

Tuesday, February 17, 2009 4:00 pm in Room 303 MAE-A

Tackling True Turbulence**Werner J.A. Dahm**Head, Laboratory for Turbulence &
Combustion

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and

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**Abstract**

Turbulent flows occur throughout science and engineering, and are often described as the “last unsolved problem of classical physics.” The seminar will begin with an overview of key issues that are faced in understanding and modeling the quasi-universal intermediate and small scales of turbulent flows. Experiments can provide key insights for such models, at conditions unattainable by direct numerical simulations, and are providing new insights into the structure, statistics, similarity and scaling of shear flow turbulence. Dual-plane stereo particle image velocimetry (DSPIV) and related methods will be seen to give otherwise inaccessible experimental information on the intermediate and small scales of turbulent shear flows. The resulting insights allow for dramatically improved modeling of these scales in practical turbulent flow simulations.

Biography

Dr. Werner J.A. Dahm is the Chief Scientist of the U.S. Air Force, Pentagon, Washington, D.C. He serves as the chief scientific advisor to the Chief of Staff and Secretary of the Air Force, and provides assessments to the Air Force leadership on a wide range of scientific and technical issues that affect the Air Force mission. He has 30 years experience in science and technology, including defense science.

Dr. Dahm is currently on leave from his position as Professor of Aerospace Engineering at the University of Michigan, and Head of the Laboratory for Turbulence & Combustion (LTC), Ann Arbor, Michigan. He received his doctoral degree from Caltech in 1985. Over the past 23 years, Dr. Dahm has researched and taught at Michigan in areas related primarily to fluid dynamics, aerodynamics and propulsion. He is an author of over 180 technical publications, and has given more than 220 technical presentations worldwide, including over 110 invited and plenary lectures. Dr. Dahm is a Fellow of the American Physical Society (APS) and the American Institute of Aeronautics & Astronautics (AIAA), a recipient of the William F. Ballhaus Aeronautics Prize from Caltech and of the 1938E Distinguished Achievement Award and the George J. Huebner Research Excellence Award from the University of Michigan.

Refreshments served in 303 MAE-A beginning at 3:50 pm