

**XLIV RSPS – ROCHESTER SYMPOSIUM FOR PHYSICS, ASTRONOMY AND OPTICS STUDENTS  
SPS ZONE 2 REGIONAL MEETING**

**PROGRAM**

**8:00 AM – 8:30 AM: REGISTRATION / POSTER SETUP (B&L LOBBY)**

**8:00 AM – 8:30 AM: CONTINENTAL BREAKFAST (B&L 208)**

**8:30 AM: WELCOME: PROF. SHETH NYIBULE, UNIVERSITY OF ROCHESTER (B&L 109)**

**8:40 AM: KEYNOTE SPEAKER: REGINA BARBER, SHORT WAVE HOST (NPR'S SCIENCE  
PODCAST), "A PHYSICIST'S PATH TO NPR: LEARNING HOW TO SHARE SCIENCE BETTER."**

**9:30 AM – 10:30 AM: SESSION IA. CONDENSED MATTER & NUCLEAR AND PARTICLE  
PHYSICS (B&L 109)**

**SESSION CHAIR: PROF. MARK YULY, HOUGHTON UNIVERSITY**

- 9:30 AM      **Deuteron and Triton Induced Light Ion Reactions  
Produced via High-Power Short-Pulse Lasers**  
Andrew Bo  
**Houghton University**  
Advisor: Prof. Mark Yuly
- 9:45 AM      **Synthesizing Nano-Shapes to Capture Forever  
Chemicals**  
Avery Di Iulio, Rachel Fister, Vijaysankar Kalappatil,  
Nicholas Bingham, Kristen Stojak Repa  
**SUNY Brockport**  
Advisor: Prof. Kristen Stojak Repa
- 10:00 AM     **Density Functional Theory Calculations of Hydrogen  
Permeation through 2D Materials**  
Elias Melcher, Arjyama Bordoloi, Sobhit Singh, Zachary  
Robinson  
**University of Rochester**  
Advisors: Zachary Robinson and Sobhit Singh
- 10:15 AM     **Design and Construction of a Scanning Tunneling  
Microscope for the Study of Thin Metal Films**  
Nate Tyler, Brandon Hoffman  
**Houghton University**  
Advisor: Prof. Brandon Hoffman

**9:30 AM – 10:30 AM: SESSION IB. ASTRONOMY AND ASTROPHYSICS (B&L 106)**  
**SESSION CHAIR: PROF. SHETH NYIBULE, UNIVERSITY OF ROCHESTER**

- 9:30 AM      **Tracing the Morphology-Density Relation with the DESI Bright Galaxy Survey**  
Julia Largett, Kelly Douglass and Segev BenZvi  
**University of Rochester**  
Advisor: Kelly Douglass, Segev BenZvi
- 9:45 AM      **Void vs Wall Galaxies: Comparing Galactic Evolution Through Bayesian Methods**  
Jay Kneiss  
**University of Rochester**  
Advisor: Prof. Segev BenZvi and Kelly Douglass
- 10:00 AM     **Impact-Induced Melting and Mixing for Planetary Collisions**  
Roshan Mehta, Miki Nakajima  
**University of Rochester**  
Advisors: Miki Nakajima
- 10:15 AM     **Using Statistical Moments of the 2pcf to Measure Primordial Non-Gaussianity**  
Justin Kenneally  
**University of Rochester**  
Advisor: Prof. Regina Demina

**10:30AM – 11:25 AM: SESSION II. POSTER SESSION (B&L LOBBY)**

**Periodic Table of Multiquarks Using Thomas Fermi Statistical Model**

Artem Denisenko and Zachary Ames

*SUNY Niagara, Baylor University, Neural Innovations LLC, Everest Institute of Science and Technology*

**Two-Qubit, Small-Scale Quantum Computing as a Laboratory for Teaching: Demonstration & Workflow Design**

Aidan Dombrosky, Amanda Flores, Tristan Christofferson

*Vassar College*

**Simulating Nebular Emissions of Supermassive Dark Stars**

Gunnar Gasper

*Colgate University*

**Creating a Planetarium Show for the Cradle of Aviation Catholic Health Sky Theater**

Kylie L. Goldade, Matthew J. Wright, Kerri E. Kiker, and Daniel Burke

*Adelphi University*

**Developing User Manual Compiled from AI Summaries of Video Tutorials**

Mark Crum, David Gutierrez, Shannon Rauch

*United States Military Academy at West Point*

**Identifying Massive Quiescent Galaxy Candidates at  $2.5 < z < 5$  with COSMOS-Web**

Mimi Harrison and Jeyhan Kartaltepe

*Rochester Institute of Technology*

**From Muscle Signals to Machines: sEMG-Based Deep Learning Control of Prosthetics**

Randy Hong, Ileana Dumitriu, Daniel Graham and Peter Spacher

*Hobart and William Smith Colleges*

**Ecoacoustic Monitoring Analysis of Construction Impacts on a College Campus Soundscape**

Ryan Jackson, Ileana Dumitriu, John Halfman, and Peter Spacher

*Hobart and William Smith Colleges*

**Path Integral Monte Carlo for Open-Boundary Bosonic Lattices**

Liam Jones, Hatem Barghathi, and Adrian Del Maestro

*University of Buffalo*

**Exploring Light Absorption and Emission in Quantum Dot Solar Windows**

Dwayne Lewis

*Roberts Wesleyan University*

**Balloon Satellite: Sensor Payload and Data Analysis**

Oskar Moe, Benjamin Sullivan, Aidan Lessard

*United States Military Academy at West Point*

**Initial Test of the Ten-Inch Manipulator-Based Short Lived Isotope Counting System**

Andrew Bo, Dante Vara, Samuel Plymale, Mark Yuly, Charles Freeman, George Marcus, Stephen J. Padalino, Chad J. Forrest, Arnold Schwemmlein, Ben Stanley, Christian Stoeckl, and Panos Gastis

