Research Experiences for Undergraduates (REU) Symposium 2021

October 25, 2021 | 11:00 AM – 4:15 PM ET

This symposium features lightning talk presentations by students from Research Experiences for Undergraduates programs (REUs) in all disciplines funded by the National Science Foundation (NSF), a practical skills tips session for students, and an informal networking hour.

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<td>11:00 AM – 12:00 PM ET</td>
<td>Welcome + Soft Skills Tip Session</td>
<td><a href="https://zoom.us/j/91579712449">https://zoom.us/j/91579712449</a> Meeting ID: 915 7971 2449</td>
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<td>1:00 – 3:00 PM ET</td>
<td>Student Presentations*</td>
<td><a href="https://zoom.us/j/91552636836">https://zoom.us/j/91552636836</a> Meeting ID: 915 5263 6836</td>
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<td>3:15 – 3:45 PM ET</td>
<td>Overview of NSF Graduate Research Fellowships Program (GRFP) and Student Meet and Greet with NSF</td>
<td><a href="https://zoom.us/j/96372111492">https://zoom.us/j/96372111492</a> Meeting ID: 963 7211 1492</td>
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<td>3:45 – 4:15 PM ET</td>
<td>Faculty Meet and Greet with NSF</td>
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*View Presentations by time:
1:00 – 1:30 PM ET PG 7
1:45 – 2:15 PM ET PG 15
2:30 – 3:00 PM ET PG 25
Below is a cheat sheet on presentations by presenter name.
For more information on each presentation, please see a more detailed description via the page listings above.

