Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Ultrafast Photoinduced Magnetic Phase Transition in Manganites TIANQI LI, AARON PATZ, Ames Laboratory and Dept of Physics and Astro, Iowa State University, JIAQIANG YAN, THOMAS LOGRASSO, Department of Physics and Astronomy, Iowa State University, ILIAS PERAKIS, Department of Physics, University of Crete, Greece, JIGANG WANG, Ames Laboratory and Dept of Physics and Astro, Iowa State University — The process of manipulating collective spin ordering and inducing magnetic phase transitions in highly *non-equilibrium, non-thermal* states at *femtosecond* time scales has received much current interest. These ultrafast processes offer opportunities for significant improvement over modern magneto-optical recording and magnetic storage/logic devices. One prominent system for such femtosecond magnetism is the strongly correlated manganites, which are truly responsive near the phase boundary, exhibiting extreme sensitivity to external stimuli such as light, electric and magnetic fields. Here, using ultrafast two-color magnetic circular dichroism spectroscopy, we observed distinct fs spin dynamics and critical behaviors in the strongly correlated manganites. We will discuss the origin of the responses as well as present a thorough study on differently doped and thin film samples.

Aaron Patz
Ames Laboratory and Dept of Physics and Astro, Iowa State University

Date submitted: 29 Nov 2011 Electronic form version 1.4