

**Stanford University Department of Mechanical Engineering
William C. Reynolds Memorial Seminar**

Taking the Hype out of Hypersonics:

Practical Applications for Future Combat and Space Access



Presented by

Mark J. Lewis

Willis Young Professor of Aerospace Engineering
Department of Aerospace Engineering
University of Maryland

Tuesday, November 18, 2008

5:00 – 6:00 p.m.

Building 320, Room 105

Reception prior to the seminar

4:00 – 4:45 p.m.

Building 530, Lobby

For many decades, hypersonic airbreathing flight, in excess of approximately five times the speed of sound, has been touted as holding great promise for military and civilian applications. Yet, there remain considerable technical challenges that must be solved before practical hypersonic craft can be realized. This presentation will review the practical, and in some cases impractical, potential uses of various types of hypersonic vehicles. The advantages and disadvantages of high-speed airbreathing systems will be reviewed in the context of mission applications, along with key design considerations. Current state-of-the-art will be presented, as will an overview of programs that are addressing various aspects of high-speed propulsion and aerodynamics, from the fundamental to systems-level design.

Dr. Mark Lewis is the Willis Young Professor of Aerospace Engineering at the University of Maryland, having recently completed four years on teaching leave as the longest-serving Chief Scientist of the United States Air Force. Dr. Lewis is a member of USAF Scientific Advisory Board. Dr. Lewis' degrees include a B.S. in Aeronautics and Astronautics, a B.S. in Earth and Planetary Science (1984), an M.S. in Aeronautics and Astronautics (1985), and an Sc.D. in Aeronautics and Astronautics (1988) - all from MIT. He has been a faculty member at the University of Maryland since 1988, with primary research/teaching activities focused on hypersonic aerodynamics and propulsion, ranging from shock physics to applied optimal design. Dr. Lewis is the author of approximately 280 publications. He is a Fellow of the American Institute of Aeronautics and Astronautics, a Fellow of the American Society of Mechanical Engineers, and a President's Fellow of the Royal Aeronautics Society. He also received the USAF Exceptional Civilian Service and Meritorious Civilian Service Awards. In addition, Dr. Lewis was the 2007 Aviation Week and Space Technology Laureate Awardee in Aerodynamics and Propulsion, and the recipient of the 2007 AIAA/IECEC Terrestrial Energy Lifetime Achievement Award.

For more information, please call the Department of Mechanical Engineering at (650) 723-4023.