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<td>Adriel Juarez</td>
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<td>Ahmani Browne</td>
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<td>Alana Ferris</td>
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<td>Alex Nash</td>
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<td>Alexandra Magee</td>
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<td>Alexis Coore</td>
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<td>Alyssa Sharma</td>
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<td>Amaya McNealey</td>
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<td>Amelia Norman (co-presenter)</td>
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<td>Anan Ghrayeb</td>
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<td>Anis Chihoub</td>
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<td>Ashraf Moumou</td>
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<td>Bailey McKenna</td>
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<td>Benjamin Abraham Diamond</td>
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<td>Caleb Ukaonu</td>
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<td>Caroline Stuart</td>
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<td>Darius Desnoes</td>
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<td>DaVonte Lewis</td>
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<td>Declan Freeman-Gleason</td>
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<td>Hani Samamah (co-presenter)</td>
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<td>Jermaine Austin</td>
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<td>Joshua Mayo</td>
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<td>Joshua Walters</td>
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<td>Katherine Keegan (co-presenter)</td>
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<td>Marcus Bedeau</td>
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<td>Marina Ellis</td>
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<td>Maxwell Poster</td>
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<td>Maya Mazen Murry</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Megan Giacobbi</td>
<td>Engineering</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Michael McGrone</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Michael Nightingale</td>
<td>Engineering</td>
<td>1:00-1:30 pm, ET</td>
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<tr>
<td>Mikhayla Clothier</td>
<td>Chemistry</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Miracle Etim-Andy</td>
<td>Engineering</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Miranda Wu</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Molly Isabel Rothschild</td>
<td>Materials Research</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Mugen Blue</td>
<td>Computer + Information Science and Engineering</td>
<td>1:00-1:30 pm, ET</td>
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<td>Myat Win</td>
<td>Computer + Information Science and Engineering</td>
<td>1:00-1:30 pm, ET</td>
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<tr>
<td>Myra Arshad</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Natalie Celt</td>
<td>Engineering</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Natasha Jones</td>
<td>Astronomical Sciences</td>
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<td>Nebiyat Kebede Eskndir</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Do Thanh Ngan</td>
<td>Computer + Information Science and Engineering</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Nyvia Lyles</td>
<td>Engineering</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>olivia anderson</td>
<td>Social, Behavioral, and Economic Sciences</td>
<td>1:00-1:30 pm, ET</td>
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<tr>
<td>Olivia Armendarez</td>
<td>Biological Sciences</td>
<td>1:45-2:15 pm, ET</td>
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<td>Oluwatosin Banjo</td>
<td>Biological Sciences</td>
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<td>Paula Espinoza</td>
<td>Biological Sciences</td>
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<tr>
<td>Peter Opara-nadi</td>
<td>Biological Sciences</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Priscilla Santini</td>
<td>Engineering, Astronomical Sciences</td>
<td>1:00-1:30 pm, ET</td>
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<tr>
<td>Priyanka Sarangabany</td>
<td>Engineering</td>
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<tr>
<td>Rachel Guevara</td>
<td>Earth Science</td>
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<td>Rachel Lee Huynh</td>
<td>Biological Sciences</td>
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<td>Rachel Miller</td>
<td>Computer + Information Science and Engineering</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Rebecca Barry</td>
<td>Engineering</td>
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<tr>
<td>Rebecca Pottot</td>
<td>Engineering</td>
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<tr>
<td>Rebekah Bogle</td>
<td>Chemistry</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
<td>Ria Holloman</td>
<td>Biological Sciences</td>
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<tr>
<td>Richard C. Smith III</td>
<td>Engineering</td>
<td>1:45-2:15 pm, ET</td>
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<tr>
<td>Robert Snuggs</td>
<td>Physics</td>
<td>1:00-1:30 pm, ET</td>
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<tr>
<td>Roman Robledo</td>
<td>Biological Sciences</td>
<td>2:30-3:00 pm, ET</td>
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<tr>
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<td>Department</td>
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<tr>
<td>Samuel Walsh</td>
<td>Computer + Information Science and Engineering</td>
<td>10</td>
<td>1:00-1:30 pm</td>
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<tr>
<td>Saurav Kiri</td>
<td>International Science and Engineering, Biological Sciences, Chemistry</td>
<td>41</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Sean Jordan (co-presenter)</td>
<td>Computer + Information Science and Engineering, Ocean Sciences, Social, Behavioral, and Economic Sciences, Chemistry</td>
<td>31</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Seth Jacob Dennison</td>
<td>Engineering</td>
<td>40</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Saurav Kiri (co-presenter)</td>
<td>Computer + Information Science and Engineering</td>
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<td>1:45-2:15 pm</td>
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<tr>
<td>Shreya Soman</td>
<td>Computer + Information Science and Engineering</td>
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<tr>
<td>Spencer Westfall</td>
<td>Engineering</td>
<td>19</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Stanley Ossyra</td>
<td>Engineering, Biological Sciences</td>
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<td>1:00-1:30 pm</td>
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<tr>
<td>Stefanie Davis</td>
<td>Astronomical Sciences</td>
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<tr>
<td>Stuart Waller</td>
<td>Computer + Information Science and Engineering</td>
<td>29</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Sunaina Butler</td>
<td>Mathematical Sciences, Biological Sciences, Earth Science</td>
<td>48</td>
<td>2:30-3:00 pm</td>
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<tr>
<td>Sylvia Lupa,</td>
<td>Engineering</td>
<td>19</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Syntyche Kane</td>
<td>Biological Sciences</td>
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<tr>
<td>Tania Nguyen</td>
<td>Engineering</td>
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<td>2:30-3:00 pm</td>
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<tr>
<td>Tessa Gebert</td>
<td>Biological Sciences</td>
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<td>2:30-3:00 pm</td>
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<tr>
<td>Tessa McNameee</td>
<td>Physics, Materials Research</td>
<td>51</td>
<td>2:30-3:00 pm</td>
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<td>Thu Thu Hlaing</td>
<td>Earth Science</td>
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<td>2:30-3:00 pm</td>
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<td>Tra-Vaughn James</td>
<td>Biological Sciences</td>
<td>24</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>Vera Alevnichova</td>
<td>Chemistry</td>
<td>38</td>
<td>1:45-2:15 pm</td>
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<tr>
<td>William Welch (co-presenter)</td>
<td>Engineering</td>
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<td>1:45-2:15 pm</td>
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<td>Xufei Liu</td>
<td>Mathematical Sciences</td>
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<td>1:45-2:15 pm</td>
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<td>Yihua Xu</td>
<td>Mathematical Sciences</td>
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<td>Zanti Rains</td>
<td>Earth Science</td>
<td>61</td>
<td>2:30-3:00 pm</td>
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</tbody>
</table>
Student Presentations Session 1: 1:00-1:30 pm, ET

