

Michigan Institute for Plasma Science and Engineering (MIPSE)



10th ANNUAL GRADUATE STUDENT SYMPOSIUM

University of Michigan
Michigan State University
University of Notre Dame
Pusan National University, S. Korea

November 13, 2019
1005 EECS, 1301 Beal Avenue, Ann Arbor, MI 48109-2122

Schedule

2:00 – 2:35	Registration, poster set-up	EECS atrium
2:35 – 2:40	Prof. Mark J. Kushner Director, MIPSE <i>Opening remarks</i>	EECS atrium
2:40 – 3:30	Poster session I	EECS atrium
3:30 – 3:45	Refreshments (box lunch + coffee, tea)	1005 EECS
3:45 – 3:50	John McLaughlin Senior Director, KLA, Ann Arbor Site Leader <i>Greetings from KLA</i>	1005 EECS
3:50 – 4:50	Special MIPSE seminar Dr. Joachim Birn Space Science Institute <i>Substorms, Dipolarization, and Particle Acceleration in the Magnetosphere</i>	1005 EECS
5:00 – 6:40	<i>Hall Thruster demonstration</i> MAISE team	EECS atrium
5:00 – 5:50	Poster session II	EECS atrium
5:50 – 6:40	Poster session III	EECS atrium
6:40 – 6:55	Poster removal	EECS atrium
6:55 – 7:00	<i>Best Presentation Award ceremony</i>	EECS atrium

Poster Session I

1-01	Sneha Banerjee	MSU	<i>Modelling and Engineering of Tunneling Electrical Contacts</i>
1-02	Zachariah Brown	U-M	<i>Experimental Correlation between Anomalous Electron Collision Frequency and Plasma Turbulence in a Hall Effect Thruster</i>
1-03	Daniel Martin	ND	<i>The Effect of Ionic Strength on the Absorption Spectrum of Plasma-Injected Solvated Electrons</i>
1-04	Griffin Cearley	U-M	<i>Computational Investigation of Early-time Kelvin-Helmholtz Instability Growth Driven by Radiative Shockwaves</i>
1-05	Joseph Groele	U-M	<i>Investigating a Plasma Source for Generating Ultrasonic and Ultraviolet Radiation in Water</i>
1-06	Yi Luo	MSU	<i>An Analytical Model for Two-color Photoemission from Biased Metal Surface</i>
1-07	Abhijit Jassem	U-M	<i>Inclusion of Circuit Loss in an Exact Theory of Helix Traveling Wave Tubes</i>
1-08	Juliusz Kruszelnicki	U-M	<i>Production of Reactive Species in 2-D Packed Bed Reactors – Impact of System Parameters</i>
1-09	Jinpu Lin	U-M	<i>Scaling Relativistic Laser-solid Interaction Using Ultrashort Laser Pulses</i>
1-10	Tianyu Tang	Pusan	<i>Comparative Study of an Atmospheric Pressure Helium Plasma Jet Driven by Unipolar Nanosecond-pulses</i>
1-11	Mackenzie Meyer	U-M	<i>Modeling the Erosion of a Wire in the Plume of a Hall Thruster</i>
1-12	Leanne Su	U-M	<i>Impact of Magnetic Shielding on Efficiency of Krypton Operation</i>
1-13	Brandon Russell	U-M	<i>Interaction of Relativistic Magnetized Electrons with Obstacles</i>
1-14	Asif Iqbal	MSU	<i>Time-Dependent Physics of Single-Surface Multipactor with Dual-Tone RF Carriers</i>
1-15	Trevor Smith	U-M	<i>Vacuum Ultraviolet and Visible Spectroscopy for Power Flow Studies on the 1 MA, 100 ns MAIZE LTD</i>
1-16	Jordyn Polito	U-M	<i>Reactor Scale Modeling of Nanoparticle Growth in Low Temperature Plasmas</i>
1-17	Alexander Vazsonyi	U-M	<i>Vlasov-Poisson Simulations of Ion-Acoustic Turbulence</i>
1-18	Nathaniel Wirgau	U-M	<i>Line Integrated Barium Absorption Spectroscopy Along Cathode Axis</i>

