ICTS Seminar

Title : Zero-point fluctuation of vortices in a very weakly pinned amorphous MoGe thin film

Speaker : Pratap Raychaudhuri (TIFR, Mumbai)

Date : Tuesday, July 20, 2021

Time : 3:00 pm (IST)

Abstract : Zero point fluctuations (ZPF) refers to the quantum mechanical motion of a particle in its ground state. In condensed matter systems, a dramatic manifestation of this effect is observed in liquid He where ZPF of helium atoms prevents its solidification down to T=0 at atmospheric pressure. In this talk, I will show the manifestation of ZPF in another system, namely, a superconducting amorphous MoGe thin film. From scanning tunneling spectroscopy measurements in the vortex state , I will show that ZPF of vortices can leave discernible signatures on the density of states inside the vortex core of a Type II superconductor. The implication of ZPF on the property of the superconductor will also be briefly discussed.

References: Evidence of zero-point fluctuation of vortices in a very weakly pinned a-MoGe thin film
Surajit Dutta, Indranil Roy, John Jesudasan, Subir Sachdev, and Pratap Raychaudhuri
Phys. Rev. B **103**, 214512 – Published 15 June 2021

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

https://us06web.zoom.us/j/86014967745?pwd=VjFhV2N0UERnOFkwMzhjQkZSM2tHQT09
Meeting ID: 860 1496 7745
Passcode: 449280