

Abstract Submitted  
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**Imaging the evolution of a glassy magnetic transition in a disordered ferromagnetic manganite**<sup>1</sup> 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<sub>3</sub> 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.

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