**NSF Division: Astronomical Sciences**

**Breakout Room: 5**

Title: Understanding Equatorial Gully Erosion on Mars: A Case Study on Krupac Crater  
Presenter(s): Emma Rogers  
REU Site: Life in the Universe - Astronomy and Planetary Science at the SETI Institute  
Host Institution: SETI Institute  
Grant Number: 2051007  
Principal Investigator / Faculty Mentor: Matthew Tiscareno | Virginia Gulick

Title: Calibrating DESI Tully-Fisher Measurements with MaNGA  
Presenter(s): Grace Chiodo  
REU Site: REU Site in Physics, Astrophysics, and Optics at Rochester  
Host Institution: University of Rochester  
Grant Number: PHY1757062  
Principal Investigator / Faculty Mentor: Arie Bodek | Kelly Douglass

Title: Following Iapetus's Footsteps: An Analysis of Organic Material on Rhea  
Presenter(s): Mary Clare Greenlees  
REU Site: Life in the Universe - Astronomy and Planetary Science at the SETI Institute  
Host Institution: SETI Institute  
Grant Number: 2051007  
Principal Investigator / Faculty Mentor: Matthew Tiscareno | Cristina Dalle Ore and Rachel Mastrapa

**NSF Division: Biological Sciences**

**Breakout Room: 1**

Title: Sex-Specific Differences in Non-Consumptive Predator Effects across Multiple Prey Populations  
Presenter(s): Ahmani Browne  
REU Site: REU Site Mystic Aquarium: Collaborative Research: Plankton to Whales, Consequences of Global Change within Marine Ecosystems  
Host Institution: Mystic Aquarium and University of Connecticut  
Grant Number: 1950415  
Principal Investigator / Faculty Mentor: Tracy Romano and Michael Finiguerra | Catherine Matassa

Title: Characterization of Single-Stranded Binding Protein Interaction with DNA in Staphylococcus aureus  
Presenter(s): Ariella Kornfeld  
REU Site: Networked Projects in Cell and Molecular Biology at the Wadsworth Center  
Host Institution: Wadsworth Center  
Grant Number: 1757170  
Principal Investigator / Faculty Mentor: Matthew Kohn | Janice Pata

Title: Sex and Latitudinal Differences in Inducible Anti-Herbivore Defenses of Fucus vesiculosus  
Presenter(s): Ashraf Moumou  
REU Site: REU Site Mystic Aquarium: Collaborative Research: Plankton to Whales, Consequences of Global Change within Marine Ecosystems  
Host Institution: Mystic Aquarium and University of Connecticut  
Grant Number: 1950415  
Principal Investigator / Faculty Mentor: Tracy Romano and Michael Finiguerra | Catherine Matassa
Breakout Room: 6
Title: Dancing Through Virtual Life: A Comparison of Current Motion Capture Systems
Presenter(s): Christina Larson
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Mystic Aquarium and University of Connecticut
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Dagmar Sternad

Title: Development of Successful Methodology to Isolate Antimicrobial Compounds from Photorhabdus and Xenorhabdus
Presenter(s): Courtney Marian Tally
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Anthony D'Onofrio

Title: Isolation and Characterization of Antimicrobial Compounds from Entomopathogenic Nematode Worms
Presenter(s): Lauren Prudholm
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Anthony D'Onofrio

Breakout Room: 7
Title: Characterizing the Metabolic Fluxes in Lipid Biosynthesis of High Oil Tobacco (Nicotiana tabacum) Lines with Computational Modeling
Presenter(s): Caroline Stuart
REU Site: Research Experiences for Undergraduates in Plant Science at the Donald Danforth Plant Science Center
Host Institution: Donald Danforth Plant Science Center
Grant Number: 2050394
Principal Investigator / Faculty Mentor: Sona Pandey

Title: DNA Barcoding of Ayurvedic Herbal Supplements used for Alleged Treatment of SARS-CoV-2
Presenter(s): Chevon Jordan
REU Site: Summer Undergraduate Research Fellowship in Earth and Environmental Sciences (SURFEES)
Host Institution: Chapman University
Grant Number: 1757991
Principal Investigator / Faculty Mentor: Christopher Kim | Rosalee Hellberg

