Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Coexistence of ferromagnetic and antiferromagnetic orders in Ba-doped cobalt perovskites studied by neutron scattering[1] HUIBO CAO, Oak Ridge National Laboratory, FANGWEI WANG, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, CAS, VASILE GARLEA, Oak Ridge National Laboratory, ARSEN GUKASOV, Centre de Saclay, DSM/IRAMIS/Laboratoire Léon Brillouin, CEA, ZHAOHUA CHENG, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, CAS — Cobalt-containing oxide compounds have attracted a great deal of interest in recent years due to the variety of magnetic and electrical properties. We performed single crystal neutron diffraction on 6T2 at the LLB in France and the HB3A four-circle diffractometor at the HFIR of ORNL. The Ba-doped cobalt perovskite ($La_{0.8}Ba_{0.2}CoO_3$) crystal was measured in the temperature range of 2-250 K. At temperature $T < 200$ K, a set of ferromagnetic peaks ($k_1 = 0$) onsets and then antiferromagnetic peaks with k_2* = (1/2 0 1/2) and (0 0 3/2) join in at $T < 100$ K. Both ferromagnetic and antiferromagnetic peaks saturate at $T \approx 40$ K. By refining the peaks collected for k_1 and k_2 sets, magnetic structures were determined.

[1]This research is supported by UT Battelle, LLC, Contract DE-AC05-00OR22725 for U.S. D.O.E., and the National Basic Research Program of China (973 Program, 2010CB833102).

Huibo Cao
Oak Ridge National Laboratory

Date submitted: 30 Nov 2010 Electronic form version 1.4