Determining wavenumber for fluid equations

Alexey Cheskidov*†[1], Mimi Dai[1], and Landon Kavlie[1]

[1]University of Illinois at Chicago – United States

Abstract

In this talk we review classical results on determining modes for fluid equations and present a slightly different approach where we start with a time-dependent determining wavenumber defined for each individual trajectory and then study its dependenc on the force. While in some cases this wavenumber has a uniform upper bound, it may blow up when the equation is supercritical. Nevertheless, the average determining wavenumber is uniformly bounded even for the 3D Navier-Stokes and some supercritical SQG equations.

*Speaker

†Corresponding author: ACHESKID@UIC.EDU