TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Room 617 Wachman Hall

Monday, September 18th, 2023, 2:30 p.m.

Asymptotic properties and separation rates for local energy solutions to the Navier-Stokes equations

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Abstract: We present recent results on spatial decay and properties of non-uniqueness for the 3D Navier-Stokes equations. We show asymptotics for the 'non-linear' part of scaling invariant flows with data in subcritical classes. Motivated by recent work on non-uniqueness, we investigate how non-uniqueness of the velocity field would evolve in time in the local energy class. Specifically, by extending our subcritical asymptotics to approximations by Picard iterates, we may bound the rate at which two solutions, evolving from the same data, may separate pointwise. We conclude by extending this separation rate to solutions with no scaling assumption. Joint work with Zachary Bradshaw.