



## Physics & Astronomy Colloquium

Spring 2011

# ***"Measuring Ship Emissions: Implications for Global Climate and Regional Air Quality"***

*Atmospheric particulate matter (aka aerosols) plays a key role in determining global climate and generally has negative consequences for human health and welfare. For climate, aerosols influence the global energy budget by scattering and absorbing incoming solar radiation and modifying the properties of clouds. Of all climate forcing agents, our understanding of the impacts of aerosols remains the least certain. One step towards improving our understanding is the characterization and quantification of the emissions of particles and their precursors. Of the many aerosol sources, emissions from ships are one of the least characterized. This is true despite the fact that, on a CO<sub>2</sub>-emissions basis, the global shipping fleet would qualify as equivalent to the 6th largest country in the world. In this talk, I will discuss measurements of real-world ship emissions made as part of the CalNex field campaign, which took place up and down the California coast in May/June 2010. Comprehensive characterization of the ship emissions required the use of a wide variety of sensitive, real-time instrumentation, including cavity ring-down and photoacoustic spectroscopy, as performed in my lab. Through careful coordination between different mobile platforms, we have been able to bring new process-based understanding to the impacts that existing and proposed regulation on global shipping do and will have.*

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**Thursday, March 17, 2011**

**\*4:20 -5:45 PM - MND 1015**

**\* Note - later time than previous semesters**

**Open & Free to all Students, Faculty & Public**