

Spin Correlations on the Pyrochlores

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ABSTRACT: Pyrochlore material have the chemical formula $A_2B_2O_7$ with A, B or both are magnetic. It has the corner-sharing tetrahedra in the structure. Therefore, the frustration phenomenon (system cannot minimize its total classical energy by minimizing the interaction energy between each pair of interacting degrees of freedom) naturally occurs in those systems. Because of the frustration, pyrochlore have many interesting properties. For example, the spin glass in $Y_2Mo_2O_7$, spin liquid in $Tb_2Ti_2O_7$, disordered spin ice in $Ho_2Ti_2O_7$, ordered spin ice in $Tb_2Sn_2O_7$. In my research, I will focus on $Tb_2Ti_2O_7$ particularly, use perturbation theory to find the spin correlation function between the nearest neighbour for the spin 1/2 system.

This is a MSc final presentation and graduate students from our department are especially encouraged to attend.

ALL ARE WELCOME!