



Mechanical and Aeronautical Engineering Department  
University of California Davis  
Davis, California 95616-5294

## 2002 Monthly Seminar Series on Space Research

3<sup>rd</sup> Thursday 3:10-4:00 p.m., refreshments will be provided at 3:00 p.m.

### **LAUNCH VEHICLE AERODYNAMICS – Challenging Problems in Computational Design and Analysis**

**MICHAEL R. MENDENHALL**

Vice President of NEAR Inc.  
Mountain View, CA 94043-2212

Date: Thursday- May 16, 2002    Time: 3:00-4:00 pm    Location: 1062 Bainer

#### ABSTRACT

Aerodynamics, carriage and separation of several commercial launch vehicle projects will be presented. These include:

Pegasus, Orbital's air-launched booster's aerodynamics, carriage, and separation from the B-52 and L-1011 aircraft;

X-34, Orbital's hypersonic suborbital research vehicle's aerodynamics, carriage and separation from the L-1011 aircraft;

K-1, Kistler Aerospace's reusable launch vehicle's aerodynamic design, including launch, supersonic stage separation, fly-back of the first stage booster, and reentry and fly-back of the orbiter vehicle; and

A number of traditional launch vehicles such as the Taurus and Beal's B-2 expendable vehicles.

The discussion will also include the challenge of selecting and using available computational tools under the constraints of commercial budgets, schedules, and often conflicting requirements and needs. Finally, the speaker will discuss some current and future work on the aerodynamics problems of reusable launch vehicles.

#### ABOUT THE SPEAKER

**Michael R. Mendenhall** is the Vice President of Nielsen Engineering & Research at Mountain View, CA. His technical interests are in launch vehicle aerodynamics, high angle of attack missile and fighter aerodynamics (steady and unsteady), integrated aerodynamic design and analysis expert system methods, and maneuvering submarine hydrodynamics. Principal Investigator on many NASA and DoD research contracts and on commercial contracts for aerodynamic design and analysis of advanced launch vehicles. His technical publications also include the book titled "Tactical Missile Aerodynamics - Prediction Methodology". He is an Associate Fellow of AIAA.

**For more information about SpaceED program or the seminars please contact Professor Nesrin Sarigul-Klijn at (530)-752-0682 or [nsarigulklijn@ucdavis.edu](mailto:nsarigulklijn@ucdavis.edu)**

Members of the campus community and visitors from the region are welcome to attend the seminar series. Sign-in is required at the event. SpaceED seminar will replace MAE297 seminar on 3<sup>rd</sup> Thursdays.

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