

Abstract Submitted  
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**Neutron Scattering Study of Magnetic Excitation Spectrum on  $\text{Fe}_{1-x}(\text{Ni}/\text{Cu})_x\text{Te}_{0.5}\text{Se}_{0.5}$**  ZHIJUN XU, JINSHENG WEN, GUANGYONG XU, GENDA GU, JOHN TRANQUADA, Brookhaven National Laboratory — We have performed a series of neutron scattering and magnetization measurements on  $\text{Fe}_{1-x}(\text{Ni}/\text{Cu})_x\text{Te}_{0.5}\text{Se}_{0.5}$  with different Ni/Cu compositions to study the interplay between magnetism and superconductivity. Substituting 2% and 4% of Ni for Fe reduces  $T_c$  from 15 K to 12 K and 8 K, while 10% of Cu results in lost of superconductivity. Spin resonance with lower energy are found in all superconducting samples. The overall shape of the low energy magnetic dispersion changes from two incommensurate vertical columns at  $T \gg T_c$  to a distinctly different U-shaped dispersion at low temperature in superconducting samples. This spectral reconstruction is apparent for temperature up to  $3T_c$ . On the other hand, no static order around (0.5,0,0.5) was found in any of these samples.

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