

## ICTS Seminar

- Title : Relative velocities of particles in turbulence
- Speaker : Akshay Bhatnagar (NORDITA, Stockholm, Sweden)
- Date : 29<sup>th</sup> January 2021
- Time : 11:30 am
- Abstract : Turbulent flows carrying small particles are found in many natural settings. Some of the examples are dust storms, small water droplets in the cloud, and astrophysical dust in proto-planetary disks and the interstellar medium. Due to turbulence, these small particles may collide and merge to form larger particles. This process of collision and coalescence plays an important role in the formation of rain in the clouds, and the formation of planets in proto-planetary disks. The frequency and outcome of collision depend on the relative velocities of nearby particles. We study the probability distribution functions (PDFs) of the relative velocity of particles at small separation by using direct numerical simulations. We find that these PDFs have a power-law tail indicating that two closeby particles can have very high relative velocity. The exponent of the power-law depends on the correlation dimension of the small scale clusters of the particles in phase space.
- Venue : Please click on the link to join the seminar  
<https://zoom.us/j/95875124403?pwd=cW51SGt6R1ZnY2pHdFEExZlQ4Y0JNUT09>  
Meeting ID: 958 7512 4403  
Passcode: 647707