Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Magnetic studies on thin films of $La_{0.65}Pb_{0.35}MnO_3$[1]
STEVEN TIDROW, THOMAS MION, MAGDALENA DORINA CHIPARA, The University of Texas Pan American, ANDREI SOKOLOV, LIOU SY-HWANG, RALPH SKOMSKI, PETER DOWBEN, SHIREEN ADENWALLA, University of Nebraska-Lincoln, MIRCEA CHIPARA, The University of Texas Pan American, DAVID J SELLMYER, University of Nebraska-Lincoln, THE UNIVERSITY OF TEXAS PAN AMERICAN TEAM, UNIVERSITY OF NEBRASKA-LINCOLN TEAM — Magnetic and structural investigations on thin films of $La_{0.65}Pb_{0.35}MnO_3$ deposited on a $LaAlO_3$ substrate are reported. Transmission electron microscopy showed an almost epitaxial growth of the perovskite film, indicating fourfold symmetry for both substrate and thin film. Low Energy Electron Diffraction and Wide Angle X-Ray Scattering support transmission electron microscopy and scanning tunneling microscopy results. Magneto-optical Kerr effect data are consistent with the fourfold symmetry. Ferromagnetic Resonance experiments performed in the X band revealed a more complex structure. The angular dependence of the resonance line width, resonance line intensity, and double integral of the resonance line support a slightly distorted four-fold symmetry whereas the angular dependence of the resonance line position has a two-fold symmetry. This discrepancy was ascribed to the mismatch between the film and the substrate and it is considered as a proof of the sensitivity of ferromagnetic resonance.

[1]The research was funded by: NSF-MRSEC grant to the University of Nebraska-Lincoln and U.S. Army Research Office grant #W911NF-08-1-0353 awarded to the University of Texas Pan-American.

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Date submitted: 23 Nov 2011 Electronic form version 1.4