

CEESC
2005

April 26-27, 2005
Marriott Wardman Park
Washington DC



AGENDA

MONDAY, APRIL 25

5:00 - 7:00pm Registration

TUESDAY, APRIL 26

7:00 - 8:00am Registration and Continental Breakfast - *outside Washington Rooms*

8:00 - 8:30am Opening Remarks - *Washington 3 and 4*

8:30 - 10:30am **Ground Transportation** - *Washington 3 and 4*
Session Chair: Robert Carling, Sandia National Laboratories

John Dec, Sandia National Laboratories
High-Efficiency and Low-Emissions Engines: the Need for High End Computing

Jacqueline Chen, Sandia National Laboratories
Direct Numerical Simulation of Fundamental Processes in Engines

Christopher Rutland, University of Wisconsin - Madison
Simulation in IC Engine Applications

Angela Violi, University of Utah
Nanoparticle formation and transformation in diesels: a multiscale computational tool

10:30 - 11:00am Break - *Washington 1 and 2*

11:00 - 12:00pm **Enabling Technologies, part 1** - *Washington 3 and 4*
Session Chair: William Gropp, Argonne National Laboratory

Christopher Johnson, University of Utah/ASC Alliance Center
Computational Multi-Field Visualization

James R. Taft, Sienna Software/NASA Ames Research Center
Preliminary Science Results from NASA's 60 TFLOP Columbia System

12:00 - 1:30pm Lunch (provided) - *Washington 5 and 6*

TUESDAY, APRIL 26 (cont'd)

1:30 - 3:00pm **Agency Perspective - Washington 3 and 4**

Session Chair: C. Edward Oliver

Associate Director, Advanced Scientific Computing Research
Department of Energy

Dimitri Kusnezov

Director, Office of Advanced Simulation and Computing
Department of Energy

Charles Holland (invited)

Deputy Under Secretary of Defense, Science and Technology
Department of Defense

Raymond Orbach (invited)

Director, Office of Science
Department of Energy

Walter Brooks

Division Chief, Advanced Supercomputing Division
National Aeronautics and Space Administration

3:00 - 3:30pm Break - *Washington 1 and 2*

3:30 - 5:00pm **High-End Computing and Science - Washington 3 and 4**

Session Chair: Richard Hilderbrandt, DOE Office of Science

Sidney Karin, University of California - San Diego

History and Future of High-Performance Computing and Science

John B. Bell, Lawrence Berkeley National Laboratory

Simulation of Reacting Flow

Thomas L. Jackson, University of Illinois at Urbana-Champaign

Recent Advances in the Numerical Simulation of Heterogeneous Solid Propellant Combustion

Charles A. Wight, University of Utah

Interdisciplinary Advanced Scientific Computing in Partnership with DOE: A Worthwhile Exercise in Herding Cats

5:00 - 7:00pm Poster Session/Reception - *Washington 1 and 2*

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COMPUTATIONAL ENGINEERING AND SCIENCE CONFERENCE

WEDNESDAY, APRIL 27

7:00 - 8:30am Continental Breakfast - *outside Washington Rooms*

8:30 - 10:30am **High Speed Combustion** - *Washington 3 and 4*
Session Chair: Thomas Jackson, Air Force Research Laboratory

Robert Baurle, NASA Langley Research Center
High Performance Computing Issues Related to the Simulation of Scramjet Flow Fields

K. Kailasanath, Naval Research Laboratory
Detonative Combustion – Science and Technology

Joseph Oefelein, Sandia National Laboratories
Large Eddy Simulation of Liquid Rocket Injection and Combustion Processes

Neeraj Sinha, Combustion Research and Flow Technology, Inc.
High Fidelity Simulation of Threat Ballistic Missile Plume Signature & Scramjet Propulsion Flow Fields

10:30 - 11:00am Break - *Washington 1 and 2*

11:00 - 12:00pm **Enabling Technologies, part 2** - *Washington 3 and 4*
Session Chair: William Gropp, Argonne National Laboratory

Adolfy Hoisie, Los Alamos National Laboratory
Performance Modeling of Extreme-Scale Systems and Applications

David Keyes, Columbia University
Letting Physicists be Physicists, and other Goals of Scalable Solver R&D

12:00 - 1:30pm Lunch (on your own)

WEDNESDAY, APRIL 27 (cont'd)

1:30 - 3:30pm **Gas Turbine Combustion** - *Washington 3 and 4*
Session Chair: Paul Bartolotta, NASA Glenn Research Center

Nan-Suey Liu, NASA Glenn Research Center
Comprehensive Combustion Modeling and Simulation

Heinz Pitsch, Stanford University
Large-Eddy Simulation of Realistic Gas-Turbine Combustors
Mel Roquemore, Air Force Research Laboratory/Wright Patterson
Development of Simulations/Diagnostics and Their Use as a Combustor Design Tool

Clifford E. Smith, CFD Research Corporation
Needed: A Next Generation Combustion LES Code

3:30 - 4:00pm Break - *Washington 1 and 2*

4:00 - 5:00pm **Program Manager Session** - *Washington 3 and 4*
Session Chair: Michael Strayer, DOE Office of Science

Linda Blevins
Program Director, Combustion and Plasma Systems
National Science Foundation

Eric Rohlifing
Team Leader for Fundamental Interactions
Basic Energy Sciences, Department of Energy

Wing Tsang
NIST Fellow, Physical and Chemical Properties Division
National Institute of Standards and Technology

Julian Tishkoff
Program Manager, Combustion and Diagnostics
Air Force Office of Scientific Research

5:00pm Concluding Remarks - *Washington 3 and 4*