



Michigan Institute for Plasma Science and Engineering (MIPSE)
14th ANNUAL GRADUATE STUDENT SYMPOSIUM

November 15, 2023
University of Michigan, Ann Arbor, MI 48109

Schedule

I. Special MIPSE Seminar

Room **1013 Dow Building**, North campus, 2300 Hayward St.

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| 1:20 – 1:40 pm | Registration, refreshments |
| 1:40 – 1:45 pm | Prof. Mark J. Kushner , University of Michigan
Director, MIPSE
<i>Opening remarks</i> |
| 1:45 – 1:50 pm | Prof. Gozde Tutuncuoglu , Wayne State University
Chair, AVS Michigan Chapter
<i>Introducing American Vacuum Society Michigan Chapter
and Student Chapter</i> |
| 1:50 – 2:50 pm | Special MIPSE seminar
Dr. Cami Collins, Oak Ridge National Laboratory
<i>Integrating Physics and Engineering for Fusion Reactor Design,
Assessment, and Optimization</i> |

II. Student Posters

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

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| 3:00 – 3:30 pm | Poster setup |
| 3:30 – 4:10 pm | Poster session I |
| 4:10 – 4:50 pm | Poster session II |
| 4:50 – 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, University of Toledo, University of Notre Dame.

Poster session I

1-01	Sandeep N Ramesh	UToledo	<i>A Tunable and High-Isolation Integrated Filter and Plasma Limiter Technology</i>
1-02	Grace Zoppi	U-M	<i>Steady State Two-Fluid Model for a Rotating Magnetic Field Thruster Informed by Experimental Data</i>
1-03	Kwyntero Kelso	U-M	<i>X-ray Absorption Spectroscopy Experiments of Radiatively Heated Argon Gas</i>
1-04	Yifan Gui	U-M	<i>Optimization of Ge/Si Core/Shell Nanoparticles Properties Through Nonthermal Plasma Synthesis</i>
1-05	Md Arifuzzaman Faisal	MSU	<i>Analyzing Spatial Growth Rate and Starting Current in Smith-Purcell Radiation Using Single- and Two-Layer Grating Structures</i>
1-06	Lucas Babati	U-M	<i>Calculating Ion Transport Coefficients in Warm Dense Matter</i>
1-07	Alexander Loomis	MSU	<i>Chemical Vapor Deposition of Silicon Vacancy Ensembles in Low Strain Diamond with a NIRIM Type Reactor</i>
1-08	Rebecca Fitzgarrald	U-M	<i>Filter Pack X-Ray Spectrum Reconstruction for Betatron Streaking Experiment</i>
1-09	Thomas Chuna	MSU	<i>Data Driven Discovery of System Equilibration</i>
1-10	Daniel Carpenter	U-M	<i>A Novel Reduction-Based Scheme for In-Situ Solar Wind Origin Classification Using Machine Learning</i>
1-11	Madison Allen	U-M	<i>Optimal Experimental Design for Calibrating Anomalous Transport Models</i>
1-12	Veronica Contreras	U-M	<i>Measuring Coulomb Explosion Ions from OMEGA EP Interactions</i>
1-13	Lan Jin	MSU	<i>Beam Density Modulation During Emission Using RF and Laser Fields</i>
1-14	Tyler Eddy	U-M	<i>TFIPS – A Compact, Low-power Heavy Ion Spectrometer for Space Environments</i>

Poster session II

2-01	Eli Feinberg	U-M	<i>Design of Halfraums for X-ray Flow Experiments on the NIF</i>
2-02	Bingqing Wang	MSU	<i>Statistic Analysis of Nanoscale Tunneling Electrical Contacts Based on Transmission Line Model</i>
2-03	Ryan Park	U-M	<i>Demonstrating ThunderBoltz: An Open-Source 0D DSMC Boltzmann Solver for Plasma Transport and Chemical Kinetics</i>
2-04	Christopher Sercel	U-M	<i>Impact of Magnetic Field Profile on Loss Mechanisms in a Rotating Magnetic Field Thruster</i>
2-05	Kazi Kabir	UToledo	<i>Chemical Composition of a Power-Efficient Evanescent-Mode Plasma Jet</i>
2-06	Sarah Frechette Roberts	MSU	<i>An Investigation of the Effects of Low Methane Concentrations on Microwave Plasma Assisted Chemical Vapor Deposition of Single Crystal Diamond</i>
2-07	Sankhadeep Basu	MSU	<i>Non-thermal Plasma Synthesis of Indium Nitride</i>
2-08	William Hurley	U-M	<i>Performance Characterization of a Magnetically Shielded Hall Thruster Operating on Molecular Propellants</i>
2-09	Tanner Nutting	U-M	<i>Propagation of Texas Petawatt Laser Through High Density Gas Jet Targets</i>
2-10	Zhongyu Cheng	Notre Dame	<i>Accelerating Low-temperature Processing of Printed Nanoinks Using Machine Learning and Bayesian Optimization of Non-thermal Plasma Jet Sintering</i>
2-11	Md Wahidur Rahman	MSU	<i>The Effect of Space Charge on the Performance of Linear Beam Device for High Frequency Radio Waves</i>
2-12	Declan Brick	U-M	<i>Bayesian Inference for Calibration of Anomalous Electron Transport in Multi-Fluid Hall Thruster Models</i>
2-13	Evan Litch	U-M	<i>Low Bias Frequencies for High Aspect Ratio Plasma Etching</i>

Poster session III

3-01	Moises Enriquez	U-M	<i>Instability-enhanced Friction in Multi-ion Species Plasmas</i>
3-02	Kseniia Konina	U-M	<i>Atmospheric Pressure Plasma Jet in Treatment of Polypropylene Uneven Surfaces</i>
3-03	Kushagra Singhal	UToledo	<i>A Power-Efficient Plasma Line Based on Extended EVA Cavity Technology</i>
3-04	Collin Whittaker	U-M	<i>Experiments and Modeling of a 25 W Porous Electro spray Array</i>
3-05	Shailaja Humane	U-M	<i>Exploring Multi-fidelity Bayesian Optimization for Inertial Confinement Fusion Design</i>
3-06	Andre Antoine	U-M	<i>Characterization of Non-Thermal Phase Transitions in Ionic Compounds with Two-color X-ray Pulses</i>
3-07	Sophia Bergmann	U-M	<i>Design and Initial Operation of an Optically Accessible ECR Magnetic Nozzle Thruster</i>
3-08	Yves Heri	MSU	<i>Space Charge Effects on Short-Pulse Beam Dynamics in Vacuum Diodes</i>
3-09	Julian Kinney	U-M	<i>Mean Force Emission Theory for Bremsstrahlung in Strongly Coupled Plasmas</i>
3-10	Tanvi Nikhar	MSU	<i>Tabletop Microwave Capillary Reactor for Nano Diamond Synthesis</i>
3-11	Parker Roberts	U-M	<i>Thomson Scattering Measurements of Electron Mobility in Hall Thrusters</i>
3-12	Tate Gill	U-M	<i>Investigation of a Low-Pressure Cathode Design for High-Current Operation on Chemically Reactive Gasses</i>
3-13	Ibukunoluwa Akintola	Notre Dame	<i>Temperature Inhibition of Methane Conversion in DBD Plasma-Driven Systems</i>