

Program for ICNSP 2015, the 24th International Conference on the Numerical Simulation of Plasmas

Golden, Colorado
August 12-14, 2015

Tuesday August 11th

6:30-9:30pm **Registration**

7:30-9:30pm **Informal Reception** – *Join us for hors d'oeuvres & drinks (hosted beer, wine and sodas)*
Location: The Golden Hotel - Clear Creek Ballroom, The Golden Hotel

Wednesday August 12th

7:45am The registration table will be available outside the Clear Creek Ballroom

Chair: Scott Kruger

8:20 Opening Remarks - Scott Parker, Conference Organizer

8:30 Carl Sovinec University of Wisconsin-Madison Stabilization of Numerical Interchange in Spectral-Element Magnetohydrodynamics

9:00 Tomoharu Hatori SOKENDAI (The Graduate University for Advanced Studies) Hierarchical simulation of Rayleigh-Taylor instability on extended MHD with AMR framework and visualization

9:30 Xiao Feng Michigan State University A Positivity-Preserving Single-Stage Single-Step High-Order Constrained Transport Method for Magnetohydrodynamic Equations

10:00–10:30 Morning break

10:30 Jacob King Tech-X Corporation New Extended-MHD drift-tearing mode dispersion relations- implications and a tool for code verification

11:00 Hideaki Miura National Institute for Fusion Science Investigation of short-wave Hall and gyro-viscous effects in instability and turbulence

11:30 Collin Meierbachtol Los Alamos National Laboratory CPIC: A Highly Parallelized Electrostatic Particle-In-Cell Code

12:00 Giovanni Lapenta KU Leuven Using HPC Plasma Simulation in support of the MMS Mission

12:30–2:00 Lunch on your own

Wednesday August 12th - continued

Chair: Ritoku Horiuchi

- 2:00pm W.W. Lee Princeton Plasma Physics Laboratory Physics Issues Related to Steady State Turbulent Transport
- 2:30 Akihiro Ishizawa National Institute for Fusion Science Gyrokinetic Analysis of Turbulent Particle and Heat Transport in Helical Plasmas
- 3:00 Federico Halpern EPFL-CRPP A New Generation Plasma Turbulence Fluid Code for Tokamak Scrape-off Layer Dynamics
- 3:30-3:45 Poster Setup

Poster I

- 3:45-5:45 Posters will be in the Golden Vista and Mesa Rooms (Letters L – Z, see details below.)
- *Refreshments will be served and a hosted bar will be provided (beer, wine and sodas).*
- 6:30 – 8:30pm **Banquet** (*Your registration fee includes dinner and a hosted bar - beer, wine and sodas*)
Main Ballroom, The Golden Hotel
- *There will be a short break before dessert for the presentation of The John Dawson Prize and Oscar Buneman Award*

Thursday August 13th

- 8:00am The registration table will be available outside the Clear Creek Ballroom

Chair: Luis Chacon

- 8:30 Jonathon Claustre INRS/Universite du Quebec Fast Conservative Scheme for Solving Numerically the Time-dependent Boltzmann Equation for cold Plasmas
- 9:00 Juris Vencels Los Alamos National Laboratory and KTH, Sweden Spectral methods for the solution of the Vlasov-Maxwell equations
- 9:30 Jeff Candy General Atomics The Gaussian Radial Basis Function Method for Plasma Kinetic Theory
- 10:00-10:30 Morning break

Thursday August 13th - continued

10:30	Dennis Jarema	TU München	Block-structured Grids in Velocity Space for Eulerian Gyrokinetic Simulations
11:00	William Taitano	Los Alamos National Laboratory	iFP- An Optimal, Fully Implicit, Fully Conservative, 1D2V Vlasov-Rosenbluth-Fokker-Planck Code for ICF Simulation
11:30	Robert Hager	Princeton Plasma Physics Laboratory	Fully non-linear multi-species Fokker-Planck-Landau collision operator for kinetic simulation of magnetized plasma
12:00	Alexander Muraviev	Institute of Applied Physics - Russian Academy of Sciences	Extending PIC method for modeling of QED effects in the framework of PICADOR code

