



**Michigan Institute for Plasma Science and Engineering  
1<sup>ST</sup> ANNUAL GRADUATE STUDENT SYMPOSIUM**

**September 29, 2010  
3:00 – 7:00 pm  
1200 EECS, 1301 Beal Avenue**

**Schedule**

**3:00 – 5:00**

**Plenary Session**

**Chair:** Prof. Mark J. Kushner (Director, MIPSE)

3:00 – 3:10

Prof. David C. Munson (Dean, College of Engineering)

***Opening Remarks***

3:10 – 4:00

Dr. Bruce A. Remington (Lawrence Livermore National Laboratory)

***From High Energy Density Laboratory Astrophysics to Extreme Materials Science: Pushing the Frontiers of Experimental Science***

**Student Talks**

4:00 – 4:15

Christopher McGuffey

***Compact High-Brilliance Synchrotron Source Driven by a Tabletop Laser***

4:15 – 4:30

Tiberius Moran-Lopez

***The Modeling of Turbulent Radiative Shocks with Applications to High Energy Density Physics and Astrophysics***

4:30 – 4:45

Brian Peterson

***High-Speed Flow and Fuel Imaging study of Available Spark Energy in a Spray-Guided Direct Injection Engine and Implication on Misfires***

4:45 – 5:00

Bradley Sommers

***An Investigation of Harmonically Driven Bubbles in a Wire-Plane Electrode Geometry***

**5:00 – 5:15**                    **Break (refreshments will be served)**

**5:15 – 5:45**                    **Poster Session I**

Iverson Bell

***Electrodynamic Tethers for ChipSats and Nanospacecrafts***

Julie Feldt

***GITM Synthetic TEC Comparison with GPS Data***

David Liaw

***Simulation of Self-Neutralization Techniques for Charged Particle Thrusters on Nanospacecraft***

Rohit Shastry

***Erosion Characterization via Ion Power Deposition Measurements in a 6-kW Hall Thruster***

Calvin Zulick

***K-Shell Spectroscopy of Au Plasma Generated with a Short Pulse Laser***

Will Schumaker

***Betatron X-ray Spectra from a Laser Wakefield Accelerator Using Ionization Injection***

Pooya Movahed

***Multi-Layered Richtmyer-Meshkov Instability***

Zhaohan He

***A High-Repetition Rate LWFA for Studies of Laser Propagation and Electron Generation***

Franklin Dollar

***Narrow Energy Spread Proton and Ion Spectra from High-Intensity Laser Interactions***

5:45 – 6:15

Poster Session II

Paul Cummings

***A Computational Investigation of the Impact of Non-Gaussian, “Low-Quality” Laser Pulses on Electron Beam Properties in Laser-Wakefield Acceleration Experiments***

Channing Huntington

***Radiative Stabilization of Rayleigh-Taylor Instabilities in Supernova-Relevant Experiments on the National Ignition Facility***

Angela Dixon

***Guided Corona Generates Wettability Patterns That Selectively Direct Cell Attachment inside Closed Microchannels***

Matthew Franzi

***Recirculating Planar Magnetrons: Simulations and Experiment***

David French

***Electron Dynamics in Crossed Field Devices***

Eric Gillman

***Cathode Spot Ejected Particle Image Velocimetry (PIV) Calculations***

Matthew Gomez

***Investigation of Plasma Formation and Evolution in Post-Hole Convolutes***

Aimee Hubble

***Spatially Resolved Study of Inter-Cusp Transport and Containment of Primary Electrons***

Robert Lobbia

***Time-Resolved Electron Energy Distribution Functions: Preliminary Results and Development of a Rapidly Swept Langmuir Probe System***

Michael Logue

***Modeling Reaction Rates in Ar/N<sub>2</sub> ICP Plasmas Using Pulsed Power for a Variety of Duty Cycles, Pressures, Average Powers, and Frequencies***

Juline Shoeb

***Fluorocarbon Polymer Removal in H<sub>2</sub>/He Plasmas with NH<sub>3</sub> Plasma Sealing of Porous Low-k Dielectric***

6:15 – 6:45

**Poster Session III**

Sang-Heon Song

***Control of Electron Energy Distributions and Flux Ratio in Pulsed Capacitively Coupled Plasmas with Different Duty Cycle and Pulse Repetition Frequency***

Sameh Tawfick

***Fabrication of 3D Carbon Nanotube Microstructures by Capillary Forming***

Wei Tian

***Different Patterns of High-Energy and Low-Energy Electrons in an Atmospheric-Pressure Microplasma Generated by a Hairpin Resonator***

Jun-Chieh Wang

***Electron Current Extraction from RF Excited Micro-Dielectric Barrier Discharges***

Benjamin Yee

***New Diagnostic Capabilities for NASA's Pulsed Nanosecond Discharge***

Peng Zhang

***Evaluation of RF Power Absorption and Electric and Magnetic Field Enhancements Due to Surface Roughness***

Peng Zhang

***Electrical Contact Resistance with Dissimilar Materials***

Cyril Galitzine

***Simulation of the Interaction between Two Rarefied Ionized Jets Using a Hybrid Method***

Laura Spencer

***Experimental and Computational Study of Carbon Dioxide Dissociation in an Atmospheric Pressure Microwave Discharge***

6:45 – 7:00

**Best Presentation Award**