Abstract Submitted
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Investigating the spin dynamics of the non-collinear magnetic phase of 3.5% Ga-doped $CuFeO_2$[1] T. KIMURA, Division of Materials Physics, Osaka University, J.T. HARALDSEN, Theoretical Division, Los Alamos National Laboratory, F. YE, Neutron Scattering Science Division, Oak Ridge National Laboratory, R.S. FISHMAN, Materials Science and Technology Division, Oak Ridge National Laboratory, J.A. FERNANDEZ-BACA, Neutron Scattering Science Division, Oak Ridge National Laboratory and Department of Physics and Astronomy, The University of Tennessee, Y. YAMAGUCHI, K. KIMURA, Division of Materials Physics, Osaka University — We examine the evolution of the non-collinear phase of a hexagonal lattice antiferromagnet to help understand the inelastic neutron scattering measurements for the multiferroic ground state of 3.5% Ga-doped $CuFeO_2$. With the complex ground state stabilized by the displacement of the oxygen atoms, the multiferroic coupling is explained by the predicted "spin-driven" model. By comparing the observed and calculated spectrum of spin excitations for multiple spin configurations, we conclude that the magnetic ground state is a distorted screw-type spin configuration with a distribution of turn angles produced by lattice distortions.

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