAM HALPERIN, Northwestern University, YU SONG, WEIYI WANG, PENGCHENG DAI, Rice University, CHONGDE CAO, Northwestern Polytechnical University, ARNEIL REYES, National High Magnetic Field Laboratory (NHMFL) — We present a preliminary ²³Na and ⁷⁵As NMR study of the over-doped NaFe_{1-x}Cu_xAs pnictide, which has been demonstrated to be a possible Mott insulator near $x \approx$ 0.5.[1, 2] Our NMR spectra for three over-doped crystals (x = 0.15, 0.20, and 0.35) indicate that there are two inequivalent ²³Na sites associated with a binomial distribution of Cu dopants. From NMR Knight shift and spin-lattice measurements of ²³Na, we show that NaFe_{1-x}Cu_xAs exhibits spin pseudo-gap behavior in the heavily Cu-doped regime. Comparison is made to earlier work on $Ba(Fe_{1-x}Co_x)_2As$. A possible presence of the coupling between charge density and spin density fluctuations is also discussed to account for the origin of the temperature dependence of the quadrupolar frequency. [1] Song, Yu, et al., arXiv preprint arXiv:1504.05116 (2015). [2] C.E. Matt *et al.*Phys. Rev. Lett. 117, 097001 (2016)

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Yizhou Xin Northwestern University

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