Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Imaging the evolution of a glassy magnetic transition in a disordered ferromagnetic manganite[1] WEIDA WU, CASEY ISRAEL, ALEX DE LOZANNE, Dept. of Physics, UT Austin, NAMJUNG HUR, Los Alamos National Lab, Cond. Matt. and Thermal Physics, SOONYONG PARK, S.-W. CHEONG, Dept. of Physics & Astronomy, Rutgers — An intriguing glass-like transition in (La,Pr,Ca)MnO_3 is, for the first time, imaged using a variable-temperature magnetic force microscope. Images showing the temperature and magnetic- field evolution of the local magnetic structure illustrate the microscopic origin of the bifurcation of magnetic susceptibility, which is a ubiquitous phenomenon in heavily-disordered ferromagnets, and traditionally considered as a signature of a "cluster glass transition." The observed avalanche-type behavior reveals the collective nature of the glassy transition in the manganites, where ferromagnetic and antiferromagnetic phases are intricately mixed.

[1]This work is supported by NSF DMR-0308575

Weida Wu
Dept. of Physics, UT Austin

Date submitted: 06 Dec 2005 Electronic form version 1.4