

Abstract Submitted
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Spin Waves and Magnetic Correlations in the Multiferroic Sr_{0.56}Ba_{0.44}MnO₃ JEFFREY LYNN, DANIEL PRATT, NIST Center for Neutron Research, Gaithersburg, MD 20899-6102, JAMES MAIS, OMAR CHMAISEM, BOGDAN DABROWSKI, Physics, Northern Illinois University, De Kalb, IL 60115 — Neutron diffraction and inelastic scattering measurements have been carried out on a polycrystalline sample of ferroelectric Sr_{0.56}Ba_{0.44}MnO₃ ($T_F = 350$ K) using the BT-7 and SPINS triple-axis spectrometers. The system orders antiferromagnetically at 197 K with an order parameter that varies smoothly with temperature. Inelastic measurements at base temperature reveal an energy gap of 4.6(5) meV, with a continuous distribution of magnetic scattering above the gap that exhibits a weak peak at 7.5 meV. The top of the magnon band was measured to be 43(1) meV. The data were modeled with a simple nearest-neighbor exchange J and the measured anisotropy gap, which was powder-averaged and fit to the data to yield an exchange constant $J = 4.8(2)$ meV. Above T_N strong correlations persist, consistent with the determined exchange as the scattering broadens in wave vector. Replace this text with your abstract body.

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