

Abstract Submitted  
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**Magnetic properties and phase separation in  $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_3$ , using  $^{59}\text{Co}$  NMR** R. SMITH, P.L. KUHNS, M.J.R. HOCH, W.G. MOULTON, National High Magnetic Field Laboratory, D. STAUFFER, J. WU, C. LEIGHTON, University of Minnesota — Doped transition metal oxides including manganites and cobaltites have revealed a rich variety of properties that may be technologically important. The mixed valence cobaltite  $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_3$  (PSCO) has a phase diagram reminiscent of  $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$  (LSCO) but with a number of significant differences. For  $x=0.5$  the system is ferromagnetic (FM) below  $T_C=240$  K but anomalous magnetization behavior is found close to 120 K with an associated crystal structure change from low symmetry to tetragonal with decreasing  $T$ . For  $x < 0.3$  no change in magnetic properties or crystal structure is found below  $T_C$ . Zero-field  $^{59}\text{Co}$  NMR spectra show that differences in FM character between  $x=0.5$  and  $x=0.3$  samples are negligibly small at temperatures in the range 3-30 K. No FM line was observed for  $x=0.2$ ; a narrow paramagnetic-like signal only slightly shifted from the diamagnetic  $^{59}\text{Co}$  spectrum is observed in high-field NMR for all three  $x$  values, providing evidence of some form of phase separation where a paramagnetic phase coexists with the FM phase. The results will be compared with the very different phase separation data previously obtained for LSCO.

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