

# PHYSICAL MATHEMATICS SEMINAR

## EXPERIMENTAL MODELING OF INTERNAL TIDE GENERATION

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There has been a recent thrust to improve the description of the internal tide generation process. A conclusion drawn from field studies (Rudnick et al. 2003), satellite observations (Egbert & Ray 2000) and numerical simulations (Simmons et al. 2004) is that steep, nominally 2D ocean ridges are particularly significant contributors to the internal-tide budget. Once excited, internal waves may be dissipated locally or travel long distances to be dissipated, for example, by critical reflections along the continental shelf. Determining how internal tidal energy is ultimately dissipated requires that the vertical structure of the wave field is well-known. In the present talk, I will summarize a recent theory, due to Petrelis et al. (2006), which examines the (linear) waves generated by both sub- and super-critical 2D topography. Laboratory experiments will be described, which test key results from the model. A methodology for extracting the vertical modes of internal waves from laboratory images with parallax image loss will also be presented. Directions for future work will be discussed.

(Study done in collaboration with Neil Balmforth, Paula Echeverri, Tom Peacock and Damon Vander Lind).

**TUESDAY, APRIL 29, 2008**

**2:30 PM**

**Building 4, Room 370**

*Refreshments at 3:30 PM in Building 2, Room 349  
(Applied Math Common Room)*



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