

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

PROGRAM

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

8:30 AM: WELCOME: KELLY DOUGLASS, UNIVERSITY OF ROCHESTER (B&L 109)

9:00 AM – 10:00 AM: SESSION IA. NUCLEAR AND PARTICLE PHYSICS (B&L 109)

SESSION CHAIR: PROF. MARK YULY, HOUGHTON UNIVERSITY

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| 9:00 AM | Design and Simulation of Strong-focusing Pole Tips for the Houghton University Cyclotron
Andrew Hotchkiss, Houghton University |
| 9:15 AM | A Parity Violation Transmission Experiment for Undergraduate Laboratories
Levi Kennel, Houghton University |
| 9:30 AM | The Effects of Radiation Escape on Accuracy and Precision in Isotopic Composition Determination of Uranium and Plutonium Samples with Decay Energy Spectroscopy
Timothy Ockrin, Houghton University |

9:00 AM – 10:00 AM: SESSION IB. ASTRONOMY AND ASTROPHYSICS (B&L 106)

SESSION CHAIR: PROF. SHETH NYIBULE, UNIVERSITY OF ROCHESTER

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| 9:00 AM | Simulation-Based Optimization of IceCube-Gen2 Modules for Enhanced Sensitivity to Neutrinos from Galactic Core-Collapse Supernovae
Waly M Z Karim, University of Rochester |
| 9:15 AM | SGA Galaxy Morphology Classifier
Julia Largett, University of Rochester |
| 9:30 AM | Searching for Strong Gravitational Lenses in DESI Spectra
Delaney Cummins, University of Rochester |

10:00AM – 11:00 AM: SESSION II. POSTER SESSION (B&L LOBBY)

Development of Using Solar Renewable Energy in our Daily Lives

Adam Choudhry, St. John's University

Machine learning enhanced Quantum light detection

Nalin Cooper-Sherrow, SUNY Buffalo

Analyzing Cryogenic Implosion Data

Rafael de Farias, University of Rochester

A Temperature Control Stage for the Deposition of Thin Metal Films

Owen Fall, Houghton University

Social Outreach through Adelphi University's Physics Department

Kylie Goldade, Adelphi University

Identifying Massive Quiescent Galaxies with COSMOS-Web: The JWST Cosmic Origins Survey

Mimi Harrison, Rochester Institute of Technology

Validating Mass-Loss Measurements in Newly Forming Young Stars

Prince Aziz Hunt, SUNY Fredonia

Persistence of Correlations in Neurotransmitter Transport Through the Synaptic Cleft

Masroor Khonkhodzhaev, CUNY Queens College

Investigating Radiative Levitation in White Dwarf Stars by Large-Scale Molecular Dynamics Simulations

Annie Maloney, University of Rochester

Using Social Network Analysis to Understand Community Within an Introductory Physics Course

Jessica Nagasako, University of Rochester

Decomposing MaNGA Galactic Rotation Curves to Model Dark Matter Halos

Lara Stroud, University of Rochester

Measurement of Water Diffusion Coefficient in Cross-Linked Gelatins Using the Terahertz Time-Domain Spectroscopy Technique

Declan Walden, University of Rochester

Sequence heuristics to program nucleic acid phase separation

Corey Young, SUNY Buffalo

11:00 AM – 12:00 PM: SESSION IIIA. NUCLEAR & PARTICLE PHYSICS (B&L 109)

SESSION CHAIR: PROF. KATRINA KOEHLER, HOUGHTON UNIVERSITY

- 11:00 AM **Target Normal Sheath Acceleration as a Technique for Measuring Nuclear Cross-Sections**
Andrew Martin, Houghton University
- 11:15 AM **Error-resilient quantum simulations with pulse-based techniques in the Schwinger model**
Tom McEntire, University at Buffalo
- 11:30 AM **Refining Straw Detector Capabilities for DUNE Experiment**
Shab Sharhan, Manhattan College

11:00 AM – 12:00 PM: SESSION IIIB. ASTRONOMY & ASTROPHYSICS (B&L 106)

SESSION CHAIR: PROF. KA-WAH WONG, SUNY BROCKPORT

- 11:00 AM **X-ray Observation of the Gamma-Ray Emitting Radio Galaxy: NGC 315**
Allison Blum, SUNY Brockport
- 11:15 AM **Scalar Field Limits for a Dark Big Bang**
Richard Casey, Colgate University
- 11:30 AM **Pion Lagrangian for large-scale-structure in cosmology**
Bhavya Mishra, Manhattan College

12:00 PM – 1:45 PM: LUNCH & PHYSICS CAREER TALK/WORKSHOP
PROF. MATTHEW WRIGHT (RUSH RHEES LIBRARY – HAWKINS-CARLSON ROOM)

2:00 PM – 2:45 PM: SESSION IVA. INSTRUMENTAL / EXPERIMENTAL TECHNIQUES (B&L 109)

SESSION CHAIR: PROF. KRISTEN REPA, SUNY BROCKPORT

- 2:00 PM **Studying the Properties of Niobium Oxide**
Sean Lannon, SUNY Brockport
- 2:15 PM **Deposition System for Thin Lithium Nuclear Targets**
Chunshun Lei, Houghton University
- 2:30 PM **Crystallization and Resistivity of Niobium Oxide Samples**
Emma Sargent, SUNY Brockport

2:00 PM – 2:45 PM: SESSION IVB. CONDENSED MATTER / NUCLEAR PHYSICS / INSTRUMENTATION / EXPERIMENTAL TECHNIQUES (B&L 106)

SESSION CHAIR: PROF. BEN OVRYN, NEW YORK INSTITUTE OF TECHNOLOGY

- 2:00 PM **Phase Measuring Laser Feedback Interferometry with PID Control**
Avery Gilson, New York Institute of Technology
- 2:15 PM **Parameterizations of electron scattering form factors for elastic scattering and electron-excitation of nuclear states for ²⁷Al**
Amii Matamoros Delgado, University of Rochester
- 2:30 PM **Targeted Enhancement of Second Harmonic Generation in Layered Transition Metal Dichalcogenides using Structured Light**
Alex Mavian, Rensselaer Polytechnic Institute