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Structural Analysis of La_x Mn O_3 Films M.A. DELEON, T. TYSON, New Jersey Institute of Technology, Applied Physics, C. DUBOURDIEU, Laboratoire des Máteriaux et du Génie Physique UMR CNRS 5628, INPG, 38402 St.Martin d'Héres, France, J. BAI, ORNL, J. KIRKLAND, NRL — Local and long-range structure have been correlated with the magnetic and transport properties in La_xMnO_3 films ($2000\mathring{A}$) with La:Mn content (x) ranging from 0.83 to 1.09. The local structure has been investigated by Mn K-edge X-Ray Absorption spectroscopy as a function of x. The long range structure has been evaluated by detailed measurements of the in-plane and out-of-plane lattice parameters via high-resolution synchrotron x-ray diffraction. The detailed local distortions of the MnO_6 octahedra are related to the low temperature magnetization. This research is supported by NSF DMR-0209243 and DMR-0512196.

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