

Michigan Institute for Plasma Science and Engineering (MIPSE)



12th ANNUAL GRADUATE STUDENT SYMPOSIUM

November 17, 2021

EECS Building, 1301 Beal Avenue, Ann Arbor, MI 48109-2122

Schedule

2:00 – 2:40	Registration, poster set-up	EECS atrium
2:40 – 2:45	Prof. Mark J. Kushner Director, MIPSE <i>Opening remarks</i>	EECS atrium
2:45 – 3:30	Poster session I	EECS atrium
3:30 – 4:30	Special MIPSE seminar Prof. Davide Curreli University of Illinois, Urbana-Champaign <i>The Plasma-Water Interface: Modern Challenges and New Software Tools</i>	1311 EECS
4:30 – 5:00	Refreshments	EECS atrium
5:00 – 5:45	Poster session II	EECS atrium
5:45 – 6:30	Poster session III	EECS atrium
6:30 – 6:45	Poster removal	EECS atrium
6:45 – 7:00	<i>Best Presentation Award ceremony</i>	EECS atrium

Participating institutions:

University of Michigan (U-M), Michigan State University (MSU), University of Notre Dame (ND),
Lovely Professional University, Phagwara, India

Poster Session I

1-01	Ibukunoluwa Akintola	ND	<i>Characterization of CH₄/N₂ Plasmas for Plasma Catalytic Methane Coupling using Optical Emission Spectroscopy</i>
1-02	Zach Brown	U-M	<i>Non-invasive Measurements of a Hollow Cathode Plume with Incoherent Thomson Scattering</i>
1-03	Jason Cardarelli	U-M	<i>Characterizing the Growth of Current Filamentation Instability Using Laser Wakefield Accelerated Beams</i>
1-04	Raul Melean	U-M	<i>Pulsed-power Magnetized Shocks under an External Magnetic Field</i>
1-05	Michael Wadas	U-M	<i>Formation and Scaling of Vortex Rings Ejected from Shock-accelerated Interfaces</i>
1-06	Asif Iqbal	MSU	<i>Multipactor Discharge in the Parallel-plate Geometry with Two-frequency rf Fields and Space-charge Effects</i>
1-07	Leanne Su	U-M	<i>Performance at High Current Densities of a Magnetically-shielded Hall Thruster</i>
1-08	Garam Lee	ND	<i>Multi-Modal In-situ/Operando Spectroscopy Combining PM-IRAS, OES, and MS for Observing Plasma-Stimulated Activation of Surface Species</i>
1-09	Jordyn Polito	U-M	<i>Computational Investigation of Nucleation Processes Leading to Silicon Nanoparticle Growth in a Low Temperature Capacitively Coupled Plasma</i>
1-10	Ryan Sandberg	U-M	<i>Phase Matched Plasma Wakefield Photon Acceleration</i>
1-11	Tate Gill	U-M	<i>Far-Field Measurements of a Rotating Magnetic Field Thruster</i>
1-12	Jinyu Yang	ND	<i>Spatiotemporally-resolved Characterizations of Electric Field around a Piezoelectric Transformer Using Electric-field Induced Second Harmonic (E-FISH) Generation</i>
1-13	Lucas Beving	U-M	<i>Simulations of Ion Heating in the Presheath Due to Ion-acoustic Instabilities</i>
1-14	Senthil Kumaran	Lovely Professional University	<i>Electron Acceleration by Elliptical q-Gaussian Laser Driven Electron Plasma Wave in Collisionless Plasma* (*Remote)</i>

Poster Session II

2-01	Donovan White	U-M	<i>Beryllium Probe Neutron Diagnostic for a Gas-Puff Z-Pinch Neutron Source on a 1-MA, 100-ns Linear Transformer Driver</i>
2-02	Khalil Bryant	U-M	<i>Future Experiment at the Wisconsin Plasma Physics Laboratory (WIPPL)</i>
2-03	Dion Li	U-M	<i>A Relativistic and Electromagnetic Correction to the Ramo-Shockley Theorem</i>
2-04	Shadrach Hepner	U-M	<i>Anomalous Thermal Conductivity in an Expanding Magnetic Field</i>
2-05	Kseniia Konina	U-M	<i>Atmospheric Pressure Plasma Jet Treatment of Skin with Hair Follicles</i>
2-06	Stephen Langellotti	U-M	<i>Experiments on Coaxial Multipactor</i>
2-07	George Dowhan	U-M	<i>Updates to the X-Pinch Platform and Faraday Rotation Imaging Diagnostic on the MAIZE Facility</i>
2-08	Lucas Stanek	MSU	<i>Entropy Generation in Ultracold Neutral Plasmas</i>
2-09	Parker Roberts	U-M	<i>Time-Resolved Investigation of Hall Thruster Pole Ion Heating</i>
2-10	Hongmei Tang	U-M	<i>Relativistic Intensity Laser Channeling and Direct Laser Acceleration of Electrons from an Underdense Plasma</i>
2-11	Brendan Sporer	U-M	<i>A Platform to Study High-field FRC Formation on the Maize Linear Transformer Driver</i>
2-12	Mackenzie Meyer	U-M	<i>Plasma-Produced Reactive Species Reactions with Liquid Water Droplets</i>
2-13	Christopher Sercel	U-M	<i>Indirect Azimuthal Current Measurement in an RMF Thruster</i>

Poster Session III

3-01	Joshua Woods	U-M	<i>Performance Model for a Rotating Magnetic Field Thruster</i>
3-02	Yang Zhou	MSU	<i>Theory of Laser-induced Photoemission from Dielectric-coated Metal Surfaces</i>
3-03	Louis Jose	U-M	<i>Kinetic Theory of Strongly Magnetized Plasmas</i>
3-04	Collin Whittaker	U-M	<i>Targeted Experimental Measurements to Refine an Operational Model for Porous Electrospray Thruster Arrays</i>
3-05	Austin Brenner	U-M	<i>Plasma in Earth's Magnetosphere: Applying the Virial Theorem to High Fidelity Simulation</i>
3-06	Steven Lanham	U-M	<i>Controlling Nanoparticle Growth in Low Temperature Plasmas Using Pulsed Power</i>
3-07	Matthew Byrne	U-M	<i>Scaling Law for the Dependence of the Hall Thruster Plume on Facility Pressure</i>
3-08	Ryan Revolinsky	U-M	<i>Investigation of Recirculating Planar Magnetron with Coaxial All-Cavity Extraction</i>
3-09	Brandon Russell	U-M	<i>Generation and Measurement of Extreme Magnetic Fields</i>
3-10	Thomas Marks	U-M	<i>Evaluation of Algebraic Models for Hall Thruster Electron Transport</i>
3-11	Akash Shah	U-M	<i>Effects of Pre-ionization on Current Distribution in a Gas-Puff Z-Pinch</i>
3-12	Florian Krüger	U-M	<i>Controlling Charged Particle Dynamics and Nanometer Scale SiO₂ Etching in Ar/CF₄/O₂ Plasmas via Voltage Waveform Tailoring</i>
3-13	Eli Feinberg	U-M	<i>Direct Laser Impulse Effects on Titanium</i>
3-14	Benjamin Wachs	U-M	<i>Optimization of a Low Power ECR Thruster Using Pulsed Heating</i>