ICNSP ’03 program

Sunday, September 7

14:00 - Registration opens at the Sea Crest Resort

19:00-21:00 Reception - ***Ballroom II***

Monday, September 8

Opening and Review Talk - ***Ballroom I***

8:00-8:15 *Batishchev*
Welcome and Opening Remarks

8:15 - 9:00 *Greenwald*
Beyond Benchmarking - How Experiments and Simulations Can Work Together in Plasma Physics

Morning, Oral Session I - Chair: Gregory Hammett (PPPL, USA) - *Ballroom I*

9:00-9:30 *Schneider*
Comprehensive suite of codes for plasma-edge modeling

9:30-10:00 *Candy*
Turbulence, transport and self-consistent profiles via global Eulerian gyrokinetic simulations

10:00-10:15 **Coffee Break**

10:15-10:45 *Horiuchi*
Structure formation and dynamical behavior of kinetic plasmas controlled by magnetic reconnection

10:45-11:05 *Grasso*
Collisionless magnetic reconnection

11:05-11:25 *Egedal*
A Kinetic Model for Laboratory and Space Observation of Fast Collisionless Magnetic Reconnection

11:25-11:45 *Kruger*
Free-boundary Magnetohydrodynamic Simulations of DIII-D Tokamak Plasmas with NIMROD

11:45-12:05 *Strauss*
MHD Simulations with Resistive Wall and Magnetic Separatrix

12:15 – Bus departure from the Sea Crest Resort to Falmouth Ferry

13:00-15:00 Cape Cod Sea Cruise [or Poster Session II if rain...]

16:00-18:30 Poster Session I [posters up till 13:00 Tuesday] - ***Ballroom II, III***

1 *Alexeev*
Generalized Boltzmann Physical Kinetics and Its Applications in Rarefied Ionized Gas Dynamics

2 *Balakin and Fraiman*
Numerical Simulation of Electron-Ion Collisions in UHI Plasmas

3 *Batishchev, Batishcheva, Albukrek, Bychenkov, Brantov, and Rozmus*
Molecular Dynamics Modeling of Coulomb Clusters in a Quiver Field

4 *Bibi, Matte, and Shoucri*
Different Fokker-Planck Approaches to Simulate Electron Transport in Plasmas

5 *Brantov, Bychenkov, Batishchev, and Rozmus*
Nonlocal heat wave with skin plasma heating by laser

6 *Cai, Xiaoyang, Ken-Ichi, and Lembege*
Global 3D Electromagnetic Particle Simulation for Satellite Observed Sash Event

7 *Chakrabarti, Martin, Pearson, and Lewis*
Developing Antimatter Containment Technology:
Modeling Charged Particle Oscillations in a Penning-Malmberg Trap

8 *Cheng, Santi, Celik, Martinez-Sanchez, and Peraire*
Hybrid PIC-DSMC Simulation of a Hall Thruster Plume on Unstructured Grids

9 *Decyk and Norton*
UCLA Parallel PIC Framework

10 *Dodd, Barnes, Bezzerides, and DuBois*
Quantitative Comparison Between Reduced-Description Particle-in-Cell (RPIC) and full PIC Simulations of Laser-Plasma Instabilities

11 *Emhoff, Boyd, Christlieb, and Krasny*
Simulation of Ion Thruster Optics Using a Gridless Poisson Solver

12 *Fu, Breslau, Chen, Fredrickson, Jardin, Strauss, Sugiyama, and Park*
Global Hybrid Simulations of Energetic Particle-driven Modes in Toroidal Plasmas

13 *Ghizzo, Bertrand, Reveille, and Depret*
A Relativistic Vlasov Maxwell Code for the Numerical Simulation of the Excitation of Trapped Electron Acoustic Waves in a Moderately Overdense Plasma

14 *Hajiyev and Demir*
A Time-Dependent Model for Simulation of Ne-like and F-like Resonance Lines Emitted from Laser Produced Plasmas

15 *Kholodov, Kholodov, Stupitzki, and Repin*
Numerical Simulation of the Convective Plasma Dynamics Stage at the Ionosphere Motion by Means of 3D MHD Equations

16 *Kniep, Leboeuf, and Decyk*
Gyrokinetic Particle-In-Cell Calculations of Ion Temperature Gradient Driven Turbulence with Parallel Nonlinearity and Strong Flow Corrections

17 *Krasovitskii, Dorofeenko, Sotnikov, and Bauer*
Nonlinear Processes During the Interaction of the Petawatt Laser Pulse with Plasma in the Presence of External Magnetic Field

