

Abstract Submitted
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The influence of the structural transition on magnetic fluctuations in NaFeAs¹ WEI BAO, JINCHEN WANG, JUANJUAN LIU, WEI LUO, JIEMING SHENG, Department of Physics, Renmin Univ of China, Beijing 100872, China, AIFENG WANG, XIANHUI CHEN, Hefei National Laboratory for Physical Sciences at Microscale, University of Science and Technology of China, Hefei, Anhui 230026, China, SERGEY DANILKIN, The Bragg Institute, Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW 2234, Australia — NaFeAs belongs to a class of Fe-based superconductors which have parent compounds that show separated structural and magnetic transitions. Effects of the structural transition on spin dynamics therefore can be investigated separately from the magnetic transition. A plateau in dynamic spin response is observed in a critical region around the structural transition temperature T_S . It is interpreted as being due to the stiffening of spin fluctuations along the in-plane magnetic hard axis due to the d_{xz} and d_{yz} orbital ordering. The appearance of anisotropic spin dynamics in the critical region above the T_S at T^* offers a dynamic magnetic scattering mechanism for anisotropic electronic properties in the commonly referred ‘nematic phase’. Ref: J. Phys. Condens. Mater. 28 (2016) 27LT01

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