

**XXXVII – ROCHESTER SYMPOSIUM FOR PHYSICS (ASTRONOMY AND
OPTICS) STUDENTS
SPS ZONE 2 REGIONAL MEETING**

PROGRAM

8:00 AM – 8:45 AM: REGISTRATION AND POSTER SETUP (EDWARDS HALL)

**8:45 AM: WELCOME: PROF. ERIC MONIER (SUNY BROCKPORT) AND
PROF. FRANK WOLFS, UNIVERSITY OF ROCHESTER (EDWARDS 103)**

**9.00 AM – 10:30 AM: SESSION IA. ASTRONOMY & ASTROPHYSICS
(EDWARDS 103)**

SESSION CHAIR: PROF. SHASHI KANBUR, SUNY OSWEGO

- 9:00 Probing Gas Stripping with Resolved Star-Formation Maps of
Virgo Filament Galaxies**
Natasha Collova, Siena College
- 9:15 The Use of Different Isochrones with UniDAM**
D Richmond, A. Mints, S. Hekker, S. Kanbur, SUNY Oswego; Max
Planck Institute for Solar System Research, Gottingen
- 9:30 Clustering Fundamental Mode RR Lyrae in Relation to the
Oosterhoff Dichotomy**
C. Wells, S. Kanbur, A. Bhardwaj, SUNY Oswego; University of
Delhi
- 9:45 A Study of the Periods of Variable Stars in the OGLE
Catalogue**
B. Meerdink, M. Sodano, S. Kanbur, SUNY Oswego; University of
Delhi
- 10:00 IceCube Neutrino Observatory**
Pouya Tanouri, University of Rochester
- 10:15 Characterizing the Dark Matter Profile of the Triangulum II
Galaxy**
Morgan McCarthy, University of Rochester

9:00 AM – 10:30 AM: SESSION IB. CONDENSED MATTER & BIOLOGICAL PHYSICS (EDWARDS 101)

SESSION CHAIR: PROF. MARK YULY, HOUGHTON COLLEGE

- 9:00** **Computational Model of Neural Synapse Characteristics Using Josephson Junctions**
Anthony D'Addario, Colgate University
- 9:15** **Nonlinear Dynamics of Vortex-Breather Collisions**
Stephen Paolini, Colgate University
- 9:30** **SEM Analysis of NiTi Welds and Properties, Including Design of Strain Stage for In-situ Measurements**
Jonathan Ballard, Houghton College
- 9:45** **Optical Properties of Van der Waals Materials**
Luke Milbocker, Rensselaer Polytechnic Institute
- 10:00** **Synthesis of Two-Dimensional Materials**
Mayuka Sasaki, The College at Brockport, Department of Physics
- 10:15** **Investigating the Incorporation of Antimicrobial Elements into 3D Printed Products**
Jolene Cobb, Siena College

10:30AM – 11:00 AM: SESSION II. POSTER SESSION (EDWARDS HALL)

Inkjet Printed Nanocrystalline Inorganic Perovskite Films: the Novel Solar Cells

Benjamin Swanson, Ian Evans, Andrew Yost, F. Guzman, M. Shekhirev, J. Teeter, N. Benker, S. Sikich, A. Enders, P. Dowben, A. Sinitskii, Carolina C. Ilie; Department of Physics, SUNY Oswego; Department Physics and Astronomy, University of Nebraska-Lincoln; Department of Physics, California State University-San Bernardino; Department of Chemistry, University of Nebraska-Lincoln; Department of Chemistry, Doane College, Crete, NE; Physikalisches Institut, Universität Bayreuth, Bayreuth, Germany

Simulating Impeller Mixing Under Various Conditions

Heather Phillips and Jonathan Durbin, Houghton College

A Phoswich Detector System to Measure Sub-Second Half-Lives using ICF Reactions

Katelyn Cook, Micah Coats, Mark Yuly, Stephen Padalino, Craig Sangster, Sean Regan, Houghton College, SUNY Geneseo, Laboratory for Laser Energetics

Cavity Optics for Frequency-Dependent Light Squeezing

Natalie Macdonald, Laboratoire Kastler Brossel, National Science Foundation

Research of Protostellar Outflows

Kassidy J Howard, SUNY Fredonia

Analysis of Dark Frames and the Consistency of Flat Field Frames

Sean Dempsey-Gregory, SUNY Fredonia

**Study of Capillary Condensation for Different Geometries:
Biophysical Applications**

Dylan Richmond, Ian Evans, Ildar Sabirianov, Julia D'Rozario, Marie T. Romano, and Carolina C. Ilie, SUNY Oswego

