Dr. Tarek Elgindi

Title: Some aspects of the long-time behavior of 2d Euler flows

Abstract:

We will discuss some issues related to the long-time behavior of solutions to the 2d incompressible Euler equation. In particular, we will discuss some results of rigidity and flexibility for steady Euler flows. We will then move to discuss their stability properties and how they can be used to establish some non-trivial dynamical behavior, such as filamentation, for unsteady solutions. In particular, we will discuss the concept of twisting, its stability, and various consequences thereof. This is based on joint works with several co-authors, including M. Coti-Zelati, T. Drivas, Y. Huang, I. Jeong, A. Said, K. Widmayer, and C. Xie.