

# Department of Applied and Computational Mathematics and Statistics Colloquium

**David Schuster**  
NASA Technical Fellow  
NASA Engineering and Safety Center

will give a lecture entitled:

*High-Order Methods in NASA's Next Generation of Computational Fluid Dynamics Tools*

## Abstract

The missions of the National Aeronautics and Space Administration (NASA) routinely produce unique requirements and challenges for development and application of Computational Fluid Dynamics (CFD) methods. NASA presently embodies three distinct Mission Directorates: Aeronautics Research, Human Exploration and Operations, and Science. These missions generate requirements for systems that operate in a wide variety of environments. They range from the high-speed flight of aerodynamically optimized vehicles operating in the earth's atmosphere to spacecraft designed for missions that don't favor aerodynamic optimization, some operating in the atmosphere of planets and planetary moons such as Mars and Venus or Saturn's moon Titan. Systems supporting these vehicles, such as rocket and jet propulsion, reaction control systems, fluid and thermal transfer systems, etc. can also generate their own unique set of flow phenomena that challenge today's CFD methodology.



**Wednesday, October 12<sup>th</sup>, 2011**  
**4:00 p.m. to 5:00 p.m.**  
**127 Hayes-Healy Center**