

UNL Department of Physics and Astronomy presents:

# Determination of the Energy Flux of Internal Gravity Waves

PRESENTED BY

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**THURSDAY**  
**NOVEMBER 10**  
**4:00 PM**  
**IN JH 136**

Refreshments will be served in the JH 1st Floor Vending Area at 3:30

## ABSTRACT

Internal gravity waves are traveling disturbances in a fluid whose density varies with depth, such as in the ocean. The tidal forcing by the moon creates internal gravity waves at the ocean bottom topography and the associated energy contributes significantly to the energy budget of the ocean, making the energy flux is an important quantity. However, it is currently not possible to obtain the flux directly from measurements, because the pressure and velocity fields cannot be measured simultaneously. The two primary methods for measuring the flows in the laboratory are particle image velocimetry (PIV), which gives velocity fields, and synthetic schlieren, which gives density fields. We present a method to obtain the time-averaged energy flux from laboratory velocity data by computing the stream function and another method to obtain the instantaneous energy flux from laboratory density data using Green's functions.