



Michigan Institute for Plasma Science and Engineering (MIPSE)

15th ANNUAL GRADUATE STUDENT SYMPOSIUM

November 20, 2024

University of Michigan North Campus, Ann Arbor, MI 48109

Schedule

I. Special MIPSE Seminar

Johnson Rooms, **3213 Lurie Engineering Center**, 1221 Beal Avenue

1:00 – 1:20 pm	Registration, light lunch
1:20 – 1:25 pm	Prof. Mark J. Kushner, University of Michigan Director, MIPSE <i>Opening remarks</i>
1:25 – 1:30 pm	Prof. Gozde Tutuncuoglu, Wayne State University Chair, AVS Michigan Chapter <i>Introducing American Vacuum Society Michigan Chapter and Student Chapter</i>
1:30 – 2:30 pm	Prof. Peter Bruggeman, University of Minnesota Winner, University of Michigan Plasma Prize 2023 <i>Low Temperature Plasma Science to Advance Human Health and Enable a Sustainable Future</i>

II. Poster Presentations

Atrium, **EECS Building**, 1301 Beal Avenue

2:45 – 3:15 pm	Poster setup
3:15 – 4:00 pm	Poster Session I
4:00 – 4:45 pm	Poster Session II
4:45 – 5:30 pm	Poster Session III
5:30 – 5:45 pm	Poster removal
5:45 – 6:00 pm	<i>Best Presentation Award ceremony</i>

Participating institutions: University of Michigan, Michigan State University.

Poster Session I

1-01	Chenyao Huang	U-M	<i>Effect of Secondary Electron Emission on Surface Charging during Plasma Etching for Microelectronics Fabrication</i>
1-02	Andre Antoine	U-M	<i>Characterization of Non-Thermal Phase Transitions in MgO and NaCl with Two-color Ultrashort X-ray Pulses</i>
1-03	Lucas Babati	U-M	<i>Calculating Transport Coefficients in Warm Dense Matter with the Strongly Coupled Transport (SCOUT) Code</i>
1-04	Md Arifuzzaman Faisal	MSU	<i>Enhanced Spatial Growth and Interaction Impedance in Smith-Purcell Radiation with Flattened Dispersion Curves</i>
1-05	Kimberly Beers	U-M	<i>Investigation of Co-Evaporated Bi₂Te₃ Thin Films on HD-4110 Polyimide for use in Thermoelectric Micro-Generators</i>
1-06	Declan Brick	U-M	<i>Model Based Investigation of Parallel Heat Flux in Hall Thrusters</i>
1-07	Khalil Bryant	U-M	<i>Using AWSoM Simulations to Compare to Laboratory Experiments</i>
1-08	Sarah Frechette Roberts	MSU	<i>Extended Hydrogen Plasma Etching of (100) Single Crystal Diamond to Improve MPACVD Growth Quality</i>
1-09	Veronica Contreras	U-M	<i>Channel Formation and Transverse Ion Acceleration from High-Intensity Laser Interactions with Underdense Plasma on OMEGA EP</i>
1-10	Vivian Cribb	U-M	<i>Solar Wind Drivers of Auroral Omega Bands</i>
1-11	Connor DiMarco	U-M	<i>High Energy Particle Measurements at Geostationary Orbit and their Relationship with Omega Band Formation</i>
1-12	Adam Bedel	U-M	<i>Stability Analysis of Dynamic Screw-Pinch Driven Thin-Foil Liner Implosions</i>
1-13	James Welch	U-M	<i>Molecular Dynamics Simulations of Temperature Relaxation Rates for Strongly Magnetized, Ion-Electron, Antimatter Plasmas</i>
1-14	Sheng Lee	MSU	<i>Generation of Ordered Atomic Gold Nanowires via Tip-enhanced Terahertz Field</i>
1-15	Tanvi Nikhar	MSU	<i>Effect of Gas Temperature on the Chemical Vapor Deposition of Nanodiamond</i>
1-16	Jisu Jeon	U-M	<i>Dissociation Reaction Sources on Liquid Surfaces and PFAS Removal</i>
1-17	Madison Allen	U-M	<i>Optimal Experimental Design for 2D Electron Measurements in a Hall Effect Thruster Channel</i>

