

**RUSSIAN/U.S. WEAPONS LABORATORIES
INTRODUCTORY TECHNICAL EXCHANGE
IN COMPUTATIONAL AND COMPUTER SCIENCE**

**Lawrence Livermore National Laboratory
Livermore, California**

October 19, 1992

RUSSIAN/U.S. WEAPONS LABORATORIES
INTRODUCTORY TECHNICAL EXCHANGE
IN COMPUTATIONAL AND COMPUTER SCIENCE

Monday, October 19, 1992 thru
Thursday, October 22, 1992

Building 451, White Room

SCHEDULE

Session A	Tuesday, October 20	8:30 a.m.
Session B	Tuesday, October 20	1:30 p.m.
Session C	Wednesday, October 21	8:30 a.m.
Session F	Wednesday, October 21	1:00 p.m.
Session E	Thursday, October 22	8:30 p.m.
Session D	Thursday, October 22	1:00 p.m.

SESSION A

Tuesday, October 20, 1992

8:30 a.m.

Algorithm Development I

Papers:

1. **PAGOSA: A Massively-Parallel, Multi-Material Hydrodynamics Model for 3-D High-Speed Flow and High-Rate Material Deformation**
- Doug Kothe (LANL)
2. **Modeling Flux Compression Generators with a 2-D Ale Code**
- Bob Tipton (LLNL)
3. **Numerical Simulation of Heat Conductive Medium Spatial Shock-Wave Movements in Eulerian-Lagrangian Coordinates**
- Boris Voronin (Arzamas)
4. **Mathematical Modeling for Turbulent Flow in Multi-Component Media**
- Oleg Buryakov, Valentin Kuropatenko, et al. (Chelyabinsk)
5. **Numerical Modeling of Multi-Dimensional Flows with Large Deformations**
- Vladimir Volkov, et al. (Chelyabinsk)

SESSION B

Tuesday, October 20, 1992

1:30 p.m.

Algorithm Development II

Papers:

1. Advanced Multi-Material Eulerian Algorithms on Generalized Meshes
- J. Mike McGlaun (SNL)
2. Dense Matrix Computation on Parallel Computers
- David Womble, Bruce Hendrickson (SNL)
3. Numerical Modeling of Two-Dimensional Magnetogasdynamics Flow in Eulerian-Lagrangian Variables
- Anatoliy Zubov, et al (Chelyabinsk)
4. Discrete Models for Mathematical Modeling of Kinetic Processes Concomitantly with Continuous Medium Dynamics
- Ahmed Gadzhiev (Chelyabinsk)
5. MIMOZA Code for Solving Problems in Continuum Mechanics
- ~~Vadim Zmushko~~ (Arzamas)

given by Safronov

SESSION C

Wednesday, October 21, 1992

8:30 a.m.

Applications

Papers:

1. **Recent Developments in Monte Carlo Techniques**
- George Zimmerman (LLNL)
2. **Simulation of Particle Beam Diodes with an Electromagnetic Particle-in-Code**
- Jeff Quintenz (SNL)
3. **Monte Carlo Laboratory Status in VNIEF**
- Yuriy Kochubey (Arzamas)
4. **Radiation Transport Calculation without Local Thermodynamic Equilibrium**
- Yuriy Kochubey (Arzamas)
5. **Mathematical Modeling of Flexible Plastics and Destruction of Materials.
Seismic Decoupling of an Underground Nuclear Explosion**
- Vladimir Bychendov, Valentin Kuropatenko, et al (Chelyabinsk)

SESSION F

Wednesday, October 21, 1992

1:00 p.m.

Distributed Computing

Papers:

1. The Coming Era of Full Spectrum Computing
- Joe Requa (LLNL)
2. Heterogeneous Computing Environments
- Ray Cline (SNL)
3. Research in Models for Massively Parallel Computing
- Norman Morse (LANL)
4. Multi-Computer Efficiency Estimation on Evolutionary Problems in Computational Physics
- Ivan Sofronov (Arzamas)
5. Focus of Study of the Mathematical Department
- Valentin Kuropatenko (Chelyabinsk)

SESSION E

Thursday, October 22, 1992

8:30 a.m.

High-Performance Computing

Papers:

1. Using High-Performance Distributed Computing
- David Forslund (LANL)
2. Visualization Environment for Engineering Science
- Larry Schoof (SNL)
3. Language Issues in Parallel Computing
- Chris Hendrickson (LLNL)
4. MEDUZA: A Method for Numerical Gas-Dynamic Calculations on Irregular Meshes
- Liudmila Nesterenko (Arzamas)
5. Computer Simulation at the VNIEF
- Ivan Sofronov (Arzamas)

SESSION D

Thursday, October 22, 1992

1:00 p.m.

Applied Math and Analysis

Papers:

1. **Radiation Transport Methods Comparisons Using Computational Benchmarks**
- Bradley Clark (LANL)
2. **Fluid Transport and Chemical Kinetics in Chemical Vapor Deposition**
- Bob Kee (SNL)
3. **Finite-Difference Methods for Multi-Dimensional Time-Dependent Neutron and Photon Transport Calculations on Lagrangian and Lagrangian-Eulerian Grid**
- Rashit Shagaliev (Arzamas)
4. **The Computing Block and Software for an X-Ray Tomography Unit**
- Vyacheslav Krykov, et al (Chelyabinsk)