18 *Kritz [for the NTCC Team]*
The National Transport Code Collaboration Module Library

19 *Lantz*
Building Plasma Simulation Infrastructure with Microsoft .NET

20 *Lewandowski*
Strange Attractors in Drift Wave Turbulence

21 *Messmer and Bruhwile*
A parallel electrostatic solver for the VORPAL code

22 *Newman, Goldman, Ergun, Andersson, and Sen*
Hybrid Vlasov-Fluid Simulations Of Coherent Phase-Space Structures: Low-Cost Approaches To Studying 2-D Behavior

23 *Pernice and Chacon*
Towards Implicit Resistive Magnetohydrodynamics with Local Mesh Refinement

24 *Pointon*
A Coupled 1-D Transmission Line and Particle-in-Cell Model to Simulate Electron Flow in the Z and ZR Accelerators

25 *Rechester*
Symbolic Analysis of Turbulent Fluctuations

26 *Ricci, Lapenta, and Brackbill*
Solving Maxwell·s Equations without Projection in CELESTE3D, an Implicit PIC Plasma Simulation Code

27 *Rossmanith*
A High-Resolution Constrained Transport Method with Adaptive Mesh Refinement for Ideal MHD

28 *Shasharina, Eger, and Cary*
Data Grid for Fusion Simulations and Experiments

29 *Shoucri, Gerhauser, and Finken*
Study of the Formation of a Charge Separation and Electric Field at a Plasma Edge Using Eulerian Vlasov Codes in cylindrical geometry

30 *Sokolov, Gombosi, and Powell*
Multiscale Simulations of Space Plasmas at Adaptive Block Grids and Related Numerical Scheme Issues

31 *Sotnikov, Bauer, Leboeuf, Hellinger, Travnicek, and Fiala*
Hybrid Simulations of Z-pinches

32 *Strozzi and Shoucri*
Study of Laser Plasma Interactions Using an Eulerian Vlasov code

33 *Sullivan, Martinez-Sanchez, and Batishchev*
PIC-DSMC Hybrid Simulation of the High-Voltage Hall Discharge with Wall Effects

34 *Szabo, Pote, McElhinney, and Hruby*
Two Stage Hall Thruster Simulations and Experiments

35 *Taccogna, Longo, and Capitelli*
Stationary Plasma Thruster Plume Simulation

36 *Tong, Nanbu, Hiraki, and Fukunishi*
Particle Modeling of Sprite Halos

37 *Vay, Adam, and Heron*
Asymmetric PML for the Absorption of Waves. Application to Mesh Refinement in Electromagnetic Particle-In-Cell Plasma Simulations

38 *Waltz and Candy*
GYRO Full Radius Gyrokinetic Simulations with Transport Solutions

39 *Wang, Tang, Hinton, White, and Manickam*
Global δf Particle Simulation of Neoclasical Transport and Ambipolar Electric Field in General Geometry

40 *Watanabe, Sugama, and Horton*
Kinetic and Fluid Simulations on Steady and Quasisteady States of Slab Ion Temperature Gradient Driven Turbulence

41 *Welch, Rose, Clark, Genoni, and Hughes*
Implicit Simulation Techniques for Dense Plasma Modeling

42 *Winske*
Modeling Ion Drag and Void Formation Due to Dust Acoustic Waves in Collisional Dusty Plasmas

43 *Yin and Winske*
Embedded Simulations of Collisionless Reconnection

17:00 – Conference picture at the Old Silver Beach - Sea Crest Resort

September 8, Monday

Tuesday, September 9

Morning, Oral Session II - Chair: Kurt Appert (CRPP, Switzerland) – *Ballroom I*

8:00-8:30 *Birdsall*
Some discoveries in teaching plasma simulation

8:30-9:00 *Mardahl*
High power microwave tube verification and design using the ICEPIC 3D parallel, electromagnetic PIC code

9:00-9:20 *Boyd*
A Hybrid DSMC-PIC Model of The Near-Field Plume of a Hall Thruster

9:20-9:40 *Kolobov*
Four Dimensional Fokker-Planck Solver for Electron Kinetics in Collisional Gas Discharge Plasmas

9:40-10:00 *Carretero*
Numerical Simulation of a colloidal thruster in the mixed ion-droplet regime

10:00-10:15 **Coffee Break**

10:15-10:45 *Allfrey*
Recent Advances in Nonlinear Gyrokinetic Simulation

10:45-11:15 *Vadlamani*
The Particle-Continuum Method: An Algorithmic Unification of Particle-In-Cell and Vlasov Methods