12:30 – 2:00 Lunch on your own

Chair: Linda Sugiyama

2:00	Seung-Hoe Ku	Princeton Plasma Physics Laboratory	A new Lagrangian numerical scheme for gyrokinetic simulation of tokamak edge plasma
2:30	Guangye Chen	Los Alamos National Laboratory	Nonlinearly implicit, energy- and charge-conserving multidimensional particle-in-cell algorithms for kinetic simulation of plasmas
3:00	Weiming An	University of California, Los Angeles	QuickPIC Simulation of Plasma Wake Field Accelerator Experiments at FACET
3:30	Peicheng Yu	University of California, Los Angeles	Lorentz boosted frame simulation of Laser wakefield acceleration in full 3D and in quasi-3D geometry

4:00 - 4:15 Poster Setup

Poster II

4:15-6:15 Posters in the Golden Vista and Mesa Rooms (Letters A – K, see below for details.)
- *Refreshments will be served and a hosted bar will be provided (beer, wine and sodas).*

Thursday Evening

8:00-8:45pm Vyacheslav (Slava) Lukin and Bogdan Mihaila, NSF, “Computational Plasma Physics Opportunities”

8:45-9:30pm ICNSP Business Meeting

Friday August 14th

Chair: Wei-li Lee

8:15	Jian Bao	Peking University	Electromagnetic particle simulation of the linear mode conversion and the nonlinear parametric decay instability of lower hybrid waves in tokamaks
8:45	John Wright	MIT - PSFC	How to Find Your Data - 6 Months Later
9:15	Kai Germaschewski	University of New Hampshire	High-Performance Particle-In-Cell Plasma Simulations with GPUs and dynamic load balancing
9:45-10:00	Morning break		
10:00	Chengkun Huang	Los Alamos National Laboratory	On the numerical dispersion and the spectral fidelity of the Particle-In-Cell method
10:30	Axel Huebl	Helmholtz-Zentrum Dresden - Rossendorf	PIConGPU- Unleashing the Full Computational Potential for the Many-Core Era
11:00	Gregory Werner	University of Colorado, Boulder	Taking larger timesteps with speed-limited particle-in-cell simulation
11:30	Thomas Jenkins	Tech-X Corporation	High-Performance Finite-Difference Time-Domain Simulations of C-Mod and ITER RF Antennas
12:00	Benjamin Sturdevant	University of Colorado, Boulder	An Implicit δf Method with Sub-Cycling and Orbit Averaging for Lorentz Ions
12:30	Adjourn		

Poster Session I: Golden Vista and Mesa Rooms15:45-17:45, Wednesday August 12th

[Poster Boards provided are 4 foot high by 6 foot wide]

