

Abstract Submitted  
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**$\mu$ SR in  $\text{Ba}_2\text{CoO}_4$**  PETER RUSSO, TRIUMF, JUN SUGIYAMA, Toyota CRDL, EDUARDO ANSALDO, TRIUMF, JESS BREWER, SCOTT STUBBS, UBC, KIM CHOW, University of Alberta, R. JIN, Oak Ridge, H. SHA, J. ZHANG, Florida International University — A positive muon spin rotation and relaxation ( $\mu^+$ SR) experiment on the single crystal  $\text{Ba}_2\text{CoO}_4$  indicates the existence of an antiferromagnetic (AF) transition occurring at  $T_N \sim 25$  K. Weak transverse field measurements (wTF- $\mu^+$ SR) show that the paramagnetic volume fraction of the sample decreases rapidly at the magnetic transition indicating a bulk effect. Zero field measurements (ZF- $\mu^+$ SR) show the presence of a magnetically ordered state below  $T_N$ . The results are compared to recent magnetic susceptibility and neutron measurements. Although there are two possible AF spin structures proposed by recent neutron experiments, the  $\mu$ SR results clearly exclude AF order along the  $c$ -axis while supporting AF order in the  $ab$  plane.

Peter Russo  
TRIUMF

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