11:15-11:35 *Jenko*
Gyrokinetic turbulence: electromagnetic effects and scale extension

11:35-11:55 *Besse*
Semi-Lagrangian scheme for the Vlasov on an unstructured mesh of phase space

11:55-12:15 *Sonnendrucker*
Vlasov simulations on an adaptive phase-space grid

Afternoon, Oral Session III - Chair: Ritoku Horiuchi (NIFS, Japan) – *Ballroom I*

13:30-14:00 *Samtaney*
3D Adaptive Mesh Refinement Simulations of Pellet Injection in Tokamaks

14:00-14:30 *Matsumoto*
Self-gravitational Collapse of a Magnetized Cloud Core: High Resolution Simulations with Three-dimensional MHD Nested Grid

14:30-14:50 *Glasser*
The SEL Macroscopic Modeling Code

14:50-15:10 *Hewett*
Fragmentation, Merging, and Internal Dynamics for PIC Simulation with Finite Size Particles

15:10-15:30 *Mason*
Implicit Hybrid Simulation Techniques for the Modeling of Intense Laser-Matter Interactions

15:30-15:50 **Coffee Break**

15:50-16:10 *Idomura*
Global gyrokinetic simulation of ion temperature gradient driven turbulence in plasmas with canonical Maxwellian distribution

16:10-16:30 *Lee*
Thermodynamic and Numerical Properties of a Gyrokinetic Plasma

16:30-16:50 *Ilin*
Improved Simulation of the ICRF Waves in the VASIMR Plasma

16:50-17:10 *Stupitzki*
Numerical Modeling of a High Energy Plasma Cloud in Upper Ionosphere

19:00 – 22:00 Banquet - *Nauset I, II*

Wednesday, September 10

Morning, Oral Session IV - Chair: John Verboncoeur (UCB, USA) – *Ballroom I*

8:00-8:30 *Manfredi*
Numerical simulation of plasma-wall interactions in weakly collisional plasmas

8:30-9:00 *Taguchi*
Study of Fast Electron Beam Transport in High Density Plasma
Using 3D Hybrid-Darwin Code

9:00-9:30 *Tonge*
Two dimensional Particle-in-Cell Code for Simulation of Quantum Plasmas

9:30-9:45 **Coffee Break**

9:45-10:05 *Lutjens*
Toroidal Simulations of Nonlinear Thresholds and Saturations of Classical and Neoclassical Tearing Instabilities.

10:05-10:25 *Breslau*
Two-Fluid Simulations of 2D Magnetic Reconnection

10:15-10:45 *Numata*
Self-Organization of Plasma with Flows

10:45-11:05 *Vay*
Mesh Refinement for Particle-In-Cell Plasma Simulations:
Application to Heavy Ion Fusion

11:05-11:25 *Christlieb*
A Grid-Free Treecode Field Solver for Plasma Simulations with Application to a Conned Electron Column in a Penning-Malmberg Trap

11:25-11:45 *Bowers*
A Maximum Likehood Method for Linking Particle-in-Cell and Monte Carlo Simulations

13:00 – 15:00 Poster Session II [posters up at 13:00 Tuesday] – *Ballroom II, III*

1 *Zagórski, McTaggart, Bonnin, Runov, and Schneider*
Finite Difference Scheme for Solving General 3D Convective Diffusion Equation

2 *Wright, Bonoli, D'Azevedo, and Brambilla*
Ultrahigh Resolution Simulations of Mode Converted Ion Cyclotron Waves and Lower Hybrid Waves

3 *Wheelock, Gatsonis, and Cooke*
Simulation of Ion Beam Neutralization Processes

4 *Weber, Loubere, Rjazuelo, Walraet, Michel, Tikhonchuk, Ovadia, and Bonnaud*
A Transport Simulation Code for Internal Confinement Fusion Relevant Laser-Plasma Interaction

5 *Verboncoeur*
Aliasing of Fields in Stair-Step Boundaries

6 *Korsun, Tverdokhlebova, and Gabdullin*
Simulation of Plasma Plume / Space Craft Interaction

7 *Toida and Okumura*
Nonlinear Development of Current-Driven Instabilities and Selective Acceleration of 3He Ions

8 *Szczesniak and Cary*
dxhdf5: A Software Package for Importing HDF5 Physics Data into OpenDX

