

Abstract Submitted  
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**Influence of the Termination Layer on the Electronic Properties of  $\text{LaMnO}_3$  /  $\text{SrTiO}_3$  Interfaces** JACOBO SANTAMARIA, J. GARCIA-BARRIOCANAL, F.Y. BRUNO, Z. SEFRIQUI, A. RIVERA-CALZADA, N. M. NEMES, C. LEON, GFMC, Universidad Complutense de Madrid, Madrid 28040, Spain, M. GARCIA-HERNANDEZ, Instituto de CC de Materiales de Madrid ICMM- CSIC. Madrid 28049, Spain., M. VARELA, STEPHEN PENNYCOOK, Materials Science & Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA — We examine charge leakage at the interface between two oxide materials with different B- site cations:  $\text{SrTiO}_3$  (STO), a band insulator, and  $\text{LaMnO}_3$  (LMO)- a Mott insulator-, or  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  (LSMO) a metal. This system incorporates a polar discontinuity at the interface, as in  $\text{SrTiO}_3$  (STO) / $\text{LaAlO}_3$  (LAO), which is modulated by the Sr content. Using combined atomic column resolution imaging and spectroscopy we provide direct evidence for a change of the Ti oxidation state from  $4^+$  to  $3^+$  at the interface in LMO/STO, resulting from the transfer of electrons from the LMO manganite into the titanate layer. This change is also observed for samples with LSMO and appears to be dependent on the layer thickness ratio as in the polarity conflict scenario. Possible explanations are discussed in terms of the composition of the termination plane of the manganite. Work at UCM supported by MAT2008 6517. Research at ORNL sponsored by US DOE

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