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Epitaxial growth of ultra thin films of electron doped manganites SRIMANTA MIDDEY, M. KAREEV, D. MEYERS, X. LIU, Y. CAO, S. TRIPATHI, Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701, USA, D. YAZICI, M.E. MAPLE, Department of Physics, University of California, San Diego, La Jolla, California 92093, USA, P.J. RYAN, J.W. FREELAND, Advanced Photon Source, Argonne National Laboratory, Argonne, Illinois 60439, USA, J. CHAKHALIAN, Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701, USA — We report on the fabrication of ultra-thin films of the electron doped manganite in a layer-by-layer growth mode on $SrTiO_3$ (001) substrates by pulsed laser interval deposition. A combination of RHEED (reflection high energy electron diffraction), synchrotron based x-ray diffraction and x-ray absorption spectroscopy measurement confirmed the excellent structural, chemical, and electronic quality. All grown films show a ferromagnetic ground state as revealed by both dc magnetization and x-ray magnetic circular dichroism (XMCD) measurements and remain insulating. The present study opens exciting possibilities of merging this electron doped material with the other hole doped systems to fabricate oxide based spintronic junction.

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