

Abstract Submitted
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NMR Study of the SDW ordering and the Spin Fluctuations on NaFeAs single crystals¹ WEIQIANG YU, L. MA, S. ZHANG, J. ZHANG, T.-L. XIA, G.F. CHEN, Department of Physics, Renmin University of China, Beijing 100872, China, DAO-XIN YAO, School of Physics and Engineering, Sun Yat-sen University, Guangzhou 510275, China — In iron pnictides, the nature of the spin density wave (SDW) ordering is still not clear. Recently, increasing attention has been drawn to the correlation between the SDW transition and the high-temperature tetragonal to the low-temperature orthorhombic structure transition. In NaFeAs, the magnetic moment is small and both transitions are well separated, and therefore NaFeAs could be a good candidate to study the interplay of different degrees of freedom microscopically. In this talk, we report our ²³Na and ⁷⁵As NMR observations on NaFeAs single crystals. We found that 1) the spin fluctuations are largely enhanced below the structure transition; 2) the SDW transition temperature and the magnetic moment increase significantly with pressure; and 3) the NMR linewidth and the temperature/field dependence of the spin-lattice relaxation rate show signatures of an incommensurate SDW ordering in a limited temperature range just below the SDW transition. Based on these results, we discuss the coupling between the magnetism and the lattice/band structure in NaFeAs.

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