

## **ICTS Statistical Physics Journal Club Seminar**

**Title** : Active Random Walks in One and Two Dimensions

**Speaker** : Stephy Jose (TIFR, Hyderabad)

**Date** : Thursday, 09<sup>th</sup> December 2021

**Time** : 03:00 pm (IST)

**Abstract** : Any particle which can move by self-propulsion and perform directed motion is an active particle. I will discuss the dynamics of a single active particle on one and two-dimensional infinite lattices which can perform orientational diffusion between lattice directions. A few exact results on the occupation probability of an arbitrary site on the lattice in one and two dimensions will be discussed. I will compute the large deviation free energy function in both one and two dimensions which will be used to compute the moments and the cumulants of the displacements exactly at late times. I will show that the large deviation function of an active particle with diffusion displays two regimes, with differing diffusive behaviors. If time permits, I will also discuss the small time and the large time properties of the occupation probability of the origin and the first return to the origin by an active lattice walker.

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

<https://us06web.zoom.us/j/89548389221?pwd=VWZaMFYxdkNia2UzN1JtQXRwQnNYdz09>

Meeting ID: 895 4838 9221

Passcode: 112125