**An interactive visual interface for the determination of similarity
patterns in the Fourier spatial frequency spectrum of laser speckle**

Sam Payne; Lisa Chan; Wei Cheng Lin; Stewart Russell, The City College of New York; SUNY Binghamton; Dartmouth College

**Warm Dense Matter Stopping Power Experiment and Analysis with
OMEGA**

Yuxuan Cao, University of Rochester

**Neutron and Proton Emission in Models of Nearly Elastic Neutrino-
Nucleus Interactions**

Jeremy Hartse, University of Rochester

11:00 AM – 12:30 PM: SESSION IIIA. NUCLEAR AND PARTICLE PHYSICS & ASTRONOMY AND ASTROPHYSICS (EDWARDS 103)

SESSION CHAIR: PROF. BRANDON HOFFMAN, HOUGHTON COLLEGE

- 11:00 Fuzzy Cold Dark Matter**
Nolan Smyth, Colgate University
- 11:15 Partially Interacting Dark Matter, Dark Disks, and Dark Plasma**
Derek Sherry, Colgate University
- 11:30 Measurement of the Transverse Doppler Shift using the Mossbauer Effect**
Micah Coats, Houghton College
- 11:45 Can Stars Exist Without Rotating?**
Noor Muzammal, S. Sahijpal, Volker Maiwald, M.I.T, German Aerospace Center (DLR)
- 12:00 Search for Type Ia supernovae and other transients in SDSS**
Ouail Kitouni, Ryan Rubenzahl, University of Rochester
- 12:15 Calculating the rotation curve due to visible matter in the Milky Way Galaxy**
Yufan Qie, University of Rochester

11:00 AM – 12:30 PM: SESSION IIIB. INSTRUMENTATION/EXPERIMENTAL TECHNIQUES (EDWARDS 101)

SESSION CHAIR: PROF. CANDICE FAZAR, ROBERTS WESLEYAN COLLEGE

- 11:00 Radio JOVE**
Cristian Almodovar, Siena College
- 11:15 The Gravity Battery**
Clare Reilly , Siena College
- 11:30 3D Object Scanner**
Timothy Ladeairous, Jon Farrel, Siena College
- 11:45 Wild Life Trail Camera vs. Raspberry Pi Camera**
Brandon Watt, Dr. McColgan, Siena College
- 12:00 Research Into Alkali Use in a Hybrid Optical Pumping Environment**
Patrick Flood, Siena College

12:30 PM – 1:30 PM: LUNCH (COOPER HALL – NEW YORK ROOM)

1:30 PM – 2:45 PM: SESSION IVA. OTHER (EDWARDS 103)

SESSION CHAIR: PROF. FRANK WOLFS, UNIVERSITY OF ROCHESTER

- 1:30 Nozzle Design for a Small, Low-Speed, Closed-Return Wind Tunnel**
Jeremy Martin, Houghton College
- 1:45 Maximizing Corner Efficiency for a Low-Speed Closed-Return Wind Tunnel**
Daniel Eager, Houghton College
- 2:00 Effect of Temperature on Solar Panel Efficiency**
Jake Weeks, Siena College
- 2:15 Data Analysis of an Informal STEM Program**
Dr. Michele McColgan, Dr. Robert Colesante, Shannon Sweet,
Torri Halaquist , Siena College
- 2:30 TensorFlow: Machine Learning In Physics**
Josh Hayes, Siena College

**1:30 PM – 2:45 PM: SESSION IVB. INSTRUMENTATION/EXPERIMENTAL
TECHNIQUES (EDWARDS 101)**

SESSION CHAIR: PROF. BETH PARKS, COLGATE UNIVERSITY

- 1:30 Handling Missing Data in HMIS datasets with R**
Matt Johnson, Siena College
- 1:45 Construction of a Magneto-Optical Trap to Cool Rubidium
Atoms**
J. Kazmi, S. Streatfield, M. McGovern, United States Military
Academy
- 2:00 Establishing a Laser Induced Breakdown Spectroscopy (LIBS)
analysis system at the United States Military Academy**
Scott Nieboer, United States Military Academy, DTRA-NSERC
- 2:15 Trace Element Analysis Methods of Particulate Matter**
Erik Pohl, Colgate University
- 2:30 Modifications of XRD at Houghton College**
Heather Phillips, Houghton College