



Michigan Institute for Plasma Science and Engineering (MIPSE)

University of Michigan & Michigan State University

5th ANNUAL GRADUATE STUDENT SYMPOSIUM

October 8, 2014

1200 EECS, 1301 Beal Avenue, Ann Arbor, MI 48109

Schedule

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| 1:45 – 2:25 | Registration, poster set-up |
| 2:25 – 2:30 | Prof. Mark J. Kushner, Director of MIPSE
<i>Opening Remarks</i> |
| 2:30 – 3:15 | Poster Session I |
| 3:15 – 3:30 | Cookies + soda |
| 3:30 – 4:30 | Special MIPSE Seminar:
Prof. Gottlieb Oehrlein, University of Maryland
<i>Low-Temperature Plasma Surface Interactions: Nanoscale Graphitic Film Formation, Atomic Layer Etching & Atm. Pressure Plasma Jet Modification of Biomolecules</i> |
| 4:30 – 5:00 | Refreshments (box lunch + coffee, tea) |
| 5:00 – 5:45 | Poster Session II |
| 5:45 – 6:30 | Poster Session III |
| 6:45 – 7:00 | <i>Best Presentation Award Ceremony</i> |

Poster Session I

- 1 Charles Bardel, Michigan State University
Particle Lists and Monte Carlo Collisional Dynamics on GPUs
- 4 Thomas Batson, University of Michigan
High Repetition Rate Relativistic Electron Beam Generation from Intense Laser Solid Interactions
- 7 Scott Hall, University of Michigan
Preliminary Observations of Channel Interaction in a 100 kW-Class Nested Channel Hall Thruster
- 10 Horatiu Dragnea, University of Michigan
The X2 Nested Channel Hall Effect Thruster: an Inner Channel Simulation
- 13 Sarah N. Gucker, University of Michigan
Time Resolved Studies of Steam Discharges
- 16 Mayur Jain, Michigan State University
Electrostatic Particle Based Modeling for Simulation of Strongly Coupled Plasmas
- 19 Derek Hung, University of Michigan
Current Crowding in Thin Film Electrical Contacts
- 22 Aram Markosyan, University of Michigan
PumpKin: A Tool to Find Principal Pathways in Plasma Chemical Models
- 25 Guy Parsey, Michigan State University
Study of the Feasibility of an EEDF Driven Rare Gas Metastable Laser: Application of a Kinetic Global Model
- 28 David Simon, University of Michigan
Analysis of a Disk-on-Rod Traveling Wave Amplifier
- 31 Adam Steiner, University of Michigan
Investigation of the Electrothermal Instability on Planar Foil Ablation Experiments
- 34 Wesley Wan, University of Michigan
Results of a Supersonic, Single-mode, Shockwave-driven Kelvin-Helmholtz Instability Experiment
- 37 Rachel Young, University of Michigan
Accretion Shocks on Young Stars: A Laboratory-Astrophysics Investigation

Poster Session II

- 2 Wei Tian, University of Michigan
The Long Term Effects of Random DBD Streamers on Thin Liquid Layers over Tissues
- 5 Joshua Davis, University of Michigan
Measurements of Laser Generated X-ray Spectra from Irradiated Gold Foils
- 8 Frans Ebersohn, University of Michigan
Development and Validation of a Quasi-one-dimensional Particle-in-cell Code for Magnetic Nozzle Simulation
- 11 Scott Rice, Michigan State University
Multipactor Modelling Using an Averaged Version of Furman's SEY Model
- 14 Derek Hung, University of Michigan
A General Study of Absolute Instability in Electron Beam-Circuit Interactions
- 17 Shuo Huang, University of Michigan
Dual Frequency Capacitively Coupled Discharge Sustained in Cl₂
- 20 Peng Tian, University of Michigan
Plasma Dynamics of Microwave Excited Microplasmas in a Sub-Millimeter Cavity
- 23 Kentaro Hara, University of Michigan
Kinetic Simulation of Trapped Particle Bunching Instability in Electron Plasma Waves
- 26 Lois Keller Sarno-Smith, University of Michigan
Where Did Earth's Post-Midnight High Energy Plasmasphere Go?
- 29 Derek Neben, Michigan State University
Metallic Beam Development with an ECR Ion Source at Michigan State University (MSU)
- 32 Ayan Bhattacharya, Michigan State University
Plasma-Assisted CVD Grown Single Crystal Diamond for Swift-Heavy Ion Beam Detectors
- 35 Matthew Weis, University of Michigan
Magneto-Rayleigh-Taylor Growth and Feedthrough in Cylindrical Liners
- 38 Shannon Demlow, Michigan State University
Temperature Dependence of Boron Doping Efficiency

Poster Session III

- 3 David Yager-Elorriaga, University of Michigan
Experimental Investigation of the Effects of an Axial Magnetic Field on the Magneto Rayleigh-Taylor Instability in Ablating Planar Foils
- 6 Gautham Dharuman, Michigan State University
Effective Quantum Potentials for Atomic, Molecular and Scattering Processes in Dense Plasmas
- 9 Jeff Fein, University of Michigan
Experiments on the OMEGA EP Laser to Study the Material Dependence of the Two-plasmon Decay Instability
- 12 Chuanfei Dong, University of Michigan
Minor Ion Heating by Low-frequency Alfvén Waves: Thermal Motion vs. Non-thermal Motion
- 15 Derek Hung, University of Michigan
Recent Models on Classical, Ballistic, and Quantum Diodes
- 18 Amanda Lietz, University of Michigan
Dielectric Barrier Discharges in Humid Air
- 21 Shreya Nad, Michigan State University
Efficient Experimental Methods that Enable the Control of High Pressure Microwave Discharges
- 24 Astrid Raisanen, University of Michigan
Simulating a 5 kW Class Hall Effect Thruster
- 27 Seth Norberg, University of Michigan
Plasma Jet Interaction with Wet Cells
- 30 Zhen (Tony) Zhao, University of Michigan
Ring-Shaped Distributions of Quasimonoenergetic Electron Beams Generated via Density Discontinuities in a Two-Stage Gas Cell
- 33 Yiting Zhang, University of Michigan
Insights to Etching Process Control through 3-Dimensional Profile Simulation
- 36 Archis Joglekar, University of Michigan
Direct Comparison of Full-Scale Vlasov-Fokker-Planck and Classical Modeling of Megagauss Magnetic Field Generation in Plasma near Hohlraum Walls from Nanosecond Pulses
- 39 Anthony Raymond, University of Michigan
X-Ray Imaging of Ultrafast Magnetic Reconnection Driven by Relativistic Electrons