

# Workshop for AFOSR Basic Research Initiative

## Virginia Tech and North Carolina State University

February 7, 2014

Location: Virginia Tech; 2202 Kraft Dr., Blacksburg, VA; KWII Building, Room 1110

- 10:30-11:00 Opening Remarks and Overview of Project
  - Co-Design of Hardware/Software for Predicting MAV Aerodynamics
- 11:00-11:30 Development of a Portable, GPU-Accelerated High-Order Discontinuous Galerkin CFD Code for Compressible Flows on Hybrid Grids (RDGFLO3D)
- 11:30-12:00 Performance Assessment of a Multi-block Incompressible Navier-Stokes Solver using Directive-based GPU Programming in a Cluster Environment (INCOMP3D)
- 12:00-12:30 GPU Acceleration of CFD Codes and Optimizing for GPU Memory Hierarchies (GPU & Memory)
- 12:30-13:30 Working Lunch
- 13:30-14:00 GPU Acceleration of the SENSEI CFD Code Suite (SENSEI)
- 14:00-14:30 GenIDLEST Co-Design (GenIDLEST)
- 14:30-14:45 Break
- 14:45-15:15 Accelerated Solvers for CFD (Solvers)
- 15:15-15:45 Co-design of Time-Stepping Algorithms for Large Aerodynamics Simulations (Time Discretization)
- 15:45-16:00 Break
- 16:00-16:30 Codifying and Applying a Methodology for Manual Co-Design and Developing an Accelerated CFD Library (Co-Design: CFD/Math/CS)
- 16:30-17:00 Tool Chain for Co-Design (Co-Design: CS/Tools)
- 17:00-17:30 Discussion