INSTITUTE SEMINAR

Thursday, 19 June 2014 4:00 p.m. Fermion

Speaker:

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Title:

Order-Order Transitions in Magnetism

Abstract:

Phase transition from an ordered state to another ordered state is an important topic in physics. We have been investigated order-order magnetic phase transitions in several classes of magnetic systems, such as 2-D geometrically frustrated quantum $S = 1/2$ square-lattice system $(CuBr)Sr_2Nb_3O_{10}$ with J1-J2-J3 exchange interactions [1-2], the quasi-1D spin-1 system $(Sr/Ca)Ni_2V_2O_8$ [3], intermetallic compounds $Nd(Mn/Co)_2Si_2$ [4,5], Prussian blue analogues $(Rb/Ba/Mn)[Fe(CN)_6]0.48H_2O$ [6,7], and spin-chain compounds $Ca_3(Co/Fe)_2O_6$ [8-13].

I will review some these results elucidating the microscopic nature of magnetic ordering in such spin systems. In particular, the time evolution of an order-order magnetic phase transition in $Ca_3Co_2O_6$ [13] will be discussed in detail. The role of magnetic field, temperature, chemical substitution (ionic size) in tuning such order-order magnetic phase transitions will also be discussed.

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