Breakout Room: 9
Title: Regulation of the Notch1 Signaling Pathway by the Ubiquitin Ligase Cblb in T-cells
Presenter(s): Jermaine Austin
REU Site: Research Experience for Undergraduates in Genomics and Biochemistry
Host Institution: Louisiana State University - New Orleans
Grant Number: 1659752
Principal Investigator / Faculty Mentor: Fern Tsien | Lucio Miele
Title: The Effect of Environmental History and Genotype on Thermal Stress Tolerance in Acropora cervicornis Corals  
Presenter(s): John Howard  
REU Site: Understanding Coastal Ecosystems - From the Everglades to the Coral Reefs  
Host Institution: Florida International University  
Grant Number: 1852123  
Principal Investigator / Faculty Mentor: Rita Teutonico | Jose M. Eirin-Lopez

Title: Do Cryptoniscans Wait for the Right Hosts or do They Die Trying?  
Presenter(s): Joshua Blue Mayo  
REU Site: From Estuaries to the Deep Sea  
Host Institution: Oregon State University - Hatfield Marine Science Center  
Grant Number: 1758003  
Principal Investigator / Faculty Mentor: Itc hung Chung | John Chapman and Brett Dumbauld

Breakout Room: 11
Title: Quantification of Protein Translation in Developmentally Arrested Caenorhabditis elegans Using O-Propargyl-Puromycin and Fluorescent Imaging  
Presenter(s): Keefer Li  
REU Site: Exploring 21st Century Careers in the Biological Sciences: A Comparative Regenerative Biology Approach  
Host Institution: MDI Biological Laboratory  
Grant Number: 1851962  
Principal Investigator / Faculty Mentor: Jane E. Disney | Jarod Rollins

Title: Not Just a Cog: Novel Ambulatory EEG Reliability & Traumatic Brain Injury Applications  
Presenter(s): Kirby T. Lam  
REU Site: Summer Research Experiences in Interdisciplinary Mind & Brain Studies  
Host Institution: University of Pennsylvania  
Grant Number: 2050803  
Principal Investigator / Faculty Mentor: Florian Schwarz | Michael Louis Platt

Title: Stimulus and Response to Stretch in a Contractile System  
Presenter(s): Laura Guck  
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms  
Host Institution: Northeastern University  
Grant Number: 175443  
Principal Investigator / Faculty Mentor: Wendy Smith | Erin Cram

Breakout Room: 18
Title: Furthering the Usage of Genetic Material from Blow Samples for Beluga Health Monitoring  
Presenter(s): Bailey McKenna  
REU Site: REU Site Mystic Aquarium: Collaborative Research: Plankton to Whales: Consequences of Global Change within Marine Ecosystems  
Host Institution: Mystic Aquarium  
Grant Number: 1950480  
Principal Investigator / Faculty Mentor: Tracy Romano

Title: The Fungal Composition of the Chimpanzee Gut Microbiome  
Presenter(s): Carrie Bishop  
REU Site: BioTechnology Sequencing-based Undergraduate Research Experience (BIT SURE)  
Host Institution: North Carolina State University  
Grant Number: 1659225  
Principal Investigator / Faculty Mentor: Robert R. Dunn | Carlos Goller
**NSF Division: Computer and Information Science and Engineering**

**Breakout Room: 8**
Title: Speaker Recognition with MFCC and GFCC Features  
Presenter(s): Abelson Abueg  
REU Site: Software and Data Analytics  
Host Institution: East Carolina University  
Grant Number: 2050883  
Principal Investigator / Faculty Mentor: Nasseh Tabrizi

Title: Emotional Empathy and Facial Mimicry Reactions to Avatar Faces  
Presenter(s): Adriel Juarez  
REU Site: Computational Sensing for Human-Centered AI  
Host Institution: Rochester Institute of Technology  
Grant Number: 1851591  
Principal Investigator / Faculty Mentor: Cecilia O. Alm | Joe Geigel, Reynold Bailey and Cecilia O. Alm

Title: Evaluation of Equipment-Mounted Sensors to Assess Head Kinematics by Contact Surface in Football  
Presenter(s): Jessica Towns  
REU Site: Imaging and Mechanics-based Projects on Accidental Cases of Trauma (IMPACT)  
Host Institution: Wake Forest School of Medicine  
Grant Number: 1950281  
Principal Investigator / Faculty Mentor: Ashley Weaver | Jillian Urban

