COMPUTER MODELING CONFERENCE
Arzamas 16, RFNC
(Russia)
September 6-11, 1993

PROGRAM

Tuesday, September 7, 1993
Chairman: I.D.Sofronov

9:00 a.m.-10:00 a.m.
OPENING SESSION

9:00 a.m.-9.30 a.m.
Inaugural speech by V.N.Mikhailov, Organizing Committee Chairman

9:30 a.m.-10:00 a.m.
Inaugural speech by I.D.Sofronov, Organizing Committee co-Chairman

MATHEMATICAL PHYSICS PROBLEM COMPUTATIONAL PROGRAM COMPLEX

10:00 a.m.-10:30 a.m.
1. D technique for computing time-dependent multi-dimensional problems of gas dynamics and elastoplasticity with heat conductivity in Lagrangian variables on regular grids.
Artemyev A.Yu., Bashurova M.S., Bobrova M.P., Belov V.I., Dmitriyeva L.V., Dmitriyev N.A., Kolomiytseva S.A., Korepova N.V., Malinovskaya E.V., Nikulina A.F., Romantsova A.N., Samigulina R.Z., Senilova O.V., Sofronov I.D., Tarasova A.N., Chernyshov Yu.I.

10:30 a.m.-11:00 a.m.
2. MIMOZA program complex. Solving the problems of hydrodynamics with heat conductivity.
Sofronov I.D., Vinokurov O.A., Zmushko V.V., Pletenev F.A., Sarayev V.A.

11:00 a.m.-11:20 a.m. BREAK

11:20 a.m.-11:50 a.m.
3. Gridless Methods for Computation Mechanics
Melvin Baer

11:50 a.m.-12:20 p.m.
4. The Adaptive Free-Lagrange (AFL) Method using Staggered Grid Hydrodynamics (SGH)
Donald Burton

12:20 p.m.-12:50 p.m.
5. Adaptive Mesh Techniques
Michael McGlaun

LUNCH

Chairman: V.F.Kuropatenko
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2:00 p.m.-2:30 p.m.
6. Technique for solving gas dynamics problems on irregular meshes.
Rasskazova V.V

2:30 p.m.-3:00 p.m.
7. A method for 2-D heat conducting gas flow calculations
Grinov V.M., Bissyarin A.Yu., Nevazhaev V.E., Frolov V.D. et al.

3:00 p.m.-3:30 p.m.
8. A code for one-dimensional laser fusion calculations (SND).
Antonenko E.M., Dolgolyova G.V., Krupina S.M

3:30 p.m.-3:50 p.m. BREAK

3:50 p.m.-4:20 p.m.
9. Electrical Magnetically Large, Three Dimensional, Time-Dependent, Problems
Dale Nielsen

4:20 p.m.-4:50 p.m.
10. Some computational models and codes for investigation of electrodynamic phenomena of nuclear explosions.
Brshurin V.P., Gainullin K.G., Golubev A.I., Ismailova N.A., Zhmailo V.A., Soloviov A.A., Terekhin V.A.

4:50 p.m.-5:20 p.m.
11. Radiation transport computation without local thermodynamic equilibrium
Voinov B.A., Gasparyan P.D., Kochubey Yu.E., Roslov V.I.

5:20 p.m.-5:50 p.m.
12. Full Spectrum Computing
Mark Seager

12. Simulating the ion Kinetic Regime — Hybrid Models A.G. Sgro

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Wednesday, September 8, 1993

MATERIAL PROPERTIES

Chairman: Michael McGlaun

9:00 a.m.-10:00 a.m.
1. Wide-range equation of state.
Kuropatenko V.F.

10:00 a.m.-10:30 a.m.
2. Multiphase Equations-of-State Including Fragmentation
Mark Boslough

10:30 a.m.-11:00 a.m.
3. Supporting VNIIEF Computer Center programs with equations of state.
Gudarenko L.F., Zherebtsov V.A., Leonova N.I., Surayeva Z.B., Eliseyev G.M., Timon'kina A.V.

11:00 a.m.-11:20 a.m. BREAK

11:20 a.m.-11:50 a.m.
4. Brittle Materials Modelin_
Mark Boslough

11:50 a.m.-12:20 p.m.
5. Model of dense water vapor with account of dissociation.
Dremov V.V.

