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Elucidaion on the effects of hydrostatic pressure on multiferroic, HoMn2O5 WILLIAM RATCLIFF, NIST Center for Neutron Research, C.R. DELA CRUZ, B. LORENZ, Texas Center for Superconductivity, University of Houston, Q. HUANG, NIST Center for Neutron Research, S. PARK, Department of Physics, Rutgers University, S-W. CHEONG, Department of Physics, Rutgers —
$HoMn_2O_5$ has been the subject of intense study as a mutltiferroic material in which both ferroelectricy and magnetic ordering coexist. Earlier work has shown that the ferrolelectric polarization and the dielectric constant are strongly effected by the application of a magnetic field. At low temperatures, as the system's magnetic structure lowers from a commensurate to an incommensurate magnetic phase, ferrolectricity is suppressed and the system becomes paralelectric. It has recently been shown that the applications of hydrostatic pressures of 6 Kbar can stabilize the ferroelectric phase of $HoMn_2O_5$ at low temperatures. During this talk, we discuss the results of neutron diffraction experiments performed on the BT1 powder diffractometer at the NCNR that correlate this preservation of ferroelectricty with changes in the magnetic structure.

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