Bernoullis Tafelrunde

Graduate Student Seminar

Friday, 10 March 2023, 16:45-17:30
Seminarraum 05.002, Spiegelgasse 5

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Non selection of vanishing viscosity solutions to the advection equation and anomalous dissipation

Abstract

In this seminar we outline a recent example of a *turbulent* divergence free velocity field $u \in C^\alpha([0,1] \times \mathbb{T}^2)$, with $\alpha < 1$, having the *non-selection* property. The latter is defined as follows: consider the sequence $\{\theta_\nu\}_{\nu>0}$ of solutions to the associated advection diffusion equation with viscosity parameter $\nu > 0$ and fixed initial datum $\theta_{\text{in}} \in C^\infty$. Then, at least two distinct limiting solutions of the advection equation in the weak* topology arise from the sequence $\{\theta_\nu\}_{\nu>0}$ as $\nu \to 0$. This is a joint work with Maria Colombo and Gianluca Crippa.