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Photoelectron Emission Microscopy at the Manganese L-edge of Thin La_{1-x} Sr_x Mn O_3 Films through the Phase Transition 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, A. SCHOLL, A. DORAN, ALS — Surface magnetization of La_{1-x} Sr_x Mn O_3 films has been observed directly by x-ray photoelectron emission microscopy (XPEEM) at the manganese L-edge. Two sets of films of similar thickness range have been grown via metal-organic chemical vapor deposition (MOCVD) on $LaAlO_3$ and $SrTiO_3$ substrates. The data provides direct observation of magnetic domain melting and growth through the transition temperature. A comparison of domain geometry between the two sets of films will be presented. The effect of the coupling of the strain (tensile vs. compressive) with the magnetization will be discussed. This research is supported by NSF DMR-0209243 and DMR-0512196.

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