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Quantum Spin Ordering in $Tb_2Ti_2O_7$[1] STEPHANIE CURNOE, Memorial University of Newfoundland — Group theoretical methods are used to analyse quantum spin states in the geometrically frustrated pyrochlore $Tb_2Ti_2O_7$. The magnetic rare earth spins, with $J = 6$, have a ground state doublet due to local crystal electric field. With 4 Tb ions per unit cell, there is therefore a 16-fold degeneracy of the ground state. Symmetry considerations predict a lifting of the degeneracy into a singlet, three doublets and three triplets. One of the triplet configurations is found to be responsible for the $[0, 0, 2]$ peak in diffuse neutron scattering.

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