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Spin resonance of $Ba_{1-x}K_xFe_2As_2$ studied by neutron scattering CHUL-HO LEE, K. KIHOU, AIST, Japan, J.T. PARK, MLZ, Germany, K. HORIGANE, Okayama Univ., Japan, F. WASSER, Universität zu Köln, Germany, N. QURESHI, ILL, France, Y, SIDIS, LLB, France, J. AKIMITSU, Okayama Univ., Japan, M. BRADEN, Universität zu Köln, Germany — The remarkable enhancement of magnetic neutron scattering signals appearing in a superconducting phase, so called spin resonance, is important to examin since it could include information of Cooper pairing. Here, we examined the spin fluctuation of hole-doped $Ba_{1-x}K_xFe_2As_2$ by inelastic neutron scattering to clarify the doping dependence of spin resonance. Neutron scattering experiments were conducted using the triple-axis spectrometer PUMA at FRM ll, Germany and 2T1 at LLB, France. We have found that the behavior of the spin resonance dramatically changes around x = 0.66 [1]. Resonance peaks have been observed clearly below 2Δs in the optimum doping region, while they are absent in the overdoped region. Instead, there is a transfer of spectral weight from energies below 2Δs to higher energies, peaking at values of 3Δs for x = 0.84. These results indicate a reduced impact of magnetism on Cooper pair formation in the overdoped region. [1] C.H.Lee et al., Sci. Rep. 6, 23424 (2016)

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