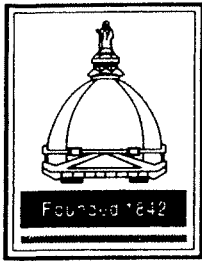


AEROSPACE & MECHANICAL ENGINEERING



2009 COLLOQUIUM 2010 SEMINARS ARE OPEN TO THE PUBLIC

INFORMAL COFFEE PERIOD BEFORE THE SEMINAR IN ROOM 365, ENGR. BLDG.
UNIVERSITY OF NOTRE DAME, NOTRE DAME, INDIANA 46556

SPEAKER: **Manoochehr Koochesfahani**
Department of Mechanical Engineering
Michigan State University
East Lansing, Michigan

TOPIC: **IMAGING MICROFLOWS
USING MOLECULAR TAGGING DIAGNOSTICS**

DATE: Tuesday, March 30, 2010

TIME: 3:30 p.m.

PLACE: 138 DeBartolo Hall

ABSTRACT

Molecular tagging diagnostics take advantage of molecules that can be turned into long lifetime tracers upon excitation by photons of an appropriate wavelength. Typically a pulsed laser is used to “tag” the regions of interest, and those tagged regions are interrogated at successive times within the lifetime of the tracer. This presentation will provide an overview of the various elements involved in using molecular tagging techniques, along with their utilization in imaging macro- and micro-flows. Details from two specific studies will be described. In-situ measurements of wall friction factor in pressure-driven flow inside a microchannel will be compared with theoretical predictions in order to assess the large discrepancies that have been previously reported. Electroosmotically-driven flows involve additional complications, e.g. presence of an electric field and a time-varying temperature field caused by Joule heating. Results will be shown from simultaneous measurements of velocity and temperature within a microchannel for different applied potentials.

NOTE: *If you are interested in meeting individually with
Dr. Koochesfahani, please contact Evelyn at 631-5431*