



**Oak Ridge National Laboratory**  
**2006 Fall Creek Falls Conference**  
***Computational Science at the Petascale***  
<http://www.ccs.ornl.gov/meetings/FallCreek06/>  
The Inn at Fall Creek Falls State Park  
Central Daylight Savings Time

**Sunday, October 22, 2006**

- Arrival and dinner in dining room (please sign in)  
6:00 p.m. Reception / Welcome {Fall Creek II, III} ..... Thomas Zacharia  
8:00 p.m. End of day one  
8:00 p.m. Meeting of 2007 Fall Creek Falls Conference Committee

**Monday, October 23, 2006**

- 7:00 a.m. Breakfast buffet (please sign in)..... Dining Room  
8:00 a.m. Opening remarks ..... Thomas Zacharia

**Petascale Software and Tools**

- 8:10 a.m. *The Impact of Multicore on Math Software and Exploiting Single Precision Computing to Obtain Double Precision Results*..... Jack Dongarra, University of Tennessee, Knoxville  
8:30 a.m. *Overcoming the Barriers to Sustained Petaflop Performance* .....Bill Gropp, ANL  
8:50 a.m. *Scalability of Performance Measurement and Analysis* ..... Robert Fowler, RENC  
9:10 a.m. *Software, Libraries, and Tools for Multi-Core Programming*..... Richard Barrett, ORNL  
9:30 a.m. *Managing Petascale Complexity*..... Matt Leininger, SNL  
9:50 a.m. *Techniques for Petascale Programming Models*..... Daniel Chavarria, PNNL  
10:10 a.m. *Center for Scalable Application Development Software (CScADS)*..... Jan Odegard, Rice University  
10:30 a.m. **Break**

**Science at Scale**

- 10:45 a.m. *Petascale Modeling the Climate of the 20<sup>th</sup> and 21<sup>st</sup> Centuries: Recent Results* Warren Washington, NCAR  
11:05 a.m. *Simulation of Turbulent Compressible, Astrophysical Flows at the Petascale* .....  
..... Paul Woodward, Univ. Minnesota  
11:25 a.m. *Toward Three-Dimensional, Multiphysics, Petascale Simulations of Core Collapse Supernovae*  
..... Tony Mezzacappa, ORNL  
11:45 p.m. **Panel Discussion** ..... All  
12:05 a.m. **Lunch** (please sign in) ..... Dining Room  
Afternoon free time and recreation: your leisure for hiking, fishing, relaxing  
4:45 p.m. Poster session set up ..... Fall Creek III  
5:00 p.m. **Reassemble** ..... **Vendor Views**  
*Scaling to Petaflops with Cray's MPP Systems* ..... John Levesque, Cray  
*Shared Memory Systems for Petascale Computing* ..... Ilene Carpenter, SGI  
*Challenges of Petascale Computing* ..... Kent Winchell, IBM  
*Characteristics of Sun's Petascale HPCS System* ..... James Mitchell, Sun  
*LSI Logic, Preparing for PetaScale Computing* ..... David Ellis, LSI Logic

**Monday, October 23, 2006 (continued)**

- 5:50 p.m. Break
- 6:00 p.m. **Dinner** (private buffet) ..... Fall Creek I and II
- 7:15 p.m. Poster session and refreshments ..... Fall Creek III
- 8:30 p.m. End of day two

**Tuesday, October 24, 2006**

- 7:30 a.m. **Buffet Breakfast** (please sign in) ..... Dining Room

**Science at Scale** continued

- 8:00 a.m. *Digital Combustors - Towards Quantitative Predictability* ..... Jackie Chen, SNL
- 8:20 a.m. *Petascale Challenges in Lattice QCD* ..... Steven Gottlieb, Indiana University
- 8:40 a.m. *Petascale Calculations of Electronic Structures of Nanosystems* ..... Lin Wang, LBL
- 9:00 a.m. *Eulerian and Lagrangian Studies of Turbulent Transport in the Global Ocean ...* Mathew Maltrud, LANL
- 9:20 a.m. *Gyrokinetic Particle Simulation of Fusion Plasma* .....Stephane Either, PPPL
- 9:40 a.m. *Petascale Simulation for Accelerator-Based Science and Technology* ..... Robert Ryne, LBL

- 10:00 a.m. **Break**

**Facilities to Enable Science**

- 10:15 a.m. *Strategies for Supporting Scientists on HPC Systems* ..... Terri Quinn, LLNL
- 10:35 a.m. *Leadership Computing Facility* ..... Buddy Bland, ORNL
- 11:55 a.m. *Petascale and Beyond Facility Planning* .....Kevin Wohlever, OSU
- 11:15 a.m. *Beyond Columbia: Enabling NASA's Science* ..... William Thigpen, NASA Ames
- 11:35 a.m. *Deploying the Sun Magnum System: The Beginning of NSF Petascale Computing* . John Boisseau, TACC
- 11:55 a.m. **Panel Discussion** ..... All
- 12:20 p.m. Closing remarks and adjourn  
Lunch available in dining room (please sign in)

**Important note:** If you plan to visit the Oak Ridge National Laboratory on Wednesday, October 25, please confirm with Debbie McCoy or Doug Kothe on Sunday evening that your visitor badge is in place. You will need to provide your email address and complete an on-line visitor access request. Due to the 45-day lead time required for processing non-citizen visit requests, we will not be able to honor requests for non-citizen visits for October 25.

## Poster and Networking Session

Monday, October 23, 2006

7:00 p.m.

- Building Petascale Multiphysics Supernova Simulations from Scalable Parts* .....Bronson Messer, ORNL
- TSI: Another Supernova Surprise from Simulation* ..... John Blondin, NCSU
- Modeling the Climate of the 20<sup>th</sup> Century and the 21<sup>st</sup> Century: Recent Results* ..... Lawrence Buja, NCAR
- Computational Atomic and Molecular Physics for Advances in Astrophysics, Chemical Sciences  
and Fusion Energy Sciences* ..... Mitch Pindzola, Auburn University
- HEC I/O Initiative - A Multi-Institutional Effort between  
Georgia Tech's Center for Experimental Research in Computer Systems (CERCS)*.....Matt Wolf, Georgia Tech
- Performance Evaluation and Analysis Consortium (PEAC) End Station*.....Pat Worley, ORNL
- Steady State Gyrokinetic Transport Code (SSGKT): A prototype for multi-physics, multi-scale,  
integrated simulation of fusion systems* ..... Mark Fahey, ORNL
- Development and Correlations of Large-Scale Computational Tools for Flight Vehicles* .....Moeljo Hong, Boeing
- Towards Petascale Computing for the Terascale Accelerator:  
Design and Optimization of the International Linear Collider* .....Rich Lee, SLAC
- Demands and Solutions for Genome-Scale Combinatorial Analysis*..... Michael Langston, UTK
- An Integrated Approach to the Rational Design of Chemical Catalysts* .....Robert J. Harrison, ORNL/UTK