

*Department of Mathematics,
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Math 295 - Mathematics Colloquium

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Is dispersion a stabilizing or destabilizing mechanism? Landau-damping induced by fast background flows

Abstract:

In this talk I will present a unified approach for the effect of fast rotation and dispersion as an averaging mechanism for, on the one hand, regularizing and stabilizing certain evolution equations, such as the Navier-Stokes and Burgers equations. On the other hand, I will also present some results in which large dispersion acts as a destabilizing mechanism for the long-time dynamics of certain dissipative evolution equations, such as the Kuramoto-Sivashinsky equation. In addition, I will present some new results concerning two- and three-dimensional turbulent flows with high Reynolds numbers in periodic domains, which exhibit “Landau-damping” mechanism due to large spatial average in the initial data.

Host: Tarek Elgindi

Thursday, April 2, 2020

4:00 PM

AP&M 6402
