Abstract Submitted
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Resonant Inelastic X-ray Scattering in CE-ordered bilayer manganite FRANK WEBER, STEPHAN ROSENKRANZ, JOHN-PAUL CASTELLAN, JOHN MITCHELL, HONG ZHENG, Materials Science Division, Argonne National Laboratory, DIEGO CASA, THOMAS GOG, X-ray Science Division, Argonne National Laboratory — Resonant Inelastic X-ray Scattering (RIXS) has recently emerged as valuable tool in the study of orbital excitations in transition metal oxides.Stepah We have performed RIXS measurements at the Mn K-edge in the half doped bilayer manganite $LaSr_2Mn_2O_7$. Our sample was a non-reentrant single crystal with long range CE order down to lowest temperatures. We made wave vector dependent energy loss scans with $\Delta E \leq 15$eV in the (110) direction at three different temperatures, i.e. T=75K (AFM CE ordered), 175K (PM CE ordered) and 250K (PM and no orbital order). In particular, we compare the temperature dependence of the 2eV peak with previous results on manganite perovskites [1]. Work supported by US DOE BES-DMS DE-AC02-06CH11357.

[1] S. Grenier et al. Phys. Rev. Lett. 94, 047203 (2005)

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