



# Partial Differential Equations and Applied Mathematics Seminar

**Capillary-gravity water waves with exponentially localized vorticity**

Sam Walsh, University of Missouri

In this talk, we discuss recent success in establishing the existence of solutions to the water wave problem with exponentially decaying vorticity. These are two-dimensional stationary waves in a finite-depth body of water beneath vacuum. An external gravitational force acts in the bulk, and the effects of surface tension are felt on the air-sea interface. Our approach involves modeling the corresponding stream function as a spike solution to a singularly perturbed elliptic PDE. This is joint work with Mats Ehrnstrom (NTNU) and Chongchun Zeng (Georgia Tech)

**Thursday, November 1st, 2018 at 2:00 PM.**  
*Korman Center, Room 245.*

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