## Abstract Submitted for the MAR08 Meeting of The American Physical Society

Magnetic and Structural Properties of Sr-Doped  $Ba_{2-x}Sr_xCoO_4^1$  HAO SHA, JIANDI ZHANG, Department of Physics, Florida International University, Miami, FL 33199, Q. HUANG, NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, Maryland 20899, V.O. GAR-LEA, B.C. SALES, D. MANDRUS, R. JIN, Oak Ridge National Laboratory, Oak Ridge, TN 37831 — We have studied the structural and magnetic properties of a newly synthesized compound  $Ba_{2-x}Sr_xCoO_4$  with different doping (x) levels. Monoclinic  $Ba_2CoO_4$  is an antiferromagnetic (AFM) insulator with Néel temperature  $T_N = 25$  K and a two-dimensional character with spins aligned in the ac plane. The isovalent Sr doping causes changes in both crystal structure and magnetic properties. With increasing x,  $T_N$  initially increases then decreases after reaching the maximum at x=0.5. Correspondingly, its crystal structure changes from monoclinic (x < 0.5) to orthorhombic  $(x \ge 0.5)$  at room temperature. The correlation between crystal structure and physical properties will be discussed.

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