

AEROSPACE & MECHANICAL ENGINEERING



**2012 COLLOQUIUM 2013
SEMINARS ARE OPEN TO THE PUBLIC**

UNIVERSITY OF NOTRE DAME, NOTRE DAME, INDIANA 46556

SPEAKER: **Dr. Miguel R. Visbal**
Computational Sciences Branch
Air Force Research Laboratory
Wright-Patterson Air Force Base, Ohio

TOPIC: **FLOW STRUCTURE AND UNSTEADY LOADING ON
MANEUVERING WINGS**

DATE: Tuesday, September 04, 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 process of unsteady separation and stall generated by large transient excursions in angle of attack is referred to in general as dynamic stall. Dynamic stall represents a long-standing issue in several applications including helicopter rotors, maneuvering aircraft and gust encounters in small unmanned air vehicles. This seminar will present results from recent very high-fidelity simulations of unsteady flows over 2-D and low-aspect-ratio wing sections undergoing pitching, plunging, perching or flapping maneuvers. New insights into the three-dimensional flow structure, unsteady loads, the roles of transition and Reynolds number will be described. The impact of high-frequency small-amplitude vibrations on drag reduction and stall suppression will be also addressed briefly.



Examples of dynamic stall over 2D and 3D wing configurations

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