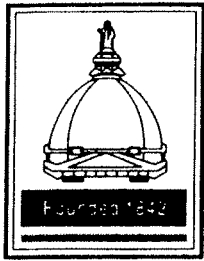


AEROSPACE & MECHANICAL ENGINEERING



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: **Professor Vigor Yang**
School of Aerospace Engineering
Georgia Institute of Technology
Atlanta, Georgia

TOPIC: **COMBUSTION DYNAMICS IN PROPULSION SYSTEMS**

DATE: Tuesday, April 20, 2010

TIME: 3:30 p.m.

PLACE: 138 DeBartolo Hall

ABSTRACT

Unsteady flow oscillations in combustion devices, commonly known as combustion instabilities, were discovered in rocket and air-breathing engines at about the same time in the late 1930s. Since then, combustion instabilities have occurred in most, if not practically all, new development programs. Indeed, because of the high density of energy release in a volume having relatively low losses, conditions normally favor excitation and sustenance of flow oscillations in any combustion chamber intended for a propulsion system.

This lecture will provide an overview of combustion instabilities in four different types of propulsion systems (i.e., solid-rocket, liquid-rocket, gas-turbine, and ramjet/scramjet engines). Emphasis will be placed on the state-of-the-art understanding and research needs and challenges. Various research issues in acoustics, fluid mechanics, and chemistry related to oscillatory combustion in practical systems will be discussed. Both passive and active control techniques will be covered. Applications of contemporary numerical schemes, approximate analytical methods, and experimental diagnostic tools to combustion instability studies will be addressed.

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