

Abstract Submitted
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Incommensurate Spin Correlations in $\text{La}_{1-x}\text{Sr}_x\text{CoO}_3$ D. PHELAN, D. LOUCA, K. KAMAZAWA, S.-H. LEE, University of Virginia, S. ROSENKRANZ, J.F. MITCHELL, S.N. ANCONA, MSD, Argonne Natl Lab, M.F. HUNDLEY, Los Alamos Natl Lab, Y. MOTOME, University of Tokyo, Y. MORITOMO, University of Tsukuba — Non-magnetic, insulating LaCoO_3 is transformed into a metallic, spin cluster ferromagnet when holes are added to the system by replacing La^{3+} with Sr^{2+} . Previous work has shown that this transition results from the percolation of isotropic, ferromagnetic clusters. Here, we present elastic neutron scattering data which shows that a short-ranged, anisotropic incommensurate magnetic phase also appears as holes are added. We have studied this incommensurate phase in detail for a number of concentrations, spanning the phase diagram above and below the percolative phase transition, and the incommensurability increases with the hole concentration. From the evolution of the incommensurate signal strength with x , we concluded that the incommensurate phase is competing with the FM clustering. The spin incommensurability may originate from a local ordering of magneto-polarons.

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