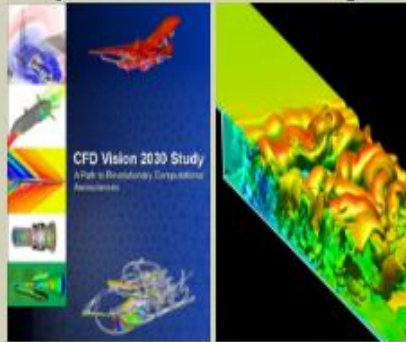


# FUTURE CFD TECHNOLOGIES WORKSHOP

*Bridging Mathematics and Computer Science for Advanced Aerospace Simulation Tools*

*Sponsored by the AIAA CFD2030 Integration Committee  
and  
NASA's Transformative Tools and Technologies Project (T<sup>3</sup>)*



*Honoring Dr. Manuel Salas  
ICASE Director 1996-2002*

*January 6-7, 2018  
Preceding the AIAA Scitech 2018 Conference  
Gaylord Palms Resort and Convention Center  
Kissimmee, FL, USA*

All Workshop Sessions are located in : Sun B room, which is located on the Convention Center Ballroom Level (Level 2) of the Gaylord hotel

07:15 - 08:00	Continental Breakfast
08:00 - 08:30	Introduction and Workshop Objectives: Dimitri Mavriplis (University of Wyoming) and Mujeeb Malik (NASA Langley)
	<b>Session 1: Application Drivers and Basic Research</b> Session Chair: <i>Mujeeb Malik</i>
08:30 - 09:00	"Future Directions in Computational Simulation to Enable Certification and Qualification by Analysis" <a href="#">Abstract</a> <i>Rob Gregg III and Jeff Slotnick (Boeing Commercial)</i> <a href="#">Bio</a>
09:00 - 09:30	"A Vision for the NASA Aerosciences Discipline Under the Agency's New Operating Model" <a href="#">Abstract</a> <i>Dave Schuster (NASA)</i> <a href="#">Bio</a>
09:30 - 10:00	"Towards Overcoming the LES Crisis" <a href="#">Abstract</a> <i>Rainald Lohner (Geroge Mason University)</i> <a href="#">Bio</a>
10:00 - 10:30	Break
	<b>Session 2: Math/Algorithmic Technology Drivers</b> Session Chair: <i>Dimitri Mavriplis</i>
10:30 - 11:00	"Implicit positivity-preserving high order discontinuous Galerkin methods for conservation laws" <a href="#">Abstract</a> <i>Chi-Wang Shu (Brown University)</i> <a href="#">Bio</a>
11:00 - 11:30	"Multigrid solvers in space and time for highly concurrent architectures" <a href="#">Abstract</a> <i>Rob Falgout (Lawrence Livermore National Laboratory)</i> <a href="#">Bio</a>
11:30 - 12:00	"Contributions of Applied Mathematics to Meshing Technologies and their Applications to Aerospace Simulations " <a href="#">Abstract</a> <i>Frederic Alauzet (INRIA)</i> <a href="#">Bio</a>
12:00 - 01:30	Lunch on own (not provided) ( <a href="#">Restaurant List</a> )
	<b>Session 3: Application Drivers</b> Session Chair: <i>Jeff Slotnick</i>
01:30 - 02:00	"The Virtual Product Next Generation Simulation for Future Aircraft Design" <a href="#">Abstract</a> <i>Cord Rossow (DLR)</i> <a href="#">Bio</a>
02:00 - 02:30	"Challenges and Opportunities for CFD at ONERA" <a href="#">Abstract</a> <i>Vincent Couaillier (ONERA)</i> <a href="#">Bio</a>
02:30 - 03:00	"Turbomachinery CFD @ GE" <a href="#">Abstract</a> <i>Brian Mitchell (GE)</i> <a href="#">Bio</a>
03:00 - 03:30	Break
	<b>Session 4: Technology Drivers</b> Session Chair: <i>Venkat Venkatakrishnan</i>
03:30 - 04:00	"Lattice Boltzmann Methods (TBD)" <a href="#">Abstract</a> <i>Li-Shi Luo (Old Dominion University)</i> <a href="#">Bio</a>
04:00 - 04:30	"Cross-Platform Computational Fluid Dynamics at Petascale with Python" <a href="#">Abstract</a> <i>Peter E. Vincent (Imperial College)</i> <a href="#">Bio</a>
04:30 - 05:00	"Data to Decisions: Computational Methods for the Next Generation of Aerospace Systems" <a href="#">Abstract</a> <i>Karen Willcox (MIT)</i> <a href="#">Bio</a>
05:00 - 05:30	"On the Creation of ICASE: A Personal Retrospective View" <a href="#">Abstract</a> <i>Manny Salas</i> <a href="#">Bio</a>
05:45 - 07:00	Reception

