

PHYSICS & ASTRONOMY COLLOQUIUM  
UNIVERSITY OF WISCONSIN – STEVENS POINT

FRIDAY, NOV 4, 2011  
2:30 PM  
Room A106 SCI

Note:  
Different Time

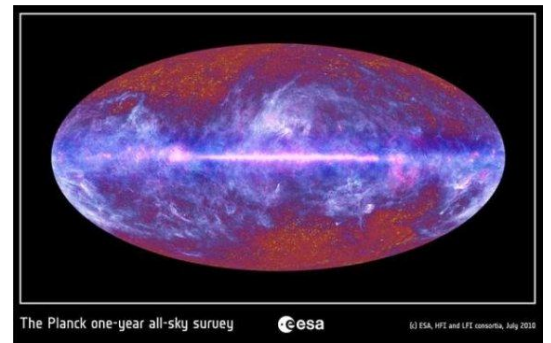
## Thiem Hoang

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### Cosmic Microwave Background Foregrounds: Improved Model of Spinning Dust Emission and Comparison with WMAP results



Thiem Hoang is a PhD candidate in astronomy at the University of Wisconsin-Madison. His research focuses on understanding Galactic foreground emissions that interfere with observations of Cosmic Microwave Background temperature anisotropy and polarization. Before coming to Madison, Thiem attended the Hanoi National University, Vietnam, where he earned his undergraduate and master degree, both in theoretical physics.



**ABSTRACT:** WMAP and Planck missions have been expected to answer crucial questions on the early universe, provided that we understand properly the Galactic foregrounds that interfere with the Cosmic Microwave Background (CMB) signal. The electric dipole emission from spinning dust grains was identified by Draine & Lazarian (1998, namely DL98 model) as the source of the anomalous microwave emission and this component of the galactic foregrounds has become a focus of studies of many groups. In spite of its success, DL98 model has a number of simplifying assumptions, which should be lifted to confront the high precision measurements. In this talk, I will present our improved model of spinning dust emission. In particular, I will discuss the effects of "irregular" shapes of grains, their wobbling, and the transient interactions of tiny grains with impinging ions etc. I will compare our improved model with latest WMAP data, and discuss how our model can be used to constrain dust physical properties.

*Faculty, staff and students are cordially invited to attend.  
Refreshments will be served beginning at 2:15 pm*