

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

L-dependence of low energy spin excitations in FeTe/Se superconductors GUANGYONG XU, Brookhaven National Laboratory, ZHIJUN XU, NIST Center for Neutron Research, JOHN SCHNEELOCH, Stonybrook University, JINSHENG WEN, Nanjing University, BARRY WINN, Oak Ridge National Laboratory, YANG ZHAO, NIST Center for Neutron Research, ROBERT BIRGENEAU, UC Berkeley, GENDA GU, JOHN TRANQUADA, Brookhaven National Laboratory — We will present neutron scattering measurements on low energy magnetic excitations from $\text{FeTe}_{1-x}\text{Se}_x$ (“11” system) samples. Our work shows that the low energy magnetic excitations are dominated by 2D correlations in the superconducting (SC) compound at low temperature, with the L-dependence well described by the Fe magnetic form factor. However, at temperatures much higher than T_C , the magnetic excitations become more three-dimensional with a clear change in the L-dependence. The low energy magnetic excitations from non-superconducting (NSC) samples, on the other hand, always exhibit three-dimensional features for the entire temperature range of our measurements. Our results suggest that in addition to in-plane correlations, the inter-plane spin correlations are also coupled to the superconducting properties in the “11” system.

Guangyong Xu
Brookhaven National Laboratory

Date submitted: 11 Nov 2016

Electronic form version 1.4