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Speaker: Yaron Oz

Title: Turbulence and Random Geometry

Abstract:

Fully developed incompressible fluid turbulence is largely considered as the most important unsolved problem of classical physics. Most fluid motions in nature at all scales are turbulent, yet despite centuries of research, we still lack an analytical description and understanding of fluid flows in the non-linear regime. Experimental and numerical data suggest that turbulence at the inertial range of scales reaches a steady state that exhibits statistical homogeneity and isotropy and is characterized by universal scaling exponents. A new viewpoint inspired by black hole dynamics will be presented suggesting a geometrization of turbulence and an exact analytical formula for the anomalous scalings.