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Spin structures of magnetic phases in YMn2O5 J.-H. KIM, S.-H. LEE, University of Virginia, S. WAKIMOTO, M. MATSUDA, JAEA, H. KIMURA, Y. NODA, Tohoku University, S. JUERG, PSI, M. KENZELMANN, ETH/PSI, C.F. MAJKRZAK, NIST , S.-I. PARK, KAERI, S. PARK, S-W. CHEONG, Rutgers University — A magnetic ferroelectric material, YMn2O5, undergoes several magnetic phase transitions at low temperatures and develops spontaneous electric polarization along the b-axis in a commensurate magnetic phase with a characteristic wave vector of (0.5,0,0.25). We have determined the commensurate spin structure by performing four circle neutron diffraction (FCD) and three-dimensional polarization analysis (CRYOPAD) on a single crystal of YMn2O5. In the spin structure, Mn4+ moments form a transverse (cycloidal) spiral structure along the c-axis that can induce the spontaneous electric polarization along the b-axis.

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