

**Idaho Modeling, Simulation, and Visualization Workshop**  
**Grove Hotel – Boise, Idaho**  
**Thursday and Friday, September 8-9, 2011**

**Thursday, September 8**

8:15 – 8:30	Opening Remarks
8:30 – 9:50	Session I : Modeling & Simulation in Nuclear Engineering and Material Sciences
9:50 – 10:10	<i>Break</i>
10:10 – 11:30	Session II: Applied Mathematics & Algorithms
11:30 – 1:00	<i>lunch</i>
1:00 – 2:00	<b>Keynote Lecture:</b> Large Enclosure Thermal Mixing and Stratification Analysis for Reactor Safety, by Haihua Zhao, Idaho National Laboratory
2:00 – 3:30	Session III: High Performance Computing & Visualization
3:30 – 3:50	<i>break</i>
3:50 – 5:10	Session IV: Modeling & Simulation in Environmental Applications
5:30 – 6:30	<i>reception</i>

**Friday, September 9**

8:50 – 10:10	Session V: High Performance Computing & Visualization
10:10 – 10:30	<i>break</i>
10:30 – 11:30	Session VI: Modeling & Simulation in Biological Sciences
11:30 – 1:00	<i>lunch</i>
1:00 – 2:00	<b>Keynote Lecture:</b> Exascale Simulation: Get Ready for a New World, by Hank Childs, Lawrence Berkeley National Laboratory
2:00 – 3:30	Panel discussion
3:30 – 3:50	<i>break</i>
3:50 – 5:10	Executive committee meeting (invitees only)

Thursday, September 8	
8:15-8:30	Opening Remarks, Darryl Butt, Boise State University
8:30 – 9:50	Session I : Modeling & Simulation in Nuclear Engineering and Material Sciences <i>Cedar Room</i> <i>Session Chair: Pushpa Raghani, Boise State University</i>
8:30	<i>Multi-time Scale Modeling of Radiation Damage in Metals and Metal Oxides</i> Xianming (David) Bai, Idaho National Laboratory
8:50	<i>Computational Modeling of Plasticity, Creep and Fracture in Heat-Resistant Steels for Nuclear Applications</i> Gabriel Potirniche, University of Idaho
9:10	<i>Virtual Synthesis of Nanomaterials with Predesigned Physical Properties: Nickel Oxide Nanoribbons</i> Liudmila Pozhar, University of Idaho
9:30	<i>Modeling Materials from First Principles using Density Functional Theory</i> Pushpa Raghani, Boise State University
<b>9:50 – 10:10</b>	<b>Break</b>
10:10 – 11:30	Session II: Applied Mathematics and Algorithms <i>Cedar Room</i> <i>Session Chair: Donna Calhoun, Boise State University</i>
10:10	<i>Deconvolution Closure for Mesoscopic Continuum Models of Particle Systems</i> Lyudmyla Barannyk, University of Idaho
10:30	<i>An Approximate Riemann Solver for Modeling Steam Flow in Cracks in Concrete Nuclear Reactor Containment Buildings</i> Donna Calhoun, Boise State University
10:50	<i>Prior Information and Uncertainty in Computational Modeling</i> Jodi Mead, Boise State University
11:10	<i>Applications of kernel approximation to modeling and simulation</i> Grady Wright, Boise State University
<b>11:30 – 13:00</b>	<b>Lunch (on your own)</b>
13:00 – 14:00	<b>Keynote Lecture:</b> <i>Large Enclosure Thermal Mixing and Stratification Analysis for Reactor Safety</i> , by Haihua Zhao, Idaho National Laboratory
14:00 – 15:30	Session III: HPC & Visualization <i>Cedar Room</i> <i>Session Chair: Nancy Glenn, Idaho State University</i>
14:00	<i>Multigrid Accelerated Incompressible Flow Computations on GPU Clusters</i> Inanc Senocak, Boise State University

14:20	<i>3D Visualization of Remote Sensing Data Fusion for Environmental Science</i> Nancy Glenn, Idaho State University
14:40	<i>Kalman Filter for Tracking: A GPGPU Design and Implementation</i> Steve Chiu and Sheldon Kreger, Idaho State University
15:00	<i>An Information-Based Approach to Algorithm Design</i> Robert Hiromoto, University of Idaho
<b>15:30 – 15:50</b>	<b><i>Break</i></b>
15:50 – 17:10	<b><i>Session IV: Modeling &amp; Simulation in Environmental Applications</i></b> <b><i>Cedar Room</i></b> <b><i>Session Chair: Inanc Senocak, Boise State University</i></b>
15:50	<i>Modeling and Simulation of Hazardous Earth-Surface Flows: from tsunamis to landslides</i> David George, USGS Cascade Volcanic Observatory
16:10	<i>Application of Multi-processor Computing to the Study of Explosive Volcanic Eruptions</i> Shannon Kobs Nawotniak, Idaho State University
16:30	<i>Multigrid Accelerated Fluid Dynamics Simulations on GPU Clusters</i> Inanc Senocak, Boise State University
16:50	<i>Application of CFD for Renewable Energy: Onshore and Offshore Wind Turbine Simulations</i> Tao Xing, University of Idaho
<b>17:30 – 18:30</b>	<b><i>Reception at the Evergreen Room</i></b>

<b>Friday, September 9</b>	
8:50 – 9:50	Session V: High Performance Computing & Visualization <i>Cedar Room</i> <i>Session Chair: Amit Jain, Boise State University</i>
8:50	<i>Improved Multimodal Exploration Through Scientific Visualization</i> Alark Joshi, Boise State University
9:10	<i>Large Scale Data Storage Options for HPC Clusters</i> Amit Jain, Boise State University
9:30	Massively Parallel Multiphysics Simulation Using an Object-Oriented Framework Derek Gaston, Idaho National Laboratory
9:50	<i>Computational Intelligence based Techniques for Modeling, Simulation, and Visualization in Energy Related Problems</i> Milos Manic, University of Idaho
<b>10:10 – 10:30</b>	<b><i>Break</i></b>
10:30 – 11:30	Session VI: Modeling & Simulation in Biological Sciences <i>Cedar Room</i> <i>Session Chair: Eric Whiting, Idaho National Laboratory</i>
10:30	<i>Computational Solutions to Biochemical Problems</i> Owen McDougal, Boise State University
10:50	<i>Metagenomic Analysis of Yellowstone Acidic Hotsprings</i> Francisco Roberto and James Henriksen, Idaho National Laboratory
11:10	<i>Enhanced Annotation of the Fathead Microarray Platform for Gene-Class Analysis</i> Michael Thomas, Idaho State University
<b>11:30 – 13:00</b>	<b><i>Lunch (on your own)</i></b>
13:00 – 14:00	<b>Keynote Lecture: Exascale Visualization: Get Ready for a New World</b> , by Hank Childs, Lawrence Berkeley National Laboratory
14:00 – 15:30	Panel discussion <i>Cedar Room</i> <i>Moderator: Robert Hiromoto, University of Idaho</i>
3:30 – 3:50	<i>break</i>
3:50 – 5:10	<b>Executive committee meeting (invitees only)</b>