



# UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

## COLLOQUIUM

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**Susan Friedlander**  
(University of Southern California)

"Instabilities in Fluid Motion"

**Abstract:**

Instabilities in fluid motion are ubiquitous and yet instabilities come in various "flavors". The partial differential equations of fluid dynamics are very challenging nonlinear systems. A classical approach to detecting instabilities is to study the spectral problem associated with the linearized equations. We will discuss how in some situations it is possible to prove that linear instability implies instability for the full nonlinear equations. Examples where this can be proved include the cases of the 2-dimensional Euler equations, the 3-dimensional Navier-Stokes equation and an interesting equations arising in oceanography called the surface quasi-geostrophic equation.

**Thursday, February 10th, 2010**

**Surge 284**

**4:10-5:00pm**

*Tea Time at 3:40pm*