

Abstract Submitted
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Observation of Strain and Temperature Induced Changes in the Band Structure of Thin $\text{La}_{0.8}\text{MnO}_{3-\delta}$ films¹ T. A. TYSON, Q. QIAN, M. DELEON, NJIT, C. DUBOURDIEU, L. FRATILA, LMGP-Minatec, France, Y. CAI, NSRC, Taiwan, K. AHN, Konkuk University — Mn K-edge resonant inelastic x-ray scattering measurements were performed on ultrathin and thick films of $\text{La}_{0.8}\text{MnO}_{3-\delta}$. The measurements reveal that strain causes large shifts of the Mn 3d and Mn 4p/4s bands above the Fermi level. While the thick films track the behavior of bulk samples, the thinnest film is found to exhibit a switch from a localized 3d band at high temperature to a delocalized metal band at low temperature. The strain induced switching behavior opens the possibility of tuning the transition to higher temperatures for device applications in this class of manganite materials.

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