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Spin Structure of Three Dimensional Frustrated Magnetic System of $\text{Tb}_2\text{Mo}_2\text{O}_7$ DEEPAK SINGH, JOEL HELTON, Massachusetts Institute of Technology, JEFFREY LYNN, NCNR, National Institute of Standard and Technology, YOUNG LEE, Massachusetts Institute of Technology, YOUNG LEE TEAM, JEFFREY LYNN COLLABORATION — The pyrochlore compound $\text{Tb}_2\text{Mo}_2\text{O}_7$ has been of interest since it exhibits spin-glass behavior despite the apparent lack of chemical disorder. This compound crystallizes in a cubic space group in which both the Tb and Mo atoms form three-dimensional networks of corner-sharing tetrahedra. Thus, each magnetic ion resides on a highly frustrated pyrochlore lattice. To clarify the nature of the spin correlations in the spin-glass state of $\text{Tb}_2\text{Mo}_2\text{O}_7$, we have succeeded in growing single crystal samples. Magnetic susceptibility (zero field cooled and field cooled) measurements confirm the spin-glass behavior, similar to that observed in previous powder samples. Recently we performed elastic neutron scattering measurements on a single crystal sample and identified the \mathbf{Q} -vectors associated with the short-range diffuse scattering. The spin structure for this compound, consistent with elastic scattering, will be discussed. In addition, recent inelastic neutron scattering measurements will be discussed.

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