



Convex integration and transport noise in 3D fluid dynamics

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Umberto studied Mathematics at the Scuola Normale Superiore in Pisa. He remained in the same university to pursue a PhD under the supervision of Prof. Franco Flandoli, which he obtained in 2022. Since January 2023 he has been a PostDoc at Universität Bielefeld, working in the group of Prof. Martina Hofmanová. His main research interest is stochastic fluid dynamics, which he studies using large deviations, homogenization, and convex integration techniques.



Abstract: In this talk we construct Hölder continuous, global-in-time probabilistically strong solutions to 3D Euler equations perturbed by Stratonovich transport noise. Kinetic energy of the solutions can be prescribed a priori up to a stopping time, that can be chosen arbitrarily large with high probability. We also prove that there exist infinitely many Hölder continuous initial conditions leading to non-uniqueness of solutions to the Cauchy problem associated with the system. Our construction relies on a flow transformation reducing the SPDE under investigation to a random PDE, and convex integration techniques introduced in the deterministic setting by De Lellis and Székelyhidi. If time allows, we will discuss the case of 3D Navier-Stokes equations as well.

讲座时间:

2023. 3. 22 周三 下午16:00-17:00

会议地点: ZOOM会议室 会议ID: 354 143 7366 密码: 123456

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