

Abstract Submitted
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Spatial Magnetic Phase Separation in the Oxygen Deficient Perovskite SrCoO_{3-y} ¹ Z.H. ZHU, Physics Department at University of Connecticut, F.J. RUECKERT, Wentworth Institute of Technology, J.I. BUDNICK, W.A. HINES, B.O. WELLS, Physics Department at University of Connecticut, CH. NIEDERMAYER, Laboratory for Neutron Scattering at Paul Scherrer Institut, B. DABROWSKI, Department of Physics at Northern Illinois University — We report here the unique local structure of the magnetically phase separated perovskite SrCoO_{3-y} by means of transverse field (TF) and zero field (ZF) muon spin rotation. Previously we reported samples of SrCoO_3 and $\text{SrCoO}_{2.875}$ have unique magnetic and crystallographic phases, whereas samples of intermediate composition have multiple magnetic transitions but a single structural phase (*Appl. Phys. Lett.* **99**, 052503 (2011)). Muon measurements establish that the intermediate compounds show spatially separated, distinct magnetic phases – true magnetic phase separation. In addition, the two magnetic phases evolve with temperature in an unusual way indicating that the two phases remain coupled.

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