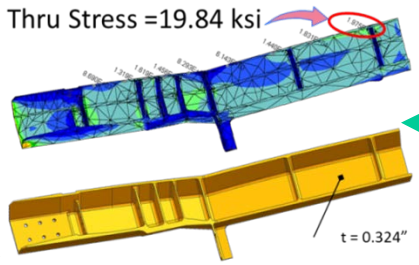
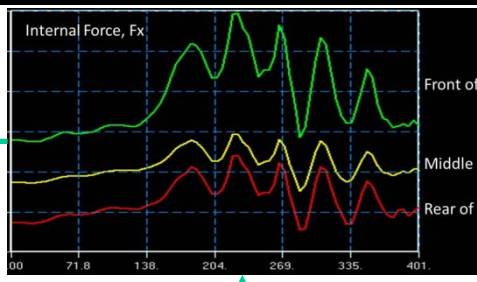
American Institute of Aeronautics and Astronautics
Dayton-Cincinnati Section

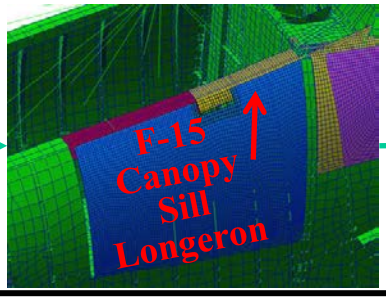
Lunch 'n' Learn
Friday 15 May 2015
"Stick-to-Stress"

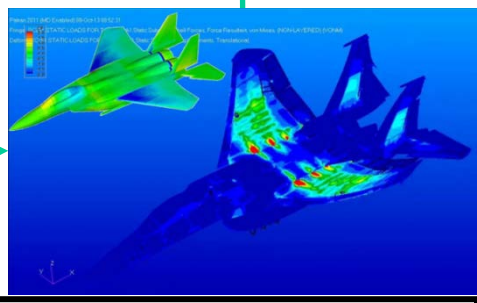
Guest Speaker:

Dr. Ned Lindsley, AFRL









Stick-to-Stress (StS) is an innovative idea for saving life cycle dollars. This is accomplished by generating reduced-order models (ROMs) from high fidelity CFD-based aeroelastic analyses of the air vehicle for different flight conditions/maneuvers. The physics-based ROMs are embedded in a 6DOF flight simulator. Aircraft states and control surface positions are supplied to the appropriate ROMs, which produce incremental elastic 6DOF forces/moments and the associated unsteady aeroelastic pressure loading on the air vehicle. For any instant in time, a full-aircraft balanced load condition is automatically generated for stress analysis. StS improves both aircraft structural design and fleet management processes. More accurate dynamic stress predictions available earlier in the aircraft development process better guide airframe structural sizing. Stress predictions based on StS are more responsive to airframe structural design updates and much more useful in quantifying the impact of air vehicle usage variations on fleet members than those based on legacy flight test regression equations. StS can help identify otherwise overlooked hot spots, enabling better sustainment of legacy aircraft operating beyond their design usage.

Dr. Ned Lindsley is a Senior Aerospace Engineer in the Air Force Research Laboratory's Aerospace Systems Directorate. He has over 25 years of experience in Landing Gear Research and Computational Aeroservoelasticity. He received a BS (Civil) and MS (Mechanical) from The Pennsylvania State University and a PhD from the University of Akron. He is a Senior Member of the AIAA, and was winner of the 2014 AIAA Dayton-Cincinnati Outstanding Technical Contribution (Application) Award .

Time: *11:45 am*

Location:
China Garden Buffet
112 Woodman Dr.
Dayton, OH 45431

Lunch:
You will be able to purchase the buffet