9 *Swift*
Use of a Hybrid Code for Global-Scale Simulation of the Earth's Magnetosphere

10 *Subba and Zanino*
Modeling plasma-wall interactions in First Wall-Limiter Geometry

11 *Spirkin and Gatsonis*
Weighting and Numerical Heating in Unstructured 3d PIC Simulations

12 *Sonnendrucker, Filbet, Friedman, Oudet, and Vay*
Vlasov Simulations of Beams with a Moving Grid

13 *Schulz, Greenwood, Cartwright, and Mardahl*
Hybrid Particle/Fluid Modeling of Plasmas

14 *Shoucri*
A Fractional Steps Method for the Numerical Solution of the Shallow Water Equations

15 *Shasharina, Eger, and Cary*
FarSight: Application for Remote Visualization

16 *Robinson and Garasi*
Three-dimensional Z-Pinch Wire Array Modeling

17 *Repin and Stupitzki*
Toroidal Plasma Dynamics in the Vacuum and Under Falling on the Barrier

18 *Popov*
Nonlinear 3D MHD Code NFTC for Simulations of Plasma Instabilities

19 *Peterson*
MACH2 Simulations of Nested Wire Array Flux Compression on Decade Quad

20 *Pankin, Budny, Bateman, Kritz, McCune, and Voitsekhovitch*
Numerical Techniques Used in Neutral Beam Injection Modules

21 *Nanbu and Tong*
Solution Method of the Poisson Equation for the Electric Field with a Thin Sheath

22 *Liu, Bondeson, Gregoratto, and Gribov*
MHD and Semikinetic Modeling of Error Field Amplification and Resistive Wall Mode Stabilization by Flow and Active Feedback

23 *Larson and Hewett*
Modeling Partially-Collisional Plasmas using Finite-size Particles with Internal Dynamics

24 *Kurnosov and Stupitzki*
Plasma Plates Method in the Numerical Simulation of the Relativistic Electron Bunches Spreading in the Upper Ionosphere

25 *Korsun, Tverdokhlebova, and Gabdullin*
Mathematical model of Hypersonic Plasma Flows Expanding in Vacuum

26 *Koo, Boyd, and Christlieb*
Computational Modeling of a Hall Thruster

27 *Kim and Parker*
Hybrid Kinetic-MHD Simulations in General Geometry

28 *Hammett, Belli, and Dorland*
Improved Algorithms for Continuum/Vlasov Gyrokinetic Codes

29 *Gusakov and Yakovlev*
Inhomogeneous Plasma Parametric Decay Instability Driven Stochastically Modulated Pump frequency

30 *Ethier and Lin*
Porting the 3D Gyrokinetic Particle-in-Cell Code GTC to the CRAY SX6 Vector Architecture: Perspectives and Challenges

31 *Dudnikova, Bychenkov, and Vshivkov*
Computer Simulation of Particle Acceleration in Thin Foils by Ultrashort Laser Pulses

32 *Dimitrov, Bruhwiler, and Cary*
Web Service Model for Plasma Simulations with Automatic Visual Diagnostics Generation

33 *Daughton*
Role of the Lower-Hybrid Drift Instability in a Reconnecting Current Sheet

34 *Chen, Park, Jardin, Fu, and Breslau*
Symmetric Solution in M3D

35 *Chacón and Knoll*
A collocated, conservative, solenoidal finite volume scheme for 3D implicit magnetohydrodynamics

36 *Breslau and Jardin*
Two-Fluid Simulations of 2D Magnetic Reconnection

37 *Bowers*
Speed Optimal Implementation of a Fully Relativistic 3d Particle Push with Charge Conserving Current Accumulation on Modern Processors

38 *Batishchev, Batishcheva, and Zhang*
2.5D Adaptive Mesh PIC-Vlasov Hybrid Method for Laser-Matter Interactions in the Presence of Strong Gradients

39 *Batishchev and Martinez-Sanchez*
Adaptive Mesh PIC and PIC-Vlasov Hybrid Methods for Space Electrodynamic Tether and Anomalous Transport Modeling

40 *Baca, Greenwood, and Cartwright*
A Look at the Boundary Conditions of the Forgy-Chew FDTD Algorithm and its Implications for use in PIC Codes

41 *Wiley, Valanju, and Mahajan*
hp Adaptive Discontinuous Galerkin Modeling of MBX

42 *Cai, Yan, Nishikawa, and Lembege*
Topology, symmetry-braking, and dissipative structures of magnetosphere with southward IMF in a 3D particle simulations