Poster Session II

2-01	Matthew Byrne	U-M	<i>Data-Driven Modeling of the Effect of Background Pressure on the Operation of a Hall Effect Thruster</i>
2-02	Stephen Dilorio	U-M	<i>Modeling Collisional Ionization Using a Modified Binary-Encounter-Bethe Model in the Particle-in-Cell Code OSIRIS</i>
2-03	Joshua Woods	U-M	<i>Numerical Optimization of a Rotating Magnetic Field Field-reversed Configuration Thruster</i>
2-04	Forrest Glines	MSU	<i>Simulations of Magnetized Turbulence in the Taylor-Green Vortex</i>
2-05	Nazli Turan	ND	<i>Development and Characterization of a Small-Scale Helical Dielectric Barrier Discharge for Studying Plasma-Surface Interactions</i>
2-06	Timothy Keebler	U-M	<i>Error in Curlometer Technique: Cluster Ring Current Observations</i>
2-07	Steven Lanham	U-M	<i>Kinetic Modeling of Nanoparticle Growth in Low Pressure Plasmas</i>
2-08	Thomas Marks	U-M	<i>Numerical Investigation of Current Closure in the Plume of a Magnetic Nozzle</i>
2-09	Alborz Izadi	MSU	<i>Gas Phase Plasma-Based Approach for Synthesis of Gold Nanoparticles</i>
2-10	Hernan Delgado	ND	<i>Chemical Analysis of the Secondary Emission in a Non-thermal Plasma with a Liquid Cathode</i>
2-11	Grant Miars	U-M	<i>Parametric Experiments in Mitigating Spacecraft Charging via Plasma Contactor</i>
2-12	Qian Qian	U-M	<i>Effect of Quantum Synchrotron Emission in High-Energy Wakefield Stages</i>
2-13	Christopher Sercel	U-M	<i>Design and Construction of a 30 kW FRC Thruster</i>
2-14	Lucas Stanek	MSU	<i>Accelerating Warm Dense Matter Simulations to Elucidate Diffusive Mixing Processes Using Machine Learning</i>
2-15	Jenny Smith	U-M	<i>Customization of a Plasma Source for LIF Dip Measurements</i>
2-16	Hongmei Tang	U-M	<i>Characterizing the Spatial Resolution of Scintillators for Imaging Applications of Laser-driven Proton Beams</i>
2-17	Benjamin Wachs	U-M	<i>Optimization of a Low Power ECR Thruster using Two-Frequency Heating</i>
2-18	Foivos Antoulinakos	U-M	<i>Theory of AC Contact Resistance</i>

Poster Session III

3-01	Jon Murphy	U-M	<i>Optimization of High Repetition-rate Laser Wakefield Accelerators Using Machine-learning Techniques</i>
3-02	Jason Cardarelli	U-M	<i>Shock Injection Producing Narrow Energy Spread, GeV Electron Beams from a Laser Wakefield Accelerator</i>
3-03	Zizhuo Huang	MSU	<i>Two-surface Multipactor Susceptibility with Two Carrier Frequencies Using Monte Carlo Simulation</i>
3-04	George Dowhan	U-M	<i>X-Pinch Diagnostics for the MAIZE LTD</i>
3-05	Shannon Hill	U-M	<i>Example of Wave-particle Interactions in Geospace: Oxygen Ions and Magnetosonic Waves</i>
3-06	Yao Kovach	U-M	<i>Particle Emission from an Anode Liquid Surface of Electrolyte in Atmospheric Pressure DC Glow</i>
3-07	Janez Krek	MSU	<i>Benchmarking the Kinetic Global Model Framework (KGMf): EEDF Evaluations in Low-temperature Argon Plasmas</i>
3-08	Heath LeFevre	U-M	<i>Simulations of Photoionization Fronts on the Z-machine Using a Well-characterized Radiation Flux Input</i>
3-09	Raul Melean	U-M	<i>Design and Calibration of B-dot Probes for Measuring the Strong Magnetic Field of a Magnetized Plasma Experiment Using Commercial Electronic Components</i>
3-10	Nicholas Peskosky	U-M	<i>High-repetition Neutron Generation from Ultrashort Laser Pulse Irradiation of Electrohydrodynamically Extracted Deuterated Microdroplets</i>
3-11	Jinyu Yang	ND	<i>Time-resolved Characterization of a Free Plasma Jet Formed Using a Piezoelectric Transformer</i>
3-12	Yang Zhou	MSU	<i>Comparison of a Quantum Model for Photoemission from Metal Surfaces with Three-step Model and Fowler-Dubridge Model</i>
3-13	Jeff Woolstrum	U-M	<i>Validation of PERSEUS and Implementing Ionization Energy Models in PERSEUS</i>
3-14	Chenhui Qu	U-M	<i>Optimizing Power Delivery in a Pulsed Inductively Coupled Plasma Using Set-Point Impedance Match and Frequency Tuning</i>
3-15	Akash Shah	U-M	<i>Development of a Gas-Puff Z-Pinch Experiment for the 1-MA, 100-ns MAIZE Linear Transformer Driver</i>
3-16	Brendan Sporer	U-M	<i>Status Update on the BLUE Linear Transformer Driver (LTD) System at the U-M</i>
3-17	Robert Vandervort	U-M	<i>Experiments to Understand the Interaction of Stellar Radiation with Molecular Clouds</i>
3-18	Michael Wadas	U-M	<i>A Semianalytical Framework for 1D Shock Hydrodynamics with Applications to Dynamic Compression Experiments on NIF and OMEGA</i>