Poster Session II

2-01	Ari Eckhaus	U-M	<i>Experimental Investigation into the Role of Wall Materials in Electron Cyclotron Resonance Magnetic Nozzle Thrusters</i>
2-02	<i>Abstract withdrawn</i>		
2-03	Yves Heri	MSU	<i>Space-Charge Induced Distortion of Short-Pulse Beams in a Vacuum Drift Space</i>
2-04	Sarah Feldman	U-M	<i>Hydrogen Sensor via Plasma Techniques Development</i>
2-05	Yifan Gui	U-M	<i>Onset of Silicon Nanoparticle Crystallinity in Nonthermal Plasmas</i>
2-06	Md. Mashrafi	MSU	<i>Two-Frequency RF Fields Induced Multipactor in Coaxial Transmission Line</i>
2-07	Michael Hackett	U-M	<i>Development of an "Ion Mode" for SERENA/Strofio, the Low-Energy Neutral Particle Detector onboard BepiColombo</i>
2-08	Braden Oh	U-M	<i>Carbon Backsputter Mitigation with a Retarding Beam Dump</i>
2-09	Milos Sretenovic	MSU	<i>Optimization of Substitutional Phosphorus in n-type Diamond</i>
2-10	Stephen White	MSU	<i>Gauge Conserving Particle Methods that Naturally Satisfy the Involutions of Maxwell's Equations</i>
2-11	Isaac Huegel	U-M	<i>Radiation Hydrodynamics Simulations of the Photoionized Plasmas in Accretion-powered Objects Experiment on Z</i>
2-12	Xitong Xu	MSU	<i>Synthesis of Carbon Nanoparticles via RF Plasma Jet in the Atmosphere</i>
2-13	William Hurley	U-M	<i>Mass Utilization Scaling with Propellant Type in a Magnetically Shielded Hall Thruster</i>
2-14	Lan Jin	MSU	<i>Influence of Temporal Shapes of Femtosecond Laser Pulses on Photoemission from a Metal Surface</i>
2-15	Neil Beri	U-M	<i>Effects of Pulse Chirp on the Stability and Efficiency of Plasma Wakefield Photon Acceleration</i>
2-16	Kwyntero Kelso	U-M	<i>Streak Camera Characterization at the OMEGA-60 Laser Facility</i>

Poster Session III

3-01	Alexander Cushen	U-M	<i>MHD-AEPIC Coupled Fluid-Kinetic Simulations of Dipolarization Fronts in Mercury's Nightside Magnetosphere</i>
3-02	Julian Kinney	U-M	<i>Bremsstrahlung Emission in Strongly Coupled Plasmas</i>
3-03	Sheng Lee	MSU	<i>Ultrafast Photocarrier Dynamics in CsPbBr₃ Perovskite Microcrystals</i>
3-04	Jarett LeVan	U-M	<i>Bulk Viscosity of Strongly Coupled Plasmas</i>
3-05	Evan Litch	U-M	<i>Pulsed Low Bias Frequencies for High Aspect Ratio Plasma Etching</i>
3-06	Md Wahidur Rahman	MSU	<i>Parametric Analysis of the Beam Kinetic Energy in Linear Beam Devices</i>
3-07	Miron Liu	U-M	<i>Measurements of the Dispersion and Growth Rate of Plasma Waves in the Plume of a Hollow Cathode</i>
3-08	Sudipta Mondal	U-M	<i>Plasma Enhanced Atomic Layer Deposition of Hydrogen Free In₂O₃ Thin Films with High Charge Carrier Mobility</i>
3-09	Bingqing Wang	MSU	<i>Effects of a Series Resistor on Quantum Tunneling Current in a Dissimilar Metal-Insulator-Metal Nanogap</i>
3-10	Aidan Nakhleh	U-M	<i>Investigating Solar Wind Formation and Propagation via Entropy Cross Correlation Analysis</i>
3-11	Bilal Hassan	U-M	<i>Investigation of Plasma Gratings as a Diagnostic for Low Temperature Plasmas</i>
3-12	Parker Roberts	U-M	<i>Characterizing ExB Plasmas with Time-Resolved Thomson Scattering</i>
3-13	Han-Ting Chen	U-M	<i>Maximizing Energy Efficiency in Selective Plasma-Induced Propylene Epoxidation Using Water as the Oxygen Source</i>
3-14	Jaela Whitfield	U-M	<i>Studies of Preheat-induced Mix in MagLIF targets</i>
3-15	Yeon Geun Yook	U-M	<i>Mechanisms for Cryogenic Plasma Etching</i>
3-16	Grace Zoppi	U-M	<i>Fluid Model Performance Predictions of a Coaxial Rotating Magnetic Field Thruster</i>