

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Neutron Scattering Study on the Spin-1/2 Triangular-Lattice Antiferromagnet $\text{Ba}_3\text{CoSb}_2\text{O}_9$ JIE MA, Oak Ridge National Laboratory, Y. KAMIYA, iTHES Research Group and Condensed Matter Theory Laboratory, RIKEN, Japan, TAO HONG, H.B. CAO, G. EHLERS, Oak Ridge National Laboratory, Z.L. DUN, University of Tennessee, Knoxville, W. TIAN, Oak Ridge National Laboratory, C.D. BATISTA, Los Alamos National Laboratory, H.D. ZHOU, University of Tennessee, Knoxville, M. MATSUDA, Los Alamos National Laboratory, OAK RIDGE NATIONAL LABORATORY TEAM, ITHES RESEARCH GROUP AND CONDENSED MATTER THEORY LABORATORY, RIKEN, JAPAN COLLABORATION, UNIVERSITY OF TENNESSEE, KNOXVILLE COLLABORATION, LOS ALAMOS NATIONAL LABORATORY COLLABORATION — $\text{Ba}_3\text{CoSb}_2\text{O}_9$ is a spin-1/2 triangular-lattice antiferromagnet with uniform bond length that has attracted a lot of attention in the past decade. This compound is recognized as an ideal material to study the interplay between frustration, low-dimensionality, and strong quantum fluctuations. Both neutron diffraction and inelastic neutron scattering measurements were performed on $\text{Ba}_3\text{CoSb}_2\text{O}_9$ are obtained by the neutron scattering technique. According to our unpolarized and polarized neutron diffraction measurements, the Co^{2+} magnetic moments form a 120 degree structure in the easy ab-plane. The intra- and inter-plane exchange interactions were determined by fitting the measured spin-wave dispersion with an S=1/2 XXZ model.

Jie Ma
Oak Ridge National Lab

Date submitted: 14 Nov 2014

Electronic form version 1.4