12:20 p.m.-12:50 p.m.
6. Research of shock wave sensitivity of plasticized TATB based HE
Aminov Y.A., Vershinin A.V., Eskov N.S., Kostitsyn O.V., Loboiko B.G.,

POSTER REPORTS

1. Melvin Baer ~~Composites and Adhesive Bonding~~ Mixture Modeling of Composite Metal Powders
2. Butnev O.I.
   Tabulated function thinning-out oriented area method.
3. Dzuba B.M., Povyshev V.M., Sadovoy A.A.
   A new method for studying collective effects in multi-electron systems.
4. Nesterenko L.V., Obuvalin D.M., Sivolgin S.V.
   LINGO: Software tools for operation on external data.
5. Urm V.Ya.
   Qualitative study of high-yield explosion problem numerical solution using finite difference method on triangular grids.
6. Urm V.Ya.
   Analysis of various techniques for approximation of derivative with respect to angular variable in transport theory spherically symmetric and axisymmetric problems.
7. Styazhkina T.V., Khaimovich T.I., Bakhrakh S.M., Kaplunov M.I., Shaverdov S.V.
   Biological monitoring for the estimation of long-term effects of low radiation doses.
8. Bashurov V.V.
   Numerical simulation of three-dimensional problems describing the body collisions in gas-dynamic and elastic-plastic approximations with the mesh and particle method. v.ID -3 9. Bondarenko Yu.A., Selin V.I.
   Stability of difference schemes for the nonstationary linear axisymmetrical elasticity.
10. Bondarenko Yu.A.
    Inertial 3-D motions of inviscid incompressible fluid.
11. Bondarenko Yu.A.
    Asymptotical (with large Reynolds numbers) 3-D equations for fast-oscillating flow of multicomponent viscous compressible gas.
12. Bondarenko Yu.A.
    "Physically 1-D" asymptotic (with large Reynolds numbers) equations for fast-oscillating multicomponent viscous gas flow.
13. Pletenev F.A.
    Computer graphics tools and numerical computation visualization in MIMOZA complex.
14. Neuvazhayev V.E., Parshukov I.E.
    Interface perturbation development non-linear stage at joint effect of pulsed and constant accelerations.
15. Zuyev V.I., Zyryanov A.G., Zyryanova I.L., Klimova L.A., Kuropatenko E.S., Cherepanova E.I.
    Ecological-medical bank. Progress of works. Prospects.

16. Morozov V.G., Karpenko I.I., Olkhov O.V., Shamraev B.N., Sokolov S.S., Plaksin I.E., Evstigneev A.A., Kovtun A.D., Gerasimenko V.F., Shuikin A.N., Komrachkov V.A., Makarov J.M., Gerasimov V.M., Shutov V.I.
    Experimentally proved numerical modeling of detonation ignition and development in TATB-based HE in terms of desensitization by shok and detonation waves interaction
17. Eliseev G.M.
    A wide-range thermodinamically consistent spline equation of state

18. Bakhrakh S.M., Klopov B.A., Meshkov E.E., Tolshmyakov A.I., Yanilkin Yu. V.
Investigation of complex perturbation history on the interface between to gases under shock acceleration

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Thursday, September 9, 1993

FORMULATION AND NUMERICAL SOLUTION OF CONVERSION PROBLEMS
Chairman: R.Wallace

9:00 a.m.-9:30 a.m.
1. Computer simulation capabilities at VNIIEF and their application to safety problems of nuclear power facilities.
Sofronov I.D., Shagaliev R.M., Belyakov I.M., Grebennikov A.N., Delov V.I., Rasskazova V.V., Samigulin M.S., Farafontov G.G., Shumilin V.A., Yuanilkin Yu.V., Evdokimov V.V., Pletenyova N.P., Fedotova L.P.

9:30 a.m.-10:00 a.m.
2. Transport Code Development for Nuclear Borehole Logging Applications
Bradly Clark

10:00 a.m.-10:30 a.m.
3. Deterministic Neutron and Photon Transport for Industrial Applications
Randy B. Christensen

10:30 a.m.-11:00a.m.
4. Conjugationally consistent DSn-method for solving multi-dimensional equation of neutron transport in curvilinear coordinates.
Serov S.B.

11:00 a.m.-11:20 a.m. BREAK

11:20 a.m.-11:50 a.m.
5. Two-dimensional numerical simulation of an imploding double gas-puff plasma
A.D.Zoubov, G.A.Adamkevich, I.V.Glazyrin and A.A.Kondrat'ev

11:50 a.m.-12:20 p.m.
6. Advanced combustion modeling tools
Juan Meza

12:20 p.m.-12:50 p.m.
7. Intellectual bank of ecology data for Chelyabinsk region.
Avramenko M.I., Vasilyev A.P., Zuyev V.I., Kozmanov M Yu., Kol'chugin S.V., Komosko V.V., Kuropatenko V.F., Legon'kov V.I., Mazurin Yu.N., Simonenko V.A., Urusov S.V.

