

ICTS Condensed Matter Seminar (HYBRID)

Title : Uncovering hidden orders

Speaker : Arun Paramekanti (University of Toronto, Canada)

Date : Thursday, 27th April, 2023

Time : 03:30 pm (IST)

Abstract : Quantum magnets with large "spin" can naturally host multipolar symmetry breaking which goes beyond dipole orders. These are most commonly studied in heavy fermion materials where the emergence of multipolar orders has been extensively explored. I will describe a bunch of recent experiments on d-orbital Mott insulators which suggest the emergence of octupolar order and competing quadrupolar orders. Our theory including microscopics, Landau theory, and Monte Carlo simulations provides a comprehensive understanding of neutron, muon spin rotation, and impurity NMR experiments, broadening the set of materials which we suggest host multipolar orders.

Refs: Phys. Rev. B 101, 054439 (2020); Phys. Rev. Lett. 124, 087206 (2020); Phys. Rev. B 101, 155118 (2020); Phys. Rev. B 104, 174431 (2021); arXiv:2211.07666 (under review).

Venue : **Offline:** Emmy Noether Seminar Room (ICTS)

Online: Please click the below link to join the seminar

<https://icts-res-in.zoom.us/j/82523120753?pwd=b3RhK3ZmckNGQlh1aHRaVzJnMndtZz09>

Meeting ID: 825 2312 0753

Passcode: 272728