

SPEAKER:

Jeremy Marzuola, University of North Carolina, Chapel Hill

TITLE:

Stability issues in fluids on curved geometries

ABSTRACT:

In an appendix to a recent paper by Michael Taylor, he and I explored various questions related to stability of striated patterns for fluids on rotating spheres. In addition, with Roberto Camassa, Reed Ogrosky and Nathan Vaughn, we recently explored some periodic wave trains stemming from a long wave model for viscous fluid flow along the interior of a cylinder. I will discuss these results and some open problems related to these studies. In particular, I will discuss ways in which the geometry effect the existence and stability questions at hand. In this and subsequent talks, I will review several results concerning universal inequalities for the eigenvalues of the Laplacian defined on a smooth bounded domain in \mathbb{R}^N . Universal refers to the fact that the inequalities are independent of the domain. I will also review related results on other manifolds.