LUNCH

Chairman: D.Novak

2:00 p.m.-2:30 p.m.
8. Techniques and programs for computing polydisperse impurity in atmosphere.
Avramenko M.I., Andreyev E.S., Vasilyev A.P., Gusev V.Yu., Kozmanov M.Yu., Kuropatenko V.F., Rachilov E.B., Simonenko V.A.

2:30 p.m.-3:00 p.m.
9. Design Optimization For Manufacturing Problems
Juan Meza

3:00 p.m.-3:30 p.m.
10. Geophysical Modeling of Global Response to Asteroid Impact
Mark Boslough

3:30 p.m.-3:50 p.m. BREAK

3:50 p.m.-4:20 p.m.
11. 3D Geophysical Modeling and Inverse Problems
Juan Meza

4:209 p.m.-4:50 p.m.
12. Monte-Carlo laboratory status in VNIIEF.
Donskoy E.N., Eltsov V.A., Zhitnic A.K., Ivanov N.V., Kochubey Yu.K., Morenko A.I., Roslov V.I., Ronzhin A.B., Subbotin A.N.

4:50 p.m.-5:20 p.m.
13. Monotone methods for solving non-linear system of radiation transport equations.
Kozmanov M.Yu.

5:20 p.m.-5:50 p.m.
14. Radiative energy transfer 3-D problem solution using angular factors.
Vasina E.G., Dementyev Yu.A., Sofronov I.D., Skidan G.I. Tikhomirova E.N.

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Friday, September 10, 1993

NUMERICAL METHODS FOR SOLVING COMPUTATIONAL PHYSICS PROBLEMS

Chairman: V.E.Neuvazhayev

9:00 a.m.-9:30 a.m.
1. Structured adaptive mesh refinement on the connection machine
J.Saltzman

9:30 a.m.-10:00 a.m.
2. EGAK program complex for multi-component medium 2-D flow calculations.
Gavrilova E.S., Gubkov E.V., Zhmailo V.A., Sharova G.V., Samigulin Kovalev N.P., Samigulin M.S., Simonov O. ., Sin'kova Sotnikova M. ., Tarasov V.I., Toropov Shanin A.A., Yuanilkin Yu.V.

10:00 a.m.-10.30 a.m.
3. Multiphase Flow and Solute Transport in Porous Media
Melvin Baer

10:30 a.m.-11:00a.m.
4. Numerical simulation of two-dimensional multicomponent medium flows with component velocity and temperature non-equilibrium.
Gavrilova E.S., Gubkov E.V., Zhmailo V.A., Samigulin M.S., Yuanilkin Yu.V.

11:00 a.m.-11:20 a.m. BREAK

11:20 a.m.-11:50 a.m.
5. Multiphase Compressible Flow
Melvin Baer

11:50 a.m.-12:20 p.m.
6. Interface turbulent mixing model properties.
Neuvazhayev V.E.

12:20 p.m.-12:50 p.m.
7. Numerical simulation of gravitational instability using MECH program complex. Adaptive Mesh Techniques
Anuchina N.N., Ogibina V.N.

LUNCH

Chairman: B.Clark

ID -4 2:00 p.m.-2:30 p.m.
8. Full Spectrum Computing: Very High Performance Computing by Combining Heterogeneous Resources into a Single Environment
Mark Seager

2:30 p.m.-3:00 p.m.
9. Massively Parallel Hydrodynamics on Unstructured Grids
M.Sahota

3:00 p.m.-3:30 p.m.
10. MP-X-Y multiprocessors
Gordienko A.V., Gusev V.A., Lyakishev A.M., Popovidchenko G.A., Runich A.A., Sofronov I.D., Stepanenko S.A., Timchenko V.N., Uzentsov A.A., Kholostov A.A.

3:30 p.m.-3:50 p.m. BREAK

3:50 p.m.-4:20 p.m.
11. Parallelization of evolutionary problems in computational physics.
Sofronov I.D., Sofronova O.I.

4:20 p.m.-4:50 p.m.
12. Potential U.S./Russian Technological Exchanges
D.Nowak

5:00 p.m.
DISCUSSION OF CO-OPERATION PROPOSALS