

Colloquium

Applying Higher-order Turbulence Spectra from Energy to UAV

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Kolmogorov's 1941 theory elucidating the spectrum of turbulent velocity fluctuations forms the cornerstone of contemporary turbulence research. This result requires one to measure the velocity everywhere within the turbulent flow at the same time instant. However, many situations exist where measurements are needed over time at one or few fixed spatial (Eulerian) locations, sometimes involving not velocity but its higher powers. The physical interpretation of such measurements strongly diverges from the Kolmogorov framework. In this talk, I will review the revised theoretical framework and support it with evidence from our experiments in two and three dimensional flows. I will then explain how this revised framework provides a toolkit to address a diverse range of questions in Energy, UAV mechanics, Environmental Sciences, and perhaps even Life Sciences.

Thursday, Nov 8th 2018

4:00 PM (Tea/Coffee at 3:30 PM)

Seminar Hall, TIFR-H