

Abstract Submitted
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Quasi-two-dimensional spin-1/2 magnetism in α -TeVO₄ Y. ZHAO, Department of Physics and Astronomy, Johns Hopkins University, Baltimore, Maryland 21218, USA, J.A. RODRIGUEZ, Department of Materials Science and Engineering, University of Maryland, College Park, MD, USA, P. LEMMENS, Institute for Condensed Matter Physics, TU Braunschweig, D-38106 Braunschweig, Germany, H. BERGER, Inst. Phys. Mat. Complexe, EPFL, CH-1015 Lausanne, Switzerland, C. BROHOLM, Institute for Quantum Matter and Department of Physics and Astronomy, Johns Hopkins University, Baltimore, Maryland 21218, USA — α -TeVO₄ is a monoclinic structure where four spin-1/2 V⁴⁺ ions per unit cell form chain-like structures extending along the b-axis. Using the new MACS spectrometer at the NIST Center for Neutron Research, we have carried out a comprehensive investigation of magnetism in this compound. The phase transition at $T_C = 16$ K is to long range order that can be described as ferromagnetic planes stacked antiferromagnetically along the $(1,0,\bar{2})$ direction. Powder diffraction indicates moments oriented along b-axis with a magnitude of $0.81(3) \mu_B$ at $T=1.4$ K. The inelastic scattering data reveal a strongly anisotropic magnon dispersion relation which is almost independent of wave vector transfer along $(1,0,\bar{2})$ at high energies. Work at JHU is supported by the DoE through DE-FG02-08ER46544.

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