

Abstract Submitted  
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**Collective spin-excitations in Cu L and O K edge Resonant Inelastic X-ray Scattering on  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$ .** J. SCHLAPPA, T. SCHMITT, F. VERNAY, V.N. STROCOV, B. THIELEMANN, H.M. RONNOW, J. MESOT, B. DELLEY, L. PATTHEY, Paul Scherrer Institute, Switzerland, V. ILAKOVAC, Universite Pierre et Marie Curie Paris, France, ECOLE POLYTECHNIQUE FEDERALE LAUSANNE, SWITZERLAND COLLABORATION, POLITECNICO DI MILANO, ITALY COLLABORATION — Using Resonant Inelastic X-ray Scattering (RIXS) at the Cu $L_3$  and O  $K$  edge we studied the spin-ladder/spin-chain compound  $\text{Sr}_{14}\text{Cu}_{24}\text{O}_{41}$  [1,2]. We observe collective spin-excitations from the ladders, which we assign to two-Triplon modes [3]. At the Cu  $L_3$  resonance the dispersion of the modes was mapped out, obtaining excellent sensitivity over the full first Brillouin-zone, in contrast to Inelastic Neutron Scattering [4]. At the O  $K$  edge site-sensitive hole-excitation studies of the chain- and ladder-subsystems were performed, giving insight into the character of the holes. [1] T. Vuletic et al., Physics Reports 428, 169-258 (2006). [2] A. Kotani and S. Shin, Rev. Mod. Phys. 73, 203 (2001). [3] K. P. Schmidt and G. S Uhrig. Mod. Phys. Rev. Lett. 90, 227204 (2003). [4] S. Notbohm et al., Phys. Rev. Lett. 98, 027403 (2007).

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