

ABSTRACT OF AN INVITED TALK PRESENTED AT THE
WORKSHOP ON COLOSSAL MAGNETORESISTIVE MANGANITES AND RELATED
TRANSITION METAL OXIDES
Telluride, CO, June 28-July 2, 2004

Neutron and x-ray scattering in $\text{Pr}_{1-x}(\text{La}_{1-y}\text{Sr}_y)_x\text{MnO}_3$ ($x=0.45$, $y=0.15$). a CMR manganite near a bicritical point

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Recently, the electronic phase diagram of $\text{Pr}_{1-x}(\text{La}_{1-y}\text{Sr}_y)_x\text{MnO}_3$ ($x=0.45$, $y=0.15$) has been studied in the vicinity of the metal-insulator transition boundary. By controlling the e_g electron bandwidth W , the ground state can be tuned to change from a charged-ordered (CO) and orbitally-ordered (OO) state ($y \leq 0.2$) to a ferromagnetic metallic state ($y > 0.25$). This system has been reported to exhibit bicritical features near $y = 0.25$.

Elastic and inelastic neutron scattering has been used to study the magnetic correlations and spin dynamics of the sample near the insulator-metal boundary. The insulating CO/OO ground state of $y=0.15$ can be melted by the application of external field. The evolution of the CO/OO when a magnetic field is applied will be discussed in the context of the competing interactions that may be responsible for the CMR effect.

This work was supported by the U.S. DOE under Contract No. DE-AC05-00OR22725 with UT-Batelle, LLC; and by NSF grant DMR-0139882