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Temperature-Dependent Electronic Structure of the Colossal Magnetoresistive Manganite $La_{0.7}Sr_{0.3}MnO_3$ via Hard X-Ray Photoemission FRANCESCO OFFI, CNISM and Dip. di Fisica, Università Roma Tre, Rome, NORMAN MANNELLA, Physics, U. Tennessee Knoxville, GIANCARLO PANACCIONE, TASC-INFM-CNR,Trieste, Italy, TOMMASO PARDINI, Physics UC Davis, ANDREA FONDACARO, ESRF, Grenoble, PIERO TORELLI, CNR-INFM-S3, Modena, SIMO HUOTARI, ESRF, Grenoble, MARK WEST, Mat. Sci. Div., LBNL, JOHN MITCHELL, Mat. Sci. Div., ANL, CHARLES FADLEY, UC Davis Physics and Mat. Sci. Div., LBNL, Davis, CA — We have studied single-crystal $La_{0.7}Sr_{0.3}MnO_3$ with hard x-ray photoemission (HXPS) at an excitation energy of 7.7 keV. These more bulk-sensitive measurements reveal low-binding-energy satellites in the Mn $2p_{3/2}$, 3s, and 3p core spectra that are consistent with previously observed satellites in Mn $2p_{3/2}$ for other strongly-correlated materials, and which have been interpreted in terms of non-localized screening effects. The Mn 3s spectrum is agreement with recent soft x-ray measurements (Mannella et al., P.R.L. **92**, 166401 (2004)) in showing an increased multiplet splitting at temperatures 100 K or more above T_C, although the effect is here reduced. Core-normalized valence-band spectra exhibit enhancement of intensity at high temperature that is evidence of localization of Mn 3d-derived charge, in agreement with prior soft x-ray work.

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