

The College of Arts & Sciences
Department of Mathematical Sciences

Candidate Colloquium

Weiwei Hu

Oklahoma State University

Friday, January 25th
Room 119, 60 West Charlton
4:00 – 5:00 pm

Boundary Control of Optimal Mixing via Fluid Flows

We discuss the problem of optimal mixing of an inhomogeneous distribution of a scalar field via an active control of the flow velocity, governed by the Stokes or the Navier-Stokes equations, in a two dimensional open bounded and connected domain. We consider the velocity field steered by a control input that acts tangentially on the boundary of the domain through the Navier slip boundary conditions. This is motivated by mixing within a cavity or vessel by moving the walls or stirring at the boundaries. Our main objective is to design an optimal Navier slip boundary control that optimizes mixing at a given final time.

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate Student Lounge Room 4118 French Hall West