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Effect of oxgyen ordering on the spin dynamics of $YBa_2Cu_3O_{6.5}^{1}$ SHILIANG LI, University of Tennessee, Z. YAMANI, Chalk River Laboratories, Canada, H.J. KANG, NIST Center for Neutron Research, FENG YE, Oak Ridge National Laboratory, C. BIRCHER, University of Tennessee, K. SEGAWA, Y. ANDO, Central Research Institute of Electric Power Industry, Japan, XIN YAO, Shanghai Jiao Tong University, China, H. A. MOOK, Oak Ridge National Laboratory, PENGCHENG DAI, University of Tennessee — We use inelastic neutron scattering to study the oxygen disorder effect in electronic properties of YBCO 6.5. Previous work have shown when copper oxygen chains in the YBCO 6.5 form ortho-II order, magnetic excitations in YBCO6.5 form a resonance around 33 meV and incommensurate spin flucutations below the resonance. In oder to study oxygen disorder effect on spin excitations of YBCO 6.5, we measured spin dynamics of detwinned Ortho-I YBCO (x=6.5) (T_c =48K), whose Cu-O chains are not well ordered. We find that oxygen disorder can have dramatic effect on spin dynamics of YBCO6.5. We discuss similarities and differences in spin dynamics in these two materials and their possible interpretation.

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