**Breakout Room: 15**
Title: Predictive Modeling to Forecast Temperature Changes in a Smart Home  
Presenter(s): Caitlin Petro  
REU Site: Research Experiences on Internet of Things (IoT)  
Host Institution: University of Central Florida  
Grant Number: 1852002  
Principal Investigator / Faculty Mentor: Damla Turgut and Ladislau Boloni

Title: IoT-Enabled Smart Mobility Devices for Aging and Rehabilitation  
Presenter(s): Myat Win  
REU Site: Research Experiences on Internet of Things (IoT)  
Host Institution: University of Central Florida  
Grant Number: 1852002  
Principal Investigator / Faculty Mentor: Damla Turgut and Ladislau Boloni

**Breakout Room: 17**
Title: Baboons on the Move  
Presenter(s): Declan Freeman-Gleason  
REU Site: Engineers for Exploration  
Host Institution: University of California, San Diego  
Grant Number: 1852403  
Principal Investigator / Faculty Mentor: Ryan Kastner

Title: Analyzing Differences in Symptom Tracking and Terminology in Menstrual Tracking Apps  
Presenter(s): Emily Warren  
REU Site: Program for Access to Training in Health Informatics (PATHI)  
Host Institution: Vanderbilt University Medical Center  
Grant Number: 2050895  
Principal Investigator / Faculty Mentor: Kim Unertl
Title: Understanding Ecosystems through Passive Acoustic Monitoring  
Presenter(s): Mugen Blue  
REU Site: Engineers for Exploration  
Host Institution: University of California, San Diego  
Grant Number: 1852403  
Principal Investigator / Faculty Mentor: Ryan Kastner

**Breakout Room: 10**

Title: Kalman Filter and Extended Kalman Filter-Based Short-Term Prediction Model of COVID-19 Spread  
Presenter(s): Daniel Gruszka  
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences  
Host Institution: Bethune Cookman University  
Grant Number: 1755561  
Principal Investigator / Faculty Mentor: Seenith Sivasundaram

Title: Mathematical Model of Computer Viruses Spread on a Closed Network  
Presenter(s): Joshua Walters  
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences  
Host Institution: Bethune Cookman University  
Grant Number: 1755561  
Principal Investigator / Faculty Mentor: Seenith Sivasundaram

Title: Autonomous Robot Fleet Management for Energy-Efficient Task Allocation, Battery Preservation, and Maintenance  
Presenter(s): Samuel Walsh  
REU Site: Summer Academy in Sustainable Manufacturing  
Host Institution: Wayne State University  
Grant Number: 1950192  
Principal Investigator / Faculty Mentor: Jeremy L. Rickli | Marco Brocanelli

**NSF Division: Earth Science**

**Breakout Room: 14**

Title: PIDGM: Paleo Isotopic Dynamics with a Global Model  
Presenter(s): Brandon Duran  
REU Site: Earth Science on Volcanic Islands REU  
Host Institution: University of Hawaii at Manoa  
Grant Number: 1950941  
Principal Investigator / Faculty Mentor: Bridget Smith-Konter | Sloan Coats

Title: Ciguatera Fish Poisoning in Florida  
Presenter(s): Christopher Ryzowicz  
REU Site: Statistical Models with Applications to Geoscience  
Host Institution: Florida Institute of Technology  
Grant Number: 1950768  
Principal Investigator / Faculty Mentor: Nezamoddin Nezamoddini-Kachouie | Michael Splitt

Title: Compound Extremes in the Southeast US: Storm Surge and Fluvial Floods  
Presenter(s): Lindsay Grose  
REU Site: Resilience and Adaptation to Coastal Change Across Virtual Communities  
Host Institution: East Carolina University  
Grant Number: 2041425  
Principal Investigator / Faculty Mentor: Stephen Moysey | Ashok Mishra
**NSF Division: Engineering**

**Breakout Room: 2**

Title: Collaboration between Multiple UAVs for Coordinated Search and Rescue Missions  
Presenter(s): Michael Nightingale  
REU Site: Research Experience for Undergraduates in UAV Technologies  
Host Institution: California State Polytechnic University at Pomona  
Grant Number: 1950612  
Principal Investigator / Faculty Mentor: Zekeriya Aliyazicioglu and Subodh Bhandari

