

Abstract Submitted  
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**Spin excitations as in hole-doped  $\text{Ba}_{0.67}\text{K}_{0.33}\text{Fe}_2\text{As}_2$  superconductor** CHENGLIN ZHANG, MENG WANG, MIAOYING WANG, JUN ZHAO, University of Tennessee, Physics Dept, MARTY KAROL, MARK LUMSDEN, Oak Ridge National Laboratory, SONGXUE CHI, SUNG CHANG, JEFFREY LYNN, National Institute of Standards and Technology, HUIQIAN LUO, TAO XIANG, Institute of Physics, Chinese Academy of Sciences, JIANGPING HU, Department of Physics, Purdue University, PENGCHENG DAI, University of Tennessee, Physics Dept, UNIV OF TENNESSEE, PHYSICS DEPT TEAM, OAK RIDGE NATIONAL LABORATORY TEAM, NIST TEAM, INSTITUTE OF PHYSICS, CHINESE ACADEMY OF SCIENCES TEAM — We used inelastic neutron scattering to study the optimally doped  $\text{Ba}_{0.67}\text{K}_{0.33}\text{Fe}_2\text{As}_2$  ( $T_c=38\text{K}$ ). In contrast to electron doped counterpart, we found that resonance is almost none-L dependence as shown in Fig.1 (b), but the spin gaps are. It is gaped along  $(0.5,0.5,0)$ , however essentially gapless along  $(0.5,0.5,1)$ . Meanwhile, the spin correlation is strongly temperature dependence which has not been observed in electron-doped 122 materials at all. The above findings clearly suggest that hole-doped region is indeed different from electron-doped region.

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