

# **Neutron scattering studies of magnetic excitations in triangular lattice antiferromagnets**

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Triangular lattice antiferromagnets have been one of the central issues in frustrated magnetism. Prediction of the RVB state, the represented spin liquid state, has triggered vigorous studies to seek unusual magnetic states on the triangular lattice. Although recent theoretical calculations revealed that the ground state of quantum triangular lattice antiferromagnet is an antiferromagnetic long-range ordered state with 120 degree spin structure, the magnetic excitations are predicted to be broad and renormalized, originating from quantum fluctuations. However, only a few good materials for the quantum triangular lattice antiferromagnet have been found so far. We performed neutron scattering studies in  $\text{Ba}_3\text{CoSb}_2\text{O}_9$  [1,2] and  $\text{Ag}_2\text{CoO}_2$  [3], which are candidates for  $S=1/2$  triangular lattice antiferromagnets. We observed broad and quantum-renormalized magnetic excitations, which are theoretically predicted, in these materials. The detailed experimental results and theoretical analysis will be presented.

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