

AEROSPACE & MECHANICAL ENGINEERING



2012 COLLOQUIUM 2013 SEMINARS ARE OPEN TO THE PUBLIC

UNIVERSITY OF NOTRE DAME, NOTRE DAME, INDIANA 46556

SPEAKER: **Professor Timothy S. Fisher**
Birck Nanotechnology Center
Purdue University
West Lafayette, Indiana

TOPIC: **TURNING NANOSCIENCE INTO NANOTECHNOLOGY THROUGH
INTERFACE ENGINEERING**

DATE: Tuesday, October 09, 2012

TIME: 3:30 p.m.

PLACE: Lower Level Auditorium, Geddes Hall

RECEPTION: 3:00 – 3:25 p.m. – Coffee House, Geddes Hall

ABSTRACT

The theory of energy and charge transport is a century old, yet classical and quantum size effects have been exploited usefully in practical materials only for the past two decades, and even then with a generally modest level of success in practice. With the increased prevalence of nanomaterials in advanced research, we must look deeper into fundamental aspects of interfacial transport in assemblies of nanomaterials in order to control their performance and engineer them for desired, useful properties in real applications. For example, individual carbon nanotubes possess extremely high axial thermal conductivity, yet when placed in a composite matrix, the effective thermal properties are quite ordinary. In this presentation, spectral and heterogeneous effects are shown to be particularly important in low-dimensional and bulk nanostructures, and concepts for improved performance are elucidated. Other interfacial transport problems involving electrochemical energy storage, thermoelectrics, and flow boiling will also be discussed.

NOTE: *If you are interested in meeting individually with
Prof. Fisher, please contact Linda at 631-5431*