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Lyapunov Exponents and Mixing in DiPerna-Lions Flows

Wednesday, 14 January 2026 10:30 (1 hour)

In 2003, Bressan proposed a conjecture on the mixing efficiency of incompressible flows, which remains open. This talk surveys progress toward resolving Bressan's mixing conjecture and presents a new result confirming its asymptotic validity for time-periodic velocity fields. We accomplish this by adapting dynamical systems tools to the non-smooth framework of DiPerna-Lions flows. Furthermore, we discuss links to bounds on metric entropy and extensions of the Ruelle inequality.

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