

Abstract Submitted  
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**High-pressure studies on Ba-doped cobalt perovskites by neutron diffraction**<sup>1</sup> HUIBO CAO, VASILE GARLEA, Oak Ridge National Laboratory, FANGWEI WANG, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, ANTONIO DOS SANTOS, Oak Ridge National Laboratory, ZHAOHUA CHENG, Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences — Cobalt perovskite possess rich structural, magnetic and electrical properties depending on the subtle balance of the interactions among the spin, charge, and orbital degrees of freedom. Divalent hole-doped cobalt perovskites  $\text{LaA}^{2+}\text{CoO}_3$  exhibit structural phase transitions, metal-insulator transitions, and multi-magnetic phase transitions. High-pressure measurement is believed to mimic the size effects of the doped ions. We performed neutron diffraction experiments on selected Ba-doped  $\text{LaCoO}_3$  under pressures up to 6.3 GPa at SNAP at Spallation Neutron Source of ORNL. This work focuses on the high-pressure effects of the selected Ba-doped samples and the change of the phase diagram with pressure.

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