Dr. Philip Beran  
Air Force Research Laboratory  
mapleviewfarm@gmail.com  

Thursday, March 21, 2013  
4:00 p.m. / 202 Reed McDonald Building  

Research in Computational Design  

ABSTRACT  
This presentation will review various basic research topics in computational design, with application to air vehicles. Computational design, or Multidisciplinary Design Analysis and Optimization, involves the parametric representation of a configuration, the physics-based analysis of the parametric configuration, and the exploration of configuration behavior in the design space. There are many fundamental challenges to advancing computational design; this talk will focus on those barriers related to coupling the required disciplines together to form a credible analysis model, particularly in the presence of vehicle and/or component dynamics, and the challenge of computing sensitivities to enable efficient design-space exploration.

BIO  
Philip Beran received his Ph.D. degree in Aeronautics from the California Institute of Technology (1989) and his B.S. in Engineering Physics from Cornell University (1982). He is author or co-author of 200 publications (over 60 peer reviewed) covering topics such as computational aeroelasticity, micro air vehicles, model reduction, uncertainty quantification, and computational design. He serves on the AIAA Non-Deterministic Approaches Technical Committee and is an AIAA Associate Fellow. Dr. Beran is a member of the technical staff of Air Force Research Laboratory, where he is a Principal Research Aerospace Engineer in the Multidisciplinary Science and Technology Center and Principal Scientist for the Design and Analysis Methods Branch.

Drinks will be served at 3:45 p.m.