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Random Fields and the Partially Paramagnetic State of CsCo$_{0.83}$Mg$_{0.17}$Br$_3$  

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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 one 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 
(2002).

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