Abstract Submitted
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Magnetic interactions in geometrically frustrated triangular lattice antiferromagnet CuFeO2 JAIME FERNANDEZ-BACA, FENG YE, RANDY FISHMAN , ORNL, H. J. KANG, J. W. LYNN, NIST, TSUYOSHI KIMURA, Osaka University — Geometrically frustrated magnetic systems have received considerable attention due to their extraordinary magnetic properties. The delafossite CuFeO2 is of particular interest because it exhibits multiferroic behavior with either the application of a magnetic field or introduction of nonmagnetic impurities. Our recent [1] on CuFeO2 shows that spin waves in this material can be explained by antiferromagnetic interactions up to third nearest neighbors within the hexagonal plane as well as out-of-plane coupling, indicating that the quasi-like Ising nature of this material results from the delicate balance between competing interactions. Two energy dips in the spin wave dispersion occur at the incommensurate wavevectors associated with multiferroic phase, and are dynamic precursors to the magnetoelectric behavior. In this talk we will present preliminary measurements of the field magnetic field dependence of these excitations as CuFeO2 approaches the multiferroic phase [1] Ye et al. *Phys. Rev. Lett.* **99**, 157201 (2007)

Jaime Fernandez-Baca
ORNL

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