*Houghton College*

**Balloon Satellite: Mechanics, Design, and Launch Operations**

Benjamin Sullivan, Jayden Roh, Caroline Carvajal, Aidan Lessard, Oskar Moe

*United States Military Academy at West Point*

**Measurement of deuteron- and proton-induced lithium reaction cross sections for SLICS detector efficiency calibration**

Dante Vara, Andrew Bo, Samuel Plymale, Mark Yuly, Michelle Woods, Silas Richardson, Chris Desiderio, Charles Freeman, George Marcus, Stephen J. Padalino, Chad J. Forrest, Arnold Schwemmlein, Ben Stanley

*Houghton University*

**11:30 AM – 12:15 PM: SESSION IIIA. QUANTUM OPTICS / OTHER (B&L 109)**  
**SESSION CHAIR: NITYA RAVI, UNIVERSITY OF ROCHESTER**

- 11:30 AM      **Nonlocal Geometric Phase**  
Bill J Luo  
Colgate University  
Advisor: Prof Enrique J Galvez
- 11:45 AM      **Programable Optical Circuits in Nanophotonic Media**  
Eli Mayes  
Colgate University  
Advisor: Prof Enrique J Galvez
- 12:00 PM      **Design and Implementation of a Modular Two-Dimensional Granular Silo for Photoelastic Force Chain Analysis**  
Ryland Ross  
Colgate University  
Advisor: Prof. Lori McCabe

**11:30 AM – 12:15 PM: SESSION IIIB. ASTRONOMY & ASTROPHYSICS (B&L 106)**  
**SESSION CHAIR: PROF. KA-WAH WONG, SUNY BROCKPORT**

- 11:30 AM      **X-ray Observation of the Low-Luminosity Active Galactic Nucleus: PKS 0625-354**  
Shishir Chhetri  
SUNY Brockport  
Advisor: Prof Ka-Wah Wong
- 11:45 AM      **Probing the Atmosphere of the Benchmark Brown Dwarf HD 19467B with JWST/NIRSpec and VLT/SPHERE**  
Chenfei Tang  
University of Rochester  
Advisor: Prof. Zhoujian "ZJ" Zhang
- 12:00 PM      **X-ray Observation of the Gamma-Ray Emitting Radio Galaxy NGC 4261**  
Elizabeth Kuhlkin, Ka-Wah Wong, Dacheng Lin, Jimmy Irwin, Rodrigo Nemmen, Erin Monie  
SUNY Brockport  
Advisor: Prof Ka-Wah Wong

**12:15 PM – 1:45 PM: [LUNCH & PHYSICS CAREER TALK/WORKSHOP](#)**  
**PROF. MATTHEW WRIGHT, ADELPHI UNIVERSITY “BE A SHARK: CAREERS, NETWORKING”**  
**(RUSH RHEES LIBRARY – HAWKINS-CARLSON ROOM)**

**2:00 PM – 3:00 PM: SESSION IVA. INSTRUMENTATION / EXPERIMENTAL TECHNIQUES / OTHER (B&L 109)**

**SESSION CHAIR: PROF. KRISTEN REPA, SUNY BROCKPORT**

- 2:00 PM      **Development of a Single-Shot Spectrometer for Two-Color Plasma THz Sources**  
Cole Jerum, Jeremy Pigeon  
**University of Rochester**  
Advisor: Prof. Jeremy Pigeon
- 2:15 PM      **A New Evaporator for the Lithium Deposition Chamber at Houghton University**  
Asher Knight  
**Houghton University**  
Advisor: Prof. Mark Yuly
- 2:30 PM      **DIY Sonar Scanner**  
Sophia Pavia  
**Siena University**  
Advisor: Prof. Matthew Bellis

**2:00 PM – 3:00 PM: SESSION IVB. BIOLOGICAL PHYSICS / EDUCATIONAL PHYSICS /  
ASTROPHYSICS / OTHER (B&L 106)**  
**SESSION CHAIR: PROF. GEORGE HASSEL, SIENA UNIVERSITY**

- 2:00 PM      **Fluid Flow Measurement in Extracorporeal  
Membrane Oxygenation**  
Neha Matta  
**Sienna University**  
Advisor: Prof. Matthew Bellis
- 2:15 PM      **Computing the CMB Angular Power Spectrum from  
First Principles**  
Collin Hitchcock  
**Sienna University**  
Advisor: Prof Matthew Bellis
- 2:30 PM      **Visualizing Action: An Interactive Exploration of  
Classical and Quantum Mechanics**  
Samyak Tuladhar  
**Sienna University**  
Advisor: Prof. John P. Cummings