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Magnetic fluctuations and quasi-static magnetism in optimally doped $\mathbf{FeSe_{0.4}Te_{0.6}}$ VIVEK THAMPY, Dept. of Physics & Astronomy, Johns Hopkins Univ., WEI BAO, Dept. of Physics, Renmin Univ. of China, A.T. SAVICI, Dept. of Physics & Astronomy, Johns Hopkins Univ., Y. QIU, NIST Center for Neutron Research, JIN HU, TIJIANG LIU, Z.Q. MAO, Dept. of Physics and Engineering Physics, Tulane Univ., COLLIN BROHOLM, Dept. of Physics & Astronomy, Johns Hopkins Univ. — Magnetic Fluctuations in the optimally doped 11-type iron superconductor $FeSe_{0.4}Te_{0.6}$ were examined using inelastic neutron scattering on the MACS instrument at NIST. In the normal state at T=25K we find strong low energy fluctuations through an extended area of the (hk0) zone that includes and connects the high symmetry (1/2,0,0) and (1/2,1/2,0) points. In the superconducting state intensity at the (1/2,1/2,0) location is depleted for $\hbar\omega = 1.5$ meV as spectral weight is transferred to the 6.5 meV resonance. Low energy and quasi-elastic scattering however remains at (1/2,0,0). In the (HHL) zone we observed striped features indicating shorter range correlations along c. While glassy magnetism and superconductivity coexist in our samples, they are associated with distinct parts of momentum space. Work at JHU was supported by DoE through DE-FG02-08ER46544.

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