

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

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Seminar Notice

Prof. Arun Paramekanti from University of Toronto will be visiting School of Mathematical and Computational Sciences during 3-4 September, in order to set up interaction and collaboration.

He will be giving seminar (open to all) on 3rd September. Details are given below,

Date: 3rd September

Time: 4:00 PM

Venue: C V Raman Hall

Title --- Exotic orders from multispin interactions: From heavy fermions to chiral spin liquids

Abstract --- Upon approaching a Mott transition from the insulating side, fermions get progressively more delocalized resulting in higher order spin interactions (e.g., 3-spin and 4-spin exchange) becoming more important. This has been proposed as a driver for novel magnetic orders in solid Helium-3, and spin liquid behavior in quasi-2D organic materials as well as Helium-3 on graphite. I will discuss analogues of such physics in two new settings -- Heavy fermion materials near the small-to-large Fermi surface transition, and Mott insulators formed from correlation effects in topological bands. For the heavy fermion materials, I will discuss how multispin interactions could lead to quadrupolar and coexisting octupolar orders. For the topological Mott insulators I will discuss how chiral spin liquids emerge from non-coplanar spin crystals.