



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

2005-2006 Monthly Seminar Series on Space Research

20 October, 17 November, 19 January, 16 February, 20 April, 18 May
3rd Thursday 4:00-5:00 pm

“Near Space” – Where, Why, and What’s the Problem?

David K. Schmidt

*Professor of Mechanical & Aerospace Engineering
University of Colorado – Colorado Springs*

Date: 20 April 2006_Thursday Time: 4:10-5:00 pm Location: 1062 Bainer
Refreshments will be provided at 4:00 p.m.

ABSTRACT

Hosted by: Professor Ron Hess

There is growing worldwide interest in utilizing autonomous flight vehicles as platforms operating for extended periods of time at very high altitudes to achieve mission objectives heretofore accomplished using spacecraft. Using such vehicles in this manner is referred to as a “near-space” solution to a mission requirement, as apposed to a “space-based” solution. Key technological advances have made near-space solutions more viable. Such advances include ultra-lightweight materials and solar-power technology. And near-space vehicular concepts include heavier-than-air (UAV’s) and lighter-than-air (airships), or hybrid designs that rely on both aerodynamic lift and buoyancy. A critical feasibility issue is the requirement for autonomous station keeping, involving the ability to remain fixed over a geo-location in the presence of winds. After a brief introduction to the promise of near space, this presentation will focus on the analysis of the winds and the station-keeping performance of a notional solar-powered near-space vehicle.

ABOUT THE SPEAKER

David Schmidt received his PhD in Aeronautics & Astronautics from Purdue University. After serving on the technical staffs of McDonnell-Douglas Missiles and Space Corp. and the Stanford Research Institute, he joined the engineering faculty at Purdue where he served until 1988. He then served on the faculty of Arizona State University, followed by the University of Maryland – College Park. In 1999 he moved to Colorado Springs to found its Department of Mechanical & Aerospace Engineering. His interests are in all aspects of the dynamics and control of aerospace vehicles - manned and un-manned, atmospheric and exoatmospheric - and he has over 200 research publications in these areas. He has been invited to serve on the USAF Scientific Advisory Board’s Panel on Vehicles and Power, and on several aerospace-research studies conducted by the National Academy of Engineering’s National Research Council. Dr. Schmidt is a Fellow of the American Institute of Aeronautics and Astronautics (AIAA), and a past recipient of the AIAA’s National Award on the Mechanics and Control of Flight.

For more information about

**SpaceED (Space Engineering Research and Graduate Program) or the seminars please contact
Professor Nesrin Sarigul-Klijn at (530)-752-0682 or 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 3rd Thursdays.

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