

ICTS Fluid Dynamic Seminar

- Title** : Exploring spatio-temporal dynamics of fluid flows and Earth's climate from a complex networks perspective
- Speaker** : Gaurav Chopra (Indian Institute of Technology, Madras)
- Date** : Friday, 6th September 2024
- Time** : 2:00 PM (IST)
- Abstract** : Complex systems such as fluid flows and climate exhibit interesting spatio-temporal dynamics due to interactions occurring across various scales. The complex networks approach enables understanding such dynamics by encoding the interactions between constituents into a graph. We will analyse two phenomena, one from fluid mechanics and the other from climate science, through the perspective of complex networks. In fluid flows, we will explore the drag crisis phenomenon in flow past a circular cylinder. The drag crisis is caused by the delayed separation due to the transition of boundary layer from a laminar to turbulent state. The boundary layer transition is associated with the instability of the shear layer and the formation of a laminar separation bubble (LSB). Using spatial proximity networks we understand the spatiotemporal dynamics of LSB and explain the mechanism of drag crisis. In climate science, we will discuss climate classifications of tropics based on the spatio-temporal dynamics of the intertropical convergence zone and India based on the Indian monsoon.
- Venue** : Emmy Noether Seminar Room
- Zoom Link: <https://icts-res-in.zoom.us/j/98238853438?pwd=Zfd3O8tChGWkIEKjXMX5AWGrGDGBbV.1>
Meeting ID: 982 3885 3438
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