Michigan Institute for Plasma Science and Engineering (MIPSE)
University of Michigan & Michigan State University

2nd ANNUAL GRADUATE STUDENT SYMPOSIUM

September 21, 2011
1005 EECS, 1301 Beal Avenue, Ann Arbor, MI 48109

Schedule

3:00 – 3:15  Prof. Mark J. Kushner, Director of MIPSE
             Opening Remarks

3:15 – 4:00  Poster Session I

4:00 – 5:00  Special MIPSE Seminar:
             Dr. Kimberly S. Budil, Lawrence Livermore National Laboratory
             High Energy Density Plasma Physics:
             An Evolving Role on the National Scene

5:00 – 5:45  Poster Session II

5:45 – 6:30  Poster Session III

6:45 – 7:00  Best Presentation Award Ceremony

Refreshments will be provided.
Poster Session I

1-01 Rachel Young, University of Michigan
*Collisions between Red Giant Stars and Active Galactic Nuclei Accretion Disks*

1-02 Benjamin Yee, University of Michigan
*Intra-Pulse Rotational Spectroscopy for Pulsed-Nanosecond Discharges*

1-03 Michael Logue, University of Michigan
*Ion Energy Distributions in Pulsed Inductively-Coupled Plasmas Having a Pulsed Boundary Electrode*

1-04 Dzung Tran, Michigan State University
*Microwave Plasma-Assisted Etching for Smoothing Polycrystalline Diamond Films*

1-05 Yiting Zhang, University of Michigan
*Development of Ion Energy Angular Distributions through the Pre-sheath and Sheath in Partial Pulsed Dual-Frequency Capacitively Coupled Plasmas*

1-06 Carlos Di Stefano, University of Michigan
*Spike Morphology in Supernova-Relevant Hydrodynamics Experiments*

1-07 Will Schumaker, University of Michigan
*Ultrafast Electron Radiography of Magnetic Fields in High-Intensity Laser-Solid Interactions*

1-08 Paul Cummings, University of Michigan
*Computational Methods for Simulating the Generation of Synchrotron-Like Radiation in Laser Wakefield Acceleration Experiments*

1-09 Peiyao Liu, Michigan State University
*Atmospheric Pressure Microwave-Powered Microplasma Source*

1-10 Bradley Sommers, University of Michigan
*Nonlinear Oscillations of Levitated Gas Bubbles and Their Impact on Plasma Formation in Water*

1-11 David Liaw, University of Michigan
*Simulation of Self-Neutralization Techniques for Charged Particle Thrusters on Nanospacecraft*

1-12 Yajun Gu, Michigan State University
*Microwave Plasma Assisted CVD Reactor Design For High Deposition Rate Diamond Synthesis*

1-13 Christine Krauland, University of Michigan
*Reverse Radiative Shock Experiments on the OMEGA-60 Laser*
Poster Session II

2-01 Andrew Baczewski, Michigan State University
Accelerated Cartesian Expansions (ACE): A Linear Scaling Method for the Rapid Evaluation of Pairwise Interactions

2-02 Michael Vargas, University of Michigan
Focusing Betatron Radiation Produced by Laser Wakefield Accelerated Electrons with a Spherically Curved Crystal

2-03 Wei Tian, University of Michigan
Plasma Discharge in Water Based on Pre-existing Bubbles and Electric Field Rarefaction

2-04 Jing Lu, Michigan State University
Microwave Plasma Assisted Synthesis of Single Crystal Diamond at High Pressures and High Power Densities

2-05 Ian Rittersdorf, University of Michigan
Effects of Random Circuit Fabrication Errors on Small Signal Gain and Output Phase in a Traveling Wave Tube

2-06 Franklin Dollar, University of Michigan
Novel Heavy Particle Acceleration from High Intensity, Short Pulse Lasers

2-07 Paul Giuliano, University of Michigan
Effects of Detailed Heavy Species Interactions in DSMC-PIC Simulation of a Simplified Plasma Test Cell

2-08 Adam Steiner, University of Michigan
Experimental Investigation of the Evolution of the Magneto-Rayleigh Taylor Instability on Thin Foils

2-09 Naveen Nair, Michigan State University
An Adaptive Locally Smooth Surface Parameterization for Integral Equations

2-10 Eliseo Gamboa, University of Michigan
Imaging X-Ray Thomson Scattering Spectroscopy for Characterizing Extreme Matter States

2-11 Iverson Bell, University of Michigan
Investigating the Potential of Electrodynamic Tethers to Enhance Capability of Ultra-small Spacecraft

2-12 Sarah Nowak Gucker, University of Michigan
Power and Decomposition Studies on an Underwater Dielectric Barrier Discharge Plasma

2-13 Jun-Chieh (Jerry) Wang, University of Michigan
Electron Current Extraction and Interaction of RF mDBD Arrays
3-01  Panpan Zhang, Michigan State University  
*Two-dimensional PIC-MCC Simulations of the Electron Multiplication in a Gas Electron Multiplier*

3-02  Calvin Zulick, University of Michigan  
*Bremssstrahlung Temperature Scaling in Ultra-Intense Laser-Plasma Interactions*

3-03  Nick Patterson, University of Michigan  
*Investigation of Mixed Cell Treatment via the Support Operator Method*

3-04  Zhaohan He, University of Michigan  
*Electron Generation from a High Repetition Lambda Cubed Laser Wakefield*

3-05  Peng Zhang, University of Michigan  
*Analysis of Bulk and Thin Film Contact Resistance with Dissimilar Materials*

3-06  Shannon Demlow, Michigan State University  
*Properties of Boron Doped Diamond Grown by Plasma Enhanced Chemical Vapor Deposition*

3-07  Sreenivas Varadan, University of Michigan  
*Compressible Turbulence and Interfacial Instabilities*

3-08  Channing Huntington, University of Michigan  
*Same-Shot X-Ray Thomson Scattering and Streaked Imaging of Xenon Radiative Shock Experiments*

3-09  Collin Meierbachtol, Michigan State University  
*Self-Consistent Simulation of Microwave PACVD Reactors for Diamond Growth*

3-10  Laura Spencer, University of Michigan  
*Analysis of Computational Work in Comparison with Experimental Results for an Atmospheric Pressure Microwave Plasma*

3-11  Sang-Heon Song, University of Michigan  
*Control Etch Rate of SiO₂ in Ar/CF₄/O₂ Capacitively Coupled Plasmas Using Pulsed Power with Constant Power and Constant Voltage of the Substrate*

3-12  Aimee Hubble, University of Michigan  
*Addressing Issues in Probing the Magnetic Cusp Region*

3-13  Kentaro Hara, University of Michigan  
*1D hybrid-Vlasov Simulation for Hall Thrusters*