

ICTS Colloquium

Title : Topological Phase Transitions in the Quantum Hall Effect

Speaker : Prashant Kumar (Princeton University)

Date : Tuesday, 21st February 2023

Time : 11:30 am (IST)

Abstract : Phase transitions involving topological phases of matter are a rich set of phenomena that often involve an interplay of topology, interactions and disorder. In this colloquium, I will present two such examples that arise in the quantum Hall effect. The first is the extensively studied, yet enigmatic, array of quantum critical points between abelian quantum Hall phases. I will explain how changing one's reference frame to that of an emergent particle, called composite-fermion, can help obtain a unified description of such critical points. In the second example, I will explore a possible continuous transition out of the topologically ordered fractional quantum Hall state at $\nu=7/3$ to a spontaneous symmetry breaking state. I will discuss future directions and further examples of such transitions.

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

Online: Please click on the below link to join the seminar

<https://icts-res-in.zoom.us/j/81600215164?pwd=dzNHQ29GZHMvSIMwODVYUzRCQTE0Zz09>

Meeting ID: 816 0021 5164

Passcode: 212221