Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Suppressed Magnetization in $La_{0.7}Ca_{0.3}MnO_3$ / $YBa_2Cu_3O_{7-\delta}$ superlattices S.G.E. TE VELTHUIS, A. HOFFMANN, Argonne National Laboratory, Argonne, IL, Z. SEFRIOUI, J. SANTAMARIA, Universidad Complutense de Madrid, Spain, M.R. FITZSIMMONS, S. PARK, Los Alamos National Laboratory, Los Alamos, NM, M. VARELA, Oak Ridge National Laboratory, Oak Ridge, TN — Ferromagnetic/superconducting heterostructures are the subject of intense research, as these two types of long-range order are generally mutually exclusive and give rise to a variety of proximity phenomena. There is interest in studying these effects in superlattices of high T_c superconductors and colossal magnetoresistance oxides, where the superconducting and ferromagnetic properties are depend strongly on the charge carrier density and thus charge transfer across the interface may be important. In a series of $La_{0.7}Ca_{0.3}MnO_3/YBa_2Cu_3O_{7-\delta}$ superlattices, SQUID magnetometry showed that the LCMO saturation magnetization is significantly reduced. Polarized neutron reflectometry determined that the reduced moment is due to an inhomogenous magnetization profile. Specifically, the magnetization in each LCMO layer is suppressed close to the interfaces with the YBCO, possibly due to charge transfer across the interface.

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Date submitted: 01 Dec 2004 Electronic form version 1.4