

Abstract Submitted
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Magnetic field induced ferroelectricity in $\text{Mn}_{0.9}\text{Fe}_{0.1}\text{WO}_4$ RAJIT CHAUDHURY, BERND LORENZ, YAQI WANG, YANYI SUN, CHING-WU CHU, TCSUH and Department of Physics, University of Houston, Houston, Texas 77204-5002, USA — We discovered the external magnetic field induce ferroelectric phase in $\text{Mn}_{0.9}\text{Fe}_{0.1}\text{WO}_4$, which is paraelectric at zero magnetic field. The ferroelectricity appears in fields above 4 Tesla applied along the easy axis of magnetization and the spontaneous polarization along the b-axis was measured by the pyroelectric current method as a function of temperature and magnetic field. The temperature and magnetic field dependence of spontaneous polarization shows strong coupling between magnetic and ferroelectric orders. We interpret that the improper ferroelectricity in this compound is driven by non collinear spin structure which breaks the inversion symmetry. We propose high-field neutron scattering experiments to characterize the magnetic structure in the ferroelectric phase.

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