

Abstract Submitted  
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**Spin Liquid Ground State in the Frustrated  $J_1$ - $J_2$  Zigzag Chain System  $\text{BaTb}_2\text{O}_4$**  A.A. ACZEL, Oak Ridge National Laboratory, L. LI, University of Tennessee, V.O. GARLEA, Oak Ridge National Laboratory, J.-Q. YAN, University of Tennessee and Oak Ridge National Laboratory, F. WEICKERT, V.S. ZAPF, R. MOVSHOVICH, M. JAIME, Los Alamos National Laboratory, P.J. BAKER, Rutherford Appleton Laboratory, V. KEPPENS, D. MANDRUS, University of Tennessee — We have investigated polycrystalline samples of the zigzag chain system  $\text{BaTb}_2\text{O}_4$  with magnetic susceptibility, heat capacity, neutron powder diffraction, and muon spin relaxation ( $\mu\text{SR}$ ). No magnetic transitions are observed in the bulk measurements, while neutron diffraction reveals the presence of low-temperature, short-range, intrachain magnetic correlations between  $\text{Tb}^{3+}$  ions.  $\mu\text{SR}$  indicates that these correlations are dynamic, as no signatures of static magnetism are detected by the technique down to 0.095 K. These combined findings provide strong evidence for a spin liquid ground state in  $\text{BaTb}_2\text{O}_4$ .

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