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Random Fields and the Partially Paramagnetic State of $\mathbf{CsCo_{0.83}Mg_{0.17}Br_3}$ JOHN-PAUL CASTELLAN, Argonne National Lab., MSD, B.D. GAULIN, McMaster University, W.J.L. BUYERS, NPMR, NRC, Chalk River Laboratories — Partially paramagnetic Neel states are among the exotic magnet states known to exist in nature as a consequence of geometrical frustration. This unusual magnetic structure occurs in the stacked triangular lattice antiferromagnets such as $CsCoBr_3$ and $CsCoCl_3$. $CsCoBr_3$ displays at least 2 magnetic phase transitions. The first, T_{n1} $\sim$28K where the system enters a 3-sublattice state in which on of the sublattices remains disordered and the second, T_{n2} $\sim$13K where the remaining disordered sublattice orders[1]. Critical neutron scattering measurements were performed on the doped system $CsCo_{(1-x)}Mg_{(x)}Br_3$ with x =0.17. We will discuss the evolution of the observed two component scattering below T_{n1} in terms of a Random Field Ising model in both zero applied magnetic field and an applied magnetic field of 2.6T along the c-axis. [1] M.Mao et al. Phys. Rev. B 66, 184432 (2002).

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