Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Polarized Neutron Investigations of $BiFeO_3$ WILLIAM RATCLIFF, NIST, SEONGSU LEE, TAEKJIB CHOI, Department of Physics, Rutgers University, ROSS ERWIN, NIST, SANG WOOK CHEONG, VALERY KIRYUKHIN, Department of Physics, Rutgers University — $BiFeO_3$ is a multiferroic material at room temperature. Until recently, the only studies on this material were performed on either thin films or powders. We report on the results of neutron diffraction studies performed on single crystals of $BiFeO_3$. Polarized neutron diffraction results unambigously reveal that the magnetic structure of this material is chiral. Furthermore, neutron diffraction experiments have shown that it is possible to control magnetic domain populations through the application of an external electric field. These results may suggest directions for future research performed in thin films.

William Ratcliff
NIST

Date submitted: 01 Dec 2008 Electronic form version 1.4