

## **ICTS Colloquium**

- Title** : Strongly correlated phases in models with random interactions
- Speaker** : Darshan Joshi (Harvard University, USA)
- Date** : Wednesday, 06<sup>th</sup> April, 2022
- Time** : 03:30 pm (IST)
- Abstract** : Strong interactions between electrons gives rise to many fascinating emergent phases of matter. In certain situations it may result in a complete breakdown of quasiparticle picture leading to anomalous behavior and stark deviations from conventional theories. We will discuss how random models in the Sachdev-Ye-Kitaev (SYK) class have enhanced our understanding of such entangled phases of matter. As an important example, we will present a SYK-type random model of electrons for finite hole doping away from a Mott insulator. Using renormalization-group technique I will show that it hosts a deconfined critical point accompanied with a sharp change in charge-carrier density. In this approach we can calculate some exponents exactly. This model successfully captures the key aspects of high-T<sub>c</sub> cuprates. I will also briefly discuss other examples such as an anomalous metal found in disordered superconducting films.
- Venue** : Please click on the below link to join the seminar
- Zoom link: <https://icts-res-in.zoom.us/j/86767253003?pwd=cFNLb1A2Y3dYazZBWUhmDkpOdTNaUT09>  
Meeting ID: 867 6725 3003  
Passcode: 060722