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THEORETICAL  
SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

## ICTS Fluid Dynamics Seminar

**Title** : Lagrangian intermittency and vertical confinement of tracers in stratified turbulence

**Speaker** : Arun Kumar Varanasi (ICTS-TIFR, Bengaluru)

**Date** : Monday, 22<sup>nd</sup> July 2024

**Time** : 11:00 AM (IST)

**Abstract** : Density stratification is prevalent in natural settings such as the atmosphere and oceans. Understanding turbulence in such stratified media is important. We conduct direct numerical simulations of homogeneous, stably stratified turbulence to examine the evolution of Lagrangian tracers at varying Brunt-Vaisala frequencies (or Froude numbers). Our results indicate that tracers exhibit increasing confinement with increasing Brunt-Vaisala frequencies. We also compute the Lagrangian horizontal velocity structure functions and find that horizontal velocity differences adhere to extended self-similarity, displaying Lagrangian intermittency at higher orders. The presentation concludes with a brief overview of ongoing and future work.

**Venue** : Online

Zoom link: <https://icts-res-in.zoom.us/j/99634049993?pwd=hNB8c6LwWglbTl3vTTXZAd8aS3m7Ui.1>

Meeting ID: 996 3404 9993

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