

Abstract Submitted  
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**Phase separation in  $\text{Pr}_{0.55}\text{Ca}_{1.45}\text{MnO}_4$  evidenced by magnetic excitations**<sup>1</sup> SONGXUE CHI, The University of Tennessee, Knoxville, PENGCHENG DAI, University of Tennessee, Knoxville, FENG YE, JAIME FERNANDEZ-BACA, Oak Ridge National Laboratory, HYE JUNG KANG, JEFFREY W. LYNN, YING CHEN, NIST Center for Neutron Scattering, YOSHIO KANEKO, YOSHINORI TOKURA, University of Tokyo — At doping levels  $x < 0.5$ , a coexistence of commensurate (CM) and incommensurate (ICM) magnetic peaks are observed in single-layered manganites  $\text{Pr}_{1-x}\text{Ca}_{1+x}\text{MnO}_4$  with elastic neutron scattering. Temperature dependence measurements of the magnetic intensities with different energy resolutions indicate a glassy nature of the magnetic moments. The magnetic excitation measurements using inelastic neutron scattering on the  $x=0.45$  system reveal both symmetric and asymmetric behaviors about the CM peak positions. This strongly suggests two types of magnetic excitations originated from separated phases: the CE-type magnetic phase and an additional electronic phase caused by extra electrons introduced into the CE template.

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