9th International Workshop on Non-neutral Plasmas
PROGRAM

Tuesday 17 June 2008

08:15-08:30 Welcome by Dean G. Navratil
Opening Remarks by T. Pedersen, conference organizer

Session 1: Collective Modes and Transport Physics I
Chair: C. Roberson, Office of Naval Research
08:30-09:00 D. Dubin, Univ. of California San Diego
Theory and Simulations of Electrostatic Field Error Transport
09:00-09:30 M. Anderson, Univ. of California San Diego
Collisional Damping of Plasma Waves on a Pure Electron Plasma
09:30-09:50 M. Romé, University degli Studi Milano
Relativistic Effects on the Radial Equilibrium of Nonneutral Plasmas
09:50-10:30 coffee break

Session 2: Collective Modes and Transport Physics II
Chair: T. Pedersen, Columbia University
10:30-11:00 F. Anderegg, Univ. of California San Diego
Electron Acoustic Waves in Pure Ion Plasmas
11:00-11:20 Y. Yeliseyev, Kharkov Inst. of Physics and Tech.
Stability of a Nonneutral Plasma Cylinder Consisting of Magnetized Cold Electrons and a Small Density Fraction of Ions Born at Rest: Nonlocal Analysis
11:20-11:40 D. Eggleston, Occidental College
Using Variable Frequency Asymmetries to Probe the Magnetic Field Dependence of Radial Transport in a Malmberg-Penning Trap
11:40-12:00 R. Heidemann, Max-Planck Inst. für Extraterrestrische Physik
Heartbeat Instability in the PK-3 Plus Laboratory
12:00-13:30 lunch

Session 3A: Collective Modes and Transport Physics III
Chair: H. Himura, Kyoto Inst. of Tech.
13:30-14:00 A. Kabantsev, Univ. of California San Diego
Trapped-Particle-Mediated Asymmetry-Induced Transport and Damping with Quadrupole Separatrix Perturbations
14:00-14:20 Y. Kawai, Kyoto Univ.
Turbulent Cascade in Vortex Dynamics of Magnetized Pure Electron Plasmas
Session 3B: Beam Physics
Overview of Intense Beam Simulation Experiments Performed Using the Paul Trap Simulator Experiment (PTSX)
14:50-15:20 J. Wurtele, Univ. of California Berkeley
Brightness and Phase Space Constraints in Free-Electron Lasers
15:20-15:40 G. Maero, GSI, Darmstadt
Investigations on Cooling Mechanisms of Highly Charged Ions at HITRAP
15:40-16:00 refreshment break

Session 4: Poster Session I
16:00-18:00 Collective Modes and Transport, Beam Physics, Strongly Coupled and Dusty Plasmas
All speakers in sessions 1-6 are invited to present posters in this session. Posters can be put up Monday evening or Tuesday morning and taken down on Wednesday during the lunch break.

Wednesday 18 June 2008

Session 5: Strongly Coupled and Dusty Plasmas I
Chair: L. Schweikhard, Ernst-Moritz-Arndt-Universität, Greifswald
08:30-09:00 M. Drewsen, Univ. of Aarhus
Ion Coulomb Crystals in RF Traps: Properties and Applications in Cavity QED
09:00-09:30 D. Porras, Max-Planck Inst. for Quantum Optics
Quantum Computation and Quantum Simulation with Coulomb Crystals
09:30-09:50 M. Rubin-Zuzic, Max-Planck Inst. für Extraterrestriche Physik
PK-3 Plus – Investigation of Complex Plasmas on the International Space Station
09:50-10:30 coffee break

Session 6: Strongly Coupled and Dusty Plasmas II
Chair: D. Eggleston, Occidental College
10:30-11:00 S. Sturm, Johannes Gutenberg-Universität Mainz
Investigation of Space-Charge Phenomena in Gas-Filled Penning Traps
11:00-11:20 M. Diethrich, Univ. of Washington
Barium Ions for Quantum Computation
11:20-11:40 R. Sätterlin, Max-Planck Inst. für Extraterrestriche Physik
Lane Formation in Complex Plasmas
11:40-12:00 S. Apolinario, Universität Antwerpen
Melting Processes in Anisotropic Coulomb Balls
12:00-13:30 lunch
Session 7: Toroidal Plasmas

Chair: T. O’Neil, Univ. of California San Diego

13:30-14:00 J. Marler, Aarhus Univ.
Achieving Long Confinement in a Toroidal Electron Plasma

14:00-14:30 H. Himura, Kyoto Inst. of Tech.
Recent Progress on Toroidal Non-neutral Plasmas Confined on Heliotron Magnetic Surfaces

14:30-15:00 T. Pedersen, Columbia Univ.
Confinement and Transport in the CNT Stellerator

15:00-15:20 Q. Marksteiner, Columbia Univ.
Studies of a Parallel Force Balance Breaking Instability in a Stellerator

15:20-15:45 refreshment break

Session 8: Poster Session II:

15.45-18:00 Toroidal Plasmas, Antimatter Physics, Ultracold Neutral Plasmas and Special Topics
All speakers in sessions 7-12 are invited to present posters during this session. Posters can be put up during the lunch break on Wednesday and left up for the duration of the conference.

