Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Field evolution of magnetism in multiferroic $(ND_4)_2[FeCl_5(D_2O)]$ [1] WEI TIAN, HUIBO CAO, JIAQIANG YAN, BRIAN SALES, JAIME FERNANDEZ-BACA, Oak Ridge National Laboratory — $(NH_4)_2[FeCl_5(H_2O)]$ is a new organic multiferroic material that exhibits a very rich magnetic field versus temperature (B *vs.* T) phase diagram. The material undergoes two successive magnetic transitions at 7.3K and 6.8K, with the onset of ferroelectricity at 6.8K at B =0T. Applying magnetic field with B// a-axis or B//c-axis induces transitions to different ferroelectric phases, and the electric polarization direction rotates from P//a-axis at B =0T to P//c-axis at B =5T. Here we report single crystal neutron diffraction results studied with B//a-axis that elucidate the field evolution of magnetism associated with different ferroelectric phases in $(NH_4)_2[FeCl_5(H_2O)]$.

[1]1Research conducted at ORNL's High Flux Isotope Reactor was sponsored by the Scientific User Facilities Division, Office of Basic Energy Sciences, U. S. Department of Energy.

Wei Tian
Oak Ridge National Laboratory

Date submitted: 06 Nov 2015 Electronic form version 1.4