

Abstract Submitted  
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**Neutron study of spin fluctuations in iron chalcogenide** SONGXUE CHI, Oak Ridge National Lab, TANER YILDIRIM, JEFFREY LYNN, NIST Center for Neutron Research, CHENGLIN ZHANG, University of Tennessee, Knoxville, JOSE RODRIGUES, NIST Center for Neutron Research, PENGCHENG DAI, University of Tennessee, Knoxville, DANIEL PHELAN, DEEPAK SINGH, RICK PAUL, NIST Center for Neutron Research — The incommensurate spin excitations in the nonsuperconducting  $\text{FeTe}_{0.72}\text{Se}_{0.28}$  have been studied using both cold and thermal neutron spectroscopy. At low energies spectrum weight shifts from  $(1/2,0)$  commensurate excitations to the incommensurate quartets about the  $(1,0)$  point, which disperse outward before the inward dispersion at higher energies. The steep dispersion is disturbed in the energy range between 20 meV and 32 meV, resulting in abnormal excitations that are also observed in the superconducting  $\text{FeTe}_{0.62}\text{Se}_{0.38}$ . Polarized neutron measurements were carried out and the origin of these abnormal excitations is discussed.

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