Thursday 19 June 2008

Session 9: Antimatter Physics I

Chair: C. Surko, Univ. of California San Diego

08:30-09:00 H. Saitoh, Atomic Physics Lab., RIKEN
Radial Compression of a Non-neutral Plasma in a Non-uniform Magnetic Field of a Cusp Trap

09:00-09:30 D. Le Sage, Harvard Univ.
First Antihydrogen Production within a Penning-Ioffe Trap

09:30-10:00 J. Fajans, Univ. of California Berkeley
First Attempts at Antihydrogen Trapping in ALPHA

10:00-10:40 coffee break

Session 10: Antimatter Physics II

Chair: C. F. Driscoll, Univ. of California San Diego

10:40-11:10 J. Danielson, Univ. of California San Diego
Attracting Fixed Points and Strong-Drive Compression of Single-Component Plasmas

11:10-11:40 T. Weber, Univ. of California San Diego
Creation of Finely Focused Beams from Single-Component Plasmas

11:40-12:00 N. Kuroda, Inst. of Physics, Univ. of Tokyo
Radial Compression of Antiproton Cloud for Production of Ultraslow Antiproton Beams

12:00-13:00 break

13:00- excursion
Friday 20 June 2008

**Session 11: Special Topics and Ultracold Neutral Plasmas I**

**Chair: M. Drewsen, University of Aarhus**

08:30-09:00  **J. Pétri, Centre d’étude des Environnements Terrestre et Planétaires**
Electrodynamics of Neutron Star Magnetospheres: An Example of Non-neutral Plasma in Astrophysics

09:00-09:30  **E. Nikolaev, Inst. for Energy Problems of Chemical Physics, Moscow**
Supercomputer Modeling of Ion Cloud Motion in Mass Spectrometers

09:30-10:00  **G. Raithel, Univ. of Michigan**
Plasma Dynamics and Recombination in a High-Magnetic Field Atom and Plasma Trap

10:00-10:30  *coffee break*

**Session 12: Special Topics and Ultracold Neutral Plasmas II**

**Chair: J. Bollinger, National Inst. of Standards and Tech., Boulder**

10:30-11:00  **T. Killian, Rice Univ.**
Expansion and Equilibration of Ultracold Neutral Plasmas

11:00-11:30  **T. Pohl, Harvard Univ.**
Low-temperature Atom Formation in Ultracold Neutral Plasmas

11:30-12:00  **S. Rolston, Univ. of Maryland**
Ultracold Plasma Expansion and Instabilities

12:00-12:30  **C. Roberson, Office of Naval Research (Ret)**
Non-neutral Plasma Physics at Twenty

12:30-14:00  *lunch*

14:00-16:00  *optional tour of the Columbia Plasma Physics Laboratory*
**Poster session I: Collective Modes and Transport, Beam Physics, Strongly Coupled and Dusty Plasmas**  
(presenting author in bold)

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<td><strong>G. Bettega, et al.</strong></td>
<td>Excitation of High Order Diocotron Modes in the ELTRAP Device</td>
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<td><strong>M. Romé and I. Kotelnikov</strong>,</td>
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<td><strong>K.N. Stepanov and Yu N. Yeliseyev</strong></td>
<td>Drift Motion of Charged Particle in Electromagnetic Field of Magnetic Pumping under Cherenkov and Cyclotron Resonance Conditions</td>
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<td><strong>Yu N. Yeliseyev, et al.</strong></td>
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<td><strong>N. Shiga, W.M. Itano, and J.J. Bollinger</strong></td>
<td>Spectroscopy of Ground State $^9\text{Be}^+$ Ions in a 4.5 T Penning Trap</td>
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| **S. Mitic, et al.**  
*(withdrawn)* | Local Properties of Complex Plasma Structures |
<p>| <strong>R. Heidemann, et al.</strong> | Solitary Rarefaction Wave in Three-Dimensional Complex Plasma |
| <strong>K. Nellissen, et al.</strong> | Structural Properties of Binary Colloidal Systems Confined in Quasi-one-dimensional Channel |
| <strong>K. Nelissen, et al.</strong> | Dissipation in a 2D Classical Cluster |</p>
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<td>A. Kurcz, A. Capolupo, and A. Beige</td>
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<td>A. Ahmeda, A. Elamin, F. Shareef, and N. Hashad (withdrawn)</td>
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<td>P. W. Brenner, et al.</td>
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<td>B. Durand de Gevigny, T.S. Pedersen, and A.H. Boozer</td>
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<td>M. Hahn, et al.</td>
<td>Pure Electron Equilibrium and Transport Jumps in the Columbia Non-neutral Torus</td>
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<td>M.R. Stoneking, Bao Ha, and J.P. Marler</td>
<td>Modeling Wall Probe Signals in a Toroidal Electron Plasma</td>
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<td>J.A. Castro, H. Gao, and T.C. Killian</td>
<td>Fluorescence Spectroscopy and Ion Temperature Evolution in Ultracold Neutral Plasmas</td>
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<td>D. Vrincenau</td>
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