

Abstract Submitted  
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**Spin Waves and Magnetic Interaction in the Multiferroic Antiferromagnet MnWO<sub>4</sub>** J.A. FERNANDEZ-BACA, FENG YE, ORNL, R.S. FISHMAN, A. PODLESNYAK, G. EHLERS, H.A. MOOK, ORNL, Y.Q. WANG, B. LORENZ, C.W. CHU, Univ of Houston — The spin wave excitations of the multiferroic MnWO<sub>4</sub> have been measured in the low-temperature collinear commensurate phase using high-resolution inelastic scattering. The spin excitations can be well described by a Heisenberg model with competing exchange interactions up to 11th nearest neighbors. We find the magnetic exchange couplings are highly frustrated within each zigzag spin chain along c-axis and between chains along the a-axis. However, the magnetic interactions are much weaker between chains along the b-axis. Our measurements suggest that the delicate balance of long range magnetic couplings is subject to small perturbations that can lead to a complex magnetic configuration exhibiting magnetoelectric behavior.

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