Michigan Institute for Plasma Science and Engineering (MIPSE)

16th ANNUAL GRADUATE STUDENT SYMPOSIUM

December 3, 2025
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 – 1:25 pm	**Registration, light lunch**
1:25 – 1:30 pm	**Prof. Mark J. Kushner**, University of Michigan Director, MIPSE ***Opening remarks***
1:30 – 2:30 pm	**Prof. David Ruzic,** University of Illinois, Urbana-Champaign Winner, University of Michigan Plasma Prize 2024 ***What do Fusion Technology, Physical Vapor Deposition and EUV Lithography Have in Common?***

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	***Best Presentation Award* ceremony**

Participating institutions:
University of Michigan, Michigan State University, University of Notre Dame.

Poster Session I

1-01	**Madison Allen**	U-M	***Optimal Diagnostic Placement for Calibrating a Hall Thruster Model on Orbit***
1-02	**Cole Stewart**	MSU	***The Effect of Macroparticle Weight Factor on Particle-in-Cell Simulations in Low Temperature Plasmas***
1-03	**Bineet Dash**	U-M	***Plasma Field Diagnostics using Rydberg Electromagnetically Induced Transparency***
1-04	**Chelsea Tischler**	U-M	***Generation of Diffuse Reactive Oxygen Plasma in an Atmospheric Pressure Plasma Jet***
1-05	**Evan Litch**	U-M	***Dissociation and Ionization of Molecular Hall Thruster Propellants***
1-06	**Lan Jin**	U-M	***Photon-Assisted Thermionic Emission: A Theoretical Prediction for Photoelectron Energy Spectra, Emission Current, and Quantum Efficiency***
1-07	**Ari Eckhaus**	U-M	***Direct Measurements of Near-Field Electron Temperatures in an ECR Thruster***
1-08	**Horacio Moreno Montanes**	U-M	***Computation of Potential Magnetic Fields in the Solar Corona with Integral Equation Methods***
1-09	**Ryan Park**	U-M	***Numerical Thermalization in 3D Particle-in-cell Simulations***
1-10	**Andrew Schok**	U-M	***Carbon Backsputter Mitigation with a Cusped Field Retarding Beam Dump***
1-11	**Alexander Loomis**	MSU	***Chemical Vapor Deposition of Silicon Vacancy Ensembles in Low Strain Diamond with a NIRIM Type Reactor***
1-12	**Amelia Lee**	U-M	***Impact of Ionospheric Mesoscale Flow Enhancements on Polar Cap Patch Propagation***
1-13	**James Welch**	U-M	***Molecular Dynamics Simulations of Temperature Relaxation in Strongly Magnetized, Antiproton-Electron Plasmas***
1-14	**Md Mashrafi**	U-M	***Two-Frequency RF Fields Induced Multipactor in Coaxial Transmission Line***
1-15	**Alexander Cushen**	U-M	***Do Mercury's Dipolarization Fronts Originate from Flux Ropes? MHD-AEPIC Simulations of Mercury's Magnetosphere***
1-16	**Kyle Kemmerer**	U-M	***Molecular Dynamics Simulations of Electrical Conductivity in Strongly Magnetized Plasmas***
1-17	**Ibukunoluwa Akintola**	ND	***Homogeneous vs. Plasma Chemistry in High Temperature Methane DBDs: A Global Kinetic and Graph Theory Analysis***

