

Abstract Submitted
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Determination of the Magnetic Structure of Complex *anti*-Perovskite Fluorides by Neutron Diffraction¹ JUSTIN FELDER, JEONGHO YEON, HANS-CONRAD ZUR LOYE, University of South Carolina — An unusual family of anti-perovskite fluorides consisting of complex ions as the A, B, and X building units has been synthesized as single crystals. This family of anti-perovskites provides a unique framework to probe the magnetic properties of transition metals. Presented here is the Fe endmember of the family: $[\text{Cu}(\text{H}_2\text{O})_4]_3[\text{FeF}_6]_2$. The iron member exhibits complex magnetic behavior at low temperatures, which has been probed by magnetometry and neutron diffraction experiments. Presented here are the results from the anisotropic magnetometry study as well as the magnetic spin structure as determined by neutron diffraction experiments. The materials presented here represent an interesting class of perovskites that are as-yet unexplored. Given the wide range of properties possible in perovskites and related structures, it is reasonable to expect that further exploration of these materials will reveal many interesting attributes; both chemical and physical.

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