	NAME (Last, First)	Institution	Title
P1-1	Lehe, Remi	Lawrence Berkeley National Laboratory	A fast and accurate spectral quasi-cylindrical Particle-In-Cell algorithm
P1-2	Li, Yuan	King Abdullah University of Science and Technology	A fourth order finite volume method for single-fluid magnetohydrodynamics
P1-3	Maksimovic, Nikola	University of Colorado, Boulder	Global visualization and extraction of field aligned structures from gyrokinetic turbulence data
P1-4	Matsuzaki, Kei	Gunma university	Effects of resistivity and grid models on MHD behavior of two axially colliding FRCs
P1-5	Miyashita, Masaru	Sumitomo Heavy Industries, LTD, Japan	The Development of Adaptive Mesh Refinement Technique for Hybrid Kinetic/Fluid Plasma Simulation
P1-6	Nystrom, Dave	Los Alamos National Laboratory	Progress on Optimizing VPIC for LLNL's Sequoia Platform
P1-7	Pankin, Alexei	Tech-X Corporation	MUNCHKIN- Chemistry Pre-processor for Plasma Processing Applications
P1-8	Pausch, Richard	Helmholtz-Zentrum Dresden - Rossendorf	Synthetic in situ radiation diagnostics in particle-in-cell codes – from the lab to the stars with a GPU-accelerated code
P1-9	Ramos, Jesus	Massachusetts Institute of Technology	Orbit-free Approach to the Finite-Larmor-Radius Continuum Kinetic Description of Magnetized Plasmas
P1-10	Richardson, Steve	Division of Plasma Physics, Naval Research Laboratory	MCSwarm++- A New Code for Monte Carlo Simulation of Electron-Gas Interactions
P1-11	Sauppe, Joshua	University of Wisconsin-Madison	Two-Fluid and Finite Larmor Radius Effects on Relaxation Dynamics in a Driven-Damped Plasma Pinch
P1-12	Shadwick, Brad	University of Nebraska-Lincoln	A Variational Formulation of Macro-Particle Algorithms for Kinetic Plasma Simulations
P1-13	Smithe, David	Tech-X Corporation	Numerical Dispersion Analysis of Light for DVSI Algorithm on Structured Tetrahedral Meshes
P1-14	Stoltz, Peter	Tech-X Corporation	Modeling of Plasma Vacuum Window for High Power Beam Applications
P1-15	Sugiyama, Linda	M.I.T.	Plasma structure with turbulence and magnetic stochasticity using Finite Time Lyapunov Exponents
P1-16	Sun, Din-Kow	Ansys Inc	A Fully Implicit Particle-In-Cell Charge Simulator
P1-17	Takahashi, Toshiki	Gunma University	2-dimensional hybrid simulation of a non-adiabatic trap
P1-18	Todo, Yasushi	National Institute for Fusion Science	Magnetohydrodynamic Hybrid Simulations of Energetic Particle Driven Instabilities in ITER Plasmas
P1-19	Usami, Shunsuke	National Institute for Fusion Science, Japan	Improvement of the Multi-Hierarchy Model for Magnetic Reconnection Studies – Interlocking between PIC and Extended MHD
P1-20	Vidal, Francois	INRS/Universite du Quebec	A Vlasov Simulation of Ion Acceleration and Plasma Jets Formation in a Dense Plasma Driven by a High Intensity Laser Beam
P1-21	Wan, Weigang	CIPS, University of Colorado - Boulder	Modeling full radial electric field and flow shears in gyrokinetic simulations
P1-22	Wang, Weixing	Princeton Plasma Physics Laboratory	A new delta-f scheme and self-consistent gyrokinetic simulations of turbulent and neoclassical physics
P1-23	Webb, Stephen	RadiaSoft, LLC., Boulder	A Variational Approach to Plasma Physics Algorithms
P1-24	Weichman, Kathleen	The University of Texas at Austin	Envelope Model Simulation of Experimentally Measured Laser Pulses at the Texas Petawatt
P1-25	Xiaolong, Wei	Air Force Engineering University, Xi'an	Research on the Propagation Property of Electromagnetic Wave in Ar Inductively Coupled Plasma
P1-26	You, K.-I (Kwangil)	National Fusion Research Institute	Developing an MHD simulator for tokamaks
P1-27	Zhang, Wenlu	Chinese Academic of Science, Beijing	Verification and Validation of Gyrokinetic Particle Simulation of Fast Electron Driven beta-induced Alfvén Eigenmode on HL-2A Tokamak

Poster Session II: Golden Vista and Mesa Rooms

16:15-18:15, Thursday, August 13th

[Poster Boards provided are 4 foot high by 6 foot wide]

