

Einladung

Würzburger Mathematisches Kolloquium

Julius-Maximilians-Universität Würzburg • Institut für Mathematik

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The Strong Onsager Conjecture: A Glimpse of Turbulence

Donnerstag, 31. Oktober 2024 • 13:15 Uhr

Seminarraum SE41 • Humboldt-Bau (Emil-Fischer-Straße 41, 97074 Würzburg)

Der Vortrag wird auch als Zoom-Meeting übertragen: go.uni-wue.de/ifmcolloquium-zoom

Abstract. Smooth solutions to the incompressible 3D Euler equations conserve kinetic energy in every local region of a periodic spatial domain. In particular, the total kinetic energy remains conserved. When the regularity of an Euler flow falls below a certain threshold, a violation of total kinetic energy conservation has been predicted due to anomalous dissipation in turbulence, leading to Onsager's theorem. Subsequently, the L^3 -based strong Onsager conjecture has been proposed to reflect the intermittent nature of turbulence and the local evolution of kinetic energy. This conjecture states the existence of Euler flows with regularity below the threshold of $B_{3,\infty}^{1/3}$ which not only dissipate total kinetic energy but also exhibit intermittency and satisfy the local energy inequality. In this talk, I will discuss the resolution of this conjecture based on recent collaboration with Matthew Novack and Vikram Giri.