Poster Session II

2-01	**William Maxon**	U-M	***Interface-preserving Numerical Methods for Radiation Hydrodynamics***
2-02	**Wencheng Lin**	MSU	***Zero-Dimensional Plasma–Catalysis Model for Surface Coverage of Nitrogen and Oxygen Atoms***
2-03	**Nicolas Kalem**	U-M	***Harnessing Ionization Effects for Direct Laser Acceleration of Electrons***
2-04	**Yeon Geun Yook**	U-M	***Effect of a Rectangular Bias Waveform on Cryogenic Plasma Etching of SiO_2***
2-05	**Md Arifuzzaman Faisal**	U-M	***Anisotropic Charge Transport and Current Crowding in Vertical Thin-Film Contacts with 2D Layered Materials***
2-06	**Briggs Damman**	U-M	***Molecular Dynamics Simulation of Hydrodynamic Transport Coefficients in Plasmas***
2-07	**Grace Zoppi**	U-M	***Experimental Characterization of the Co-Axial Electrodeless Magnetoplasmadynamic Thruster***
2-08	**Mitchell Indek**	U-M	***Effects of Europa's Atmosphere on Its Magnetic and Plasma Environment: Application of Multi-Fluid MHD Simulations to Spacecraft Flybys***
2-09	**Nolan Tribu**	U-M	***Space Plasma Dynamics and the Resulting Energy Flux into Earth's Magnetosphere***
2-10	**Miron Liu**	U-M	***Experimental Demonstration of a Spatial Anti-aliasing Plasma Wave Analysis Technique on Ion Acoustic Turbulence in a Hollow Cathode Plume***
2-11	**Khalil Bryant**	U-M	***Complexity Analysis of a CT Injection Experiment on BRB***
2-12	**Yifan Gui**	U-M	***Pulsed Power Strategies for Plasma Etching of High Aspect Ratio Features Using Fluorocarbon Gas Mixture for Feature Charging Control***
2-13	**Md Wahidur Rahman**	MSU	***Effects of Annular Beam Properties on Gap Coupling in High-Frequency Microwave Devices***
2-14	**Jarett LeVan**	U-M	***Foundations of Magnetohydrodynamics with Applications to Dense Plasmas***
2-15	**Mary Smirnova**	U-M	***Fusing Ground-Based and GOLD Inferred TEC Using Statistical Calibration***
2-16	**Oluwatosin Ohiro**	U-M	***Multiscale Modeling of Radical and Vibrational Pathways in Plasma-Assisted Ammonia Synthesis on Fe (110) and Ni (111)***
2-17	**Chenyao Huang**	U-M	***Charging Dynamics During Pulsed Plasma Etching of High Aspect Ratio Features in Dielectric Materials***

Poster Session III

3-01	**Alexandra Roosnovo**	U-M	***Heavy-Ion Plasma Properties During Rotationally-Driven Interchange Events: Insights from Juno Observations at Jupiter***
3-02	**Kwyntero Kelso**	U-M	***X-ray Absorption Spectroscopy Measurements of Radiatively Ionized Argon Gas***
3-03	**Michelle Bui**	U-M	***Observations & Modeling of Subauroral Sporadic-E Plasma Irregularities***
3-04	**Sankhadeep Basu**	MSU	***Femtosecond TALIF Measurements of Atomic Hydrogen in a Dielectric Barrier Discharge for Biodiesel Hydrogenation***
3-05	**John Riley O'Toole**	U-M	***Efficiency Mode Characterization of an Electron Cyclotron Resonance Magnetic Nozzle Thruster Operating on Nitrogen***
3-06	**Sarah Feldman**	U-M	***Boundary Layer Phenomena in Mercury's Magnetosphere***
3-07	**Jisu Jeon**	U-M	***PFAS Degradation in Water using Atmosphere Pressure Plasmas***
3-08	**Lucas Babati**	U-M	***Mean Force Kinetic Theory of Warm Dense Matter***
3-09	**Declan Brick**	U-M	***Model Based Investigation of Self-Consistent Closure in a Hall Thruster Model***
3-10	**Ian Freeman**	MSU	***Effects of Resistivity and Radiative Losses on Magnetic Reconnection in MHD***
3-11	**Julian Kinney**	U-M	***Spectral Line Widths in Plasmas using an Average Atom Model***
3-12	**Gonçalo Amadeu Mendes Cardoso**	U-M	***Controlling Energetic Neutral Beams Produced from Inductively Coupled Plasmas for Material Processing Applications***
3-13	**Yves Heri**	U-M	***Space-Charge and Circuit-Induced Distortion of Short-Pulse Beams in a Vacuum Diode***
3-14	**Joshua Latham**	U-M	***Control of Magnetic Reconnection in Laser Plasma Interaction***
3-15	**Jiashu Han**	U-M	***Vlasov-Poisson Simulations of Ion Acoustic Waves***
3-16	**Bingqing Wang**	U-M	***Curvature-Enhanced Quantum Tunneling Emission in Dissimilar Metal-Insulator-Metal Junctions***