ICTS Seminar

Title : New Frontiers For Interaction-Induced States

Speaker : Ipsita Mandal (IFJ PAN)

Date : Tuesday, 21st September 2021

Time : 03:00 pm (IST)

Abstract : Condensed matter physics is the physics of solids and liquids (condensed phases of matter). It is the study of the complex behaviour of a large number of interacting particles such that their collective behaviour gives rise to emergent properties. In this talk, I will discuss some interesting quantum condensed matter systems with their intriguing emergent phenomena arising from complexity.

First, I will focus on critical Fermi surface states, where there is a well-defined Fermi surface, but no quasiparticles, as a result of strong interactions between the Fermi surface and some emergent massless boson(s). I will outline a framework to extract the low-energy physics of such systems in a controlled approximation, using the tool of dimensional regularization.

Second, I will discuss the formulation of a generalized quantum Boltzmann equation formalism for systems like NFLs without well-defined quasiparticles. Using this, I will show how one can find collective modes (e.g. zero sound) of a critical Fermi surface.

Finally, I will discuss my recent work and some of my ongoing projects involving moire superlattices.

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

Zoomlink:https://us06web.zoom.us/j/81658320507?pwd=TGxZTDkwRmtUcjZwdklHdC9nSnpoUT09
Meeting ID: 816 5832 0507
Passcode: 149148