	NAME (Last, First)	Institution	Title
P2-1	Angus, Justin	Division of Plasma Physics, NRL	2D Hydro-Electromagnetic Simulation of Non-quasineutral Electron Vortices in Non-Uniform Plasmas with Multiple Ion Species
P2-2	Brunner, Stephan	EPFL	Kinetic Simulations and Reduced Modeling of Longitudinal and Transverse Sideband Instabilities in Finite Amplitude Electron Plasma Waves
P2-3	Charan, Harish	Institute for Plasma Research, Gujrat, India	Large scale molecular dynamics simulations of strongly coupled plasmas under external gravity and temperature gradient
P2-4	Chen, Yang	University of Colorado, Boulder	δf Particle-in-Cell Algorithms for Gyrokinetic Simulation with Kinetic Electrons and Magnetic Fluctuations
P2-5	Froese, Aaron	General Fusion Inc.	Liner compression simulations with a moving mesh
P2-6	Fukuyama, Atsushi	Kyoto University	Kinetic Integrated Modeling of Tokamak Core Plasmas by the TASK Code
P2-7	Fulton, Daniel	University of California, Irvine	Gyrokinetic Particle Simulation of Electrostatic Driftwave Instabilities in a Field Reversed Configuration
P2-8	Gorokhovskiy, Vladimir	Vaportech, USA	Modeling of large area low-pressure DC glow discharge: drift-diffusion vs. PIC-MC
P2-9	Greenwood, Andrew	US Air Force Research Laboratory	Analytic Results for Verification of Particle-In-Cell Calculations
P2-10	Guo, Wei	Michigan State University	An Asymptotic Preserving Maxwell Solver Resulting in the Darwin Limit of Electrodynamics
P2-11	Hakim, Ammar	Princeton Plasma Physics Laboratory	A Discontinuous Galerkin Scheme for Continuum (Gyro)Kinetic Simulations of Plasmas
P2-12	Hammond, Dr. Jason	Air Force Research Laboratory	Solutions of Boltzmann Equation for Simulation of Particle Distributions in Plasmas
P2-13	Hariri Farah	EPFL-CRPP	GPU Acceleration of Particle-In-Cell Plasma Simulation Codes Using OpenACC
P2-14	High, Scott	Urbana-Champaign and Sandia National Labs	Higher-Order Particle Weighting for Unstructured Meshes on Modern Architectures
P2-15	Higuera, Adam	University of Colorado and Tech-X Corporation	Hybrid Envelope/Model Boosted-Frame Simulations
P2-16	Horiuchi, Ritoku	National Institute for Fusion Science	Role of Magnetic Islands in Energy Conversion Process of Collisionless Driven Reconnection
P2-17	Hosokawa, Masanari	ITER Organization	The ITER Integrated Modelling & Analysis Suite
P2-18	Howell, Eric	University of Wisconsin-Madison	Extended MHD Study of Interchange Modes
P2-19	Huang, Tao	University of Electronic Science and Technology of China	Three-Dimensional Finite-Element Simulation of Ion Extraction in Electric Thruster
P2-20	Hur, Min Young	Pusan National University	Parallel computing of a particle-in-cell plasma simulation on accelerator devices such as graphics processing units and many integrated cores
P2-21	Jenab, Mehdi	Centre for Space Research, North-West University	Parallelized fully kinetic simulation method based on the Vlasov-Hybrid Simulation (VHS) using phase point trajectories
P2-22	Jenista, Jeri	Institute of Plasma Physics ASCR, v.v.i.	Mixing of Plasma Species in a Hybrid-Stabilized Argon-Water Electric Arc
P2-23	Jin, Xiaolin	University of Electronic Science and Technology of China	TBB-Accelerated Relativistic PIC/MCC Software "BUMBLEBEE" for Laser-Plasma Interaction
P2-24	Jo, Gahyung	National Fusion Research Institute	A Non-staggered Structure, Virtual Interpolation Point Method for MHD equations in Complex Geometries
P2-25	Khaziev, Rinat	University of Illinois at Urbana-Champaign	Ion Energy-Angle Distribution Functions at the Wall of a Strongly Magnetized Plasma
P2-26	Koike, Shintaro	Gunma University	MHD simulation on axial injection of torus plasma into ST plasma
P2-27	Kritz, Arnold	Lehigh University	Modeling of Particle Flux Reversal in Tore Supra and EAST Tokamaks
P2-28	Kwon, Jae-Min	National Fusion Research Institute	A New Semi-Lagrangian Algorithm for Full-F ITG-TEM Gyrokinetic Turbulence Simulation in General Tokamak Geometry