07:15 - 08:15	Continental Breakfast
08:15 - 09:00	<b>Plenary Talk:</b> "InfoSymbioticSystems - The Power of Dynamic Data Driven Applications Systems (DDDAS)" <i>Frederica Dareema</i> <i>Director, Air Force Office of Scientific Research (AFOSR)</i>
	<b>Session 1: Application Drivers</b> Session Chair: <i>Boris Diskin</i>
09:00 - 09:30	"A Ten-Year Retrospective on Building CREATE Air Vehicle Tools Consistent with Much of the CFD2030 Vision" <a href="#">Abstract</a> <i>Scott Morton (CREATE-AV/DoD)</i> <a href="#">Bio</a>
09:30 - 10:00	"Exascale Computing Projects at the DOE (TBD)" <a href="#">Abstract</a> <i>Doug Kothe (DoE ECP)</i> <a href="#">Bio</a>
10:00 - 10:30	"Status and future prospects of turbulence modeling in CFD" <a href="#">Abstract</a> <i>Chris Rumsey (NASA)</i> <a href="#">Bio</a>
10:30 - 11:00	Break
	<b>Session 2: HPC</b> Session Chair: <i>Manny Salas</i>
11:00 - 11:30	"High Performance Computing (HPC) in the Service of Aeroscience" <a href="#">Abstract</a> <i>Piyush Mehrotra (NASA)</i> <a href="#">Bio</a>
11:30 - 12:00	"Recent and Expected Advances in HPC" <a href="#">Abstract</a> <i>Josip Loncaric (Los Alamos National Laboratory)</i> <a href="#">Bio</a>
12:00 - 12:30	"Algorithmic Adaptations to Extreme Scale Computing" <a href="#">Abstract</a> <i>David Keyes (KAUST)</i> <a href="#">Bio</a>
12:30 - 02:00	Lunch on own (not provided) ( <a href="#">Restaurant List</a> )
	<b>Session 3: Emerging Technologies</b> Session Chair: <i>Li-Shi Luo</i>
02:00 - 02:30	"Model Validation and Uncertainty Quantification: Recent Advances and Opportunities for Aerospace Applications " <a href="#">Abstract</a> <i>Sankaran Mahadevan (Vanderbilt University)</i> <a href="#">Bio</a>
02:30 - 03:00	"Prospects for the Application of Data-driven Methods for Computational Physics Modeling" <a href="#">Abstract</a> <i>Karthik Duraisamy (University of Michigan)</i> <a href="#">Bio</a>
03:00 - 03:30	"The Tail Wags the Dog - How In-Situ Processing and Data Modeling Will Enable Knowledge Extraction at Scale to Address the 2030 CFD Vision" <a href="#">Abstract</a> <i>Steve Legensky (Intelligent Light)</i> <a href="#">Bio</a>
03:30 - 04:00	Break
04:00 - 05:30	Discussion/Panel <i>Panelists : Mike Rogers (NASA), Fariba Fahroo (DARPA), Durrell Rittenberg (Siemens PLM), Sharath Girimaji (Texas A&amp;M) David Keyes (KAUST)</i>