

TRUCHAS Workshop
June 21-24, 2004
Los Alamos, NM 87544, U. S. A

Agenda

Monday, June 21

8:30 A. M. **Tutorial**

A full day session will be held on Monday at the Los Alamos Research Park on implementation and operational issues with Truchas. The tutorial will familiarize first time Truchas users with the details of executing and modifying Truchas on Unix workstations and Multiprocessor systems. More advanced topics may be covered if the participants are prepared by earlier use of Truchas. The tutorial features hands on training and individual interaction with program staff. Only currently licensed collaborators are eligible to attend the tutorial session.

5:30 P. M **Reception**

All participants are invited to attend the welcoming reception at the Bradbury Science Museum.

Tuesday, June 22

8:15 D. Kothe (LANL) *Welcome.*

Session A: Reviews and Applications (Moderator: Bryan Lally)

8:30 J. M. Sicilian (LANL) and D. B. Kothe *The Telluride Project: History, Goals, and Status.*

9:00 R. M. Aikin, Jr., D. A. Korzekwa, K. Lam, and L. A. Schwalbe (LANL) *Application Drivers in Truchas Development.*

9:30 C. Beckermann (Univ. of Iowa) *An Overview of Recent Casting Simulation Projects at The University of Iowa.*

10:00 COFFEE BREAK

10:30 R.M. Aikin (LANL) and D. R. Korzekwa *The Benchmark Uranium Hemi Casting; Experimental.*

11:00 D. R. Korzekwa (LANL) and R.M. Aikin, *The Benchmark Uranium Hemi Casting; Simulation.*

11:30 Discussion

12:00 LUNCH break

Session B: Fluid Flow (Moderator: Dave Korzekwa)

1:30 E. D. Dendy (LANL), *Fluid Flow Models in Truchas.*

2:00 T. R. Wu (Cornell Univ.) *A Numerical Investigation of Runup from Three-Dimensional Sliding Masses.*

2:30 S. B. Johnson (Colorado School of Mines) and J. P. Delplanque, *Multi-scale Modeling of the Spray Rolling Process*

3:00 COFFEE BREAK

3:30 M. M. Francois (LANL), E. Dendy, D. B. Kothe, J. Sicilian and M. W. Williams, *Improvements on the Modeling of Surface Tension in Truchas.*

4:00 A. Caboussat (Univ. of Huston), R. Glowinski, M. Picasso and J. Rappaz, *Numerical Simulation of Free Surface Fluid Flow in the Frame of Mould Filling.*

4:30 Discussion

5:00 End of Session

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Wednesday, June 23

Session C: Heat Transfer and Phase Changes (Moderator: Larry Schwalbe)

8:30 S. Swaminarayan (LANL), M. Stan, A. J. Starobin, and A. P. Kuprat, *Heat Transfer and Phase Change Models in Truchas*.

9:00 A. J. Starobin (LANL), A. P. Kuprat, M. Stan, and S. Swaminarayan, *Grain Growth Models in Truchas*.

9:30 M. Stan (LANL), S. Swaminarayan, and K. Lam, *Chemical Reaction Models in Truchas*.

10:00 COFFEE BREAK

10:30 J. A. Turner (LANL) and S. Swaminarayan, *Radiative Heat Transfer in Truchas*.

11:00 S. J. Cummins (LANL) and J. Mohd-Yusof, *Comparisons of Eulerian Techniques for Dendritic Crystal Growth*.

11:30 Discussion

12:00 LUNCH break

Session D: Solid Mechanics and Electromagnetics (Moderator: Marius Stan)

1:30 D. A. Korzekwa (LANL), *Current Status of the Solid Mechanics Capability in Truchas*.

2:00 K. Lam (LANL), *Truchas Calculation of a Uranium-Molybdenum Alloy Casting Process*.

2:30 M. H. Cho and D. Farson (Ohio State Univ.) *VOF Simulation for Hybrid Laser Arc Welding Process Development*.

3:00 COFFEE BREAK

3:30 N. N. Carlson (LANL), *Modeling Electromagnetic Heating in Truchas*.

4:00 L. A. Schwalbe (LANL), *Simulations of Joule Heating of a Ta Launder*.

4:30 Discussion

5:00 End of Session

Thursday, June 24

Session E: Numerical Methods, Verification, and Validation (Moderator: Jim Sicilian)

8:30 J. A. Turner (LANL), *Linear and Nonlinear Solvers in Truchas*.

9:00 T. Austin (LANL), M. Shashkov, and J. D. Moulton, *Calculating the Net Flux in Truchas using Support Operators*.

9:30 K. Lam (LANL), *Verification and Validation of Truchas*.

10:00 COFFEE BREAK

10:30 D. Tortorelli (Univ. of Illinois at Urbana-Champaign) *Revisiting the Consistent Tangent Operator*.

10:50 M. Fagan (Rice Univ.), *Computing Sensitivities for Truchas using Ad4Lite: Preliminary Report*.

11:10 M. J. Ni (Univ. of California Los Angeles), Neil B. Morley, Mohamed A. Abdou, *Validation and Application of TRUCHAS at UCLA*.

11:30 Overview Discussion

12:00 END of Workshop