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Study of Magnetic Frustration in $SrHo_2O_4$ SANHITA GHOSH, HAIDONG ZHOU, National High Magnetic Field Laboratory and Department of Physics, Florida State University, Tallahassee, USA, CHRISTOPHER WIEBE, National High Magnetic Field Laboratory and Department of Physics, FSU, Tallahassee, USA ; University of Winnipeg, Winnipeg, MB, Canada, J.S. GARDNER, Y. QIU, National Institute of Standards and Technology, Maryland, USA — Geometrically frustrated systems are of interest because they exhibit novel behaviour due to lack of long range ordering at low temperatures. We have synthesized and measured the magnetic properties of lanthanide based single crystals of the formula SrL_2O_4 ; L=lanthanide. We report results obtained from magnetic susceptibility, heat capacity and neutron scattering measurements carried out on $SrHo_2O_4$ single crystals synthesized by the floating zone method. Analysis of elastic and inelastic neutron scattering data show evidence of short range ordering at low temperatures and carry the signatures of magnetic frustration. Experimental observations from elastic neutron scattering measurements show agreement with simulation results for a model based on nearest neighbour interactions between Ho spins.

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