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Eulerian and Lagrangian turbulence: closure and control problems

Wednesday 15 October 2025 15:00 (20 minutes)

Turbulence, although ubiquitous in nature and engineering applications, remains one of the most challenging problems in classical physics. It is characterized by chaotic and multiscale interactions, with anomalous scaling laws and intermittency, making its theoretical understanding and practical modeling a challenging task. In this presentation, I will cover our recent efforts in developing efficient methods that are able to capture the level of complexity of turbulent flows, both from an Eulerian and Lagrangian perspectives. I will cover different topics, from machine learning methods for closure of the governing equations, to smart Lagrangian particles that can be used to control and manipulate turbulent flows.

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