ICTS Skype Seminar

Title : Orbital and Spin dynamics in geometrically frustrated lattices

Speaker : Santanu Pal, Indian Institute of Science Education and Research, Kolkata

Date : Wednesday, January 9, 2019

Time : 10:45 AM

Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore

Abstract : My talk has three parts: (i) In the first part of my talk, by deriving microscopic spin-orbital Hamiltonian for geometrically frustrated Mn3O4 spinel, I will explain how orbital physics helps spin physics to order at low temperature. I will also discuss the effect of spin-lattice coupling in the system.

(ii) In the second part of my talk, with the help of Lieb-Schultz-Mattis(LSM) theorem and Oshikawa-Yamanaka-Affleck (OYA) criteria on $S=1/2$ kagome and triangular antiferromagnet, will discuss the zero and non-zero external magnetic field ground states properties. I also discuss OYA-criteria and the location of possible magnetization plateaux for $S=1/2$ pyrochlore.

(iii) The final part of my talk will devote to study the ground state properties of 1/3 magnetization plateau for $S=1/2$ XXZ kagome antiferromagnet. Here we employ renormalization group (RG) analysis for taken care of two-particle scattering physics.