Title: Autonomous Trajectory Generation for Multiple UAV Operations for Search and Rescue Missions  
Presenter(s): Priscilla Santini  
REU Site: Research Experience for Undergraduates in UAV Technologies  
Host Institution: California State Polytechnic University, Pomona  
Grant Number: 1950612  
Principal Investigator / Faculty Mentor: Zekeriya Aliyazicioglu and Subodh Bhandari

Title: Tangent-Based Method for Collision Detection and Avoidance System for UAVs using ADS-B Transponder  
Presenter(s): Stanley Ossyra  
REU Site: Research Experience for Undergraduates in UAV Technologies  
Host Institution: California State Polytechnic University, Pomona  
Grant Number: 1950612  
Principal Investigator / Faculty Mentor: Subodh Bhandari

**Breakout Room: 13**

Title: Mimicking Bioimpedance of Vocal Folds Through Phantom Models  
Presenter(s): Alexis Coore  
REU Site: Engineering Sensors Systems and Signal Processing for Speech Pathology  
Host Institution: The University of Alabama  
Grant Number: 1852161  
Principal Investigator / Faculty Mentor: Todd Freeborn and Memorie Gosa

Title: Force Dynamics of Fibroblasts: 2D vs. 3D  
Presenter(s): Anan Ghrayeb  
REU Site: An Ultra-sensitive Micro Sensor for Biophysical Studies of Single Cells Cultured in 3D Extracellular Matrix  
Host Institution: University of Illinois at Urbana Champaign  
Grant Number: 1934991  
Principal Investigator / Faculty Mentor: Taher Saif

Title: Characterizing and Measuring Error Propogation in the Digital Thread of Additive Remanufacturing Using Laser Metal Deposition  
Presenter(s): Justice Radler  
REU Site: Summer Academy in Sustainable Manufacturing  
Host Institution: Wayne State University  
Grant Number: 1950192  
Principal Investigator / Faculty Mentor: Jeremy Rickli
**NSF Division: Mathematical Sciences**

**Breakout Room: 3**

Title: Diameter of Algebraically Defined Graphs and Nonisomorphic Real Projective Planes  
Presenter(s): Alex Nash | Hani Samamah  
REU Site: Research Challenges of Computational and Experimental Mathematics  
Host Institution: Moravian University  
Grant Number: 1852378  
Principal Investigator / Faculty Mentor: Nathan Shank | Wing Hong Tony Wong

Title: An Analysis of Penalized Regression in High-Dimensional Scenarios  
Presenter(s): Connor Shrader  
REU Site: North Carolina A&T State University and Elon University Joint REU in Mathematical Biology  
Host Institution: Elon University  
Grant Number: 1851981/1851957  
Principal Investigator / Faculty Mentor: Nicholas Luke and Karen Yokley | Seongtae Kim

Title: Mitigating Lack of Trust in Quantitative Randomized Response Techniques Models  
Presenter(s): Joia Wendy Zhang  
REU Site: Complex Data Analysis using Statistical an Machine Learning Tools  
Host Institution: University of North Carolina at Greensboro  
Grant Number: DMS-1950549  
Principal Investigator / Faculty Mentor: Sat Gupta

**NSF Division: Ocean Sciences**

**Breakout Room: 18**

Title: Contribution of the Gut Microbiome to Overall Gut Health in Blue Mussels (Mytilus edulis)  
Presenter: Marissa Scott  
REU Site: Plankton to Whales: Consequences of Global Change within Marine Ecosystems  
Host Institution: Mystic Aquarium  
Grant Number: 1950480  
Principal Investigator / Faculty Mentor: J. Evan Ward | Tyler W. Griffin

**NSF Division: Physics**

**Breakout Room: 16**

Title: How Many Bubbles are too Many Bubbles in IceCube Upgrade Sensors  
Presenter(s): Kaylee Grace | Kiah Da Viega  
REU Site: Research In Neutrino Astrophysics at the University of Wisconsin-River Falls  
Host Institution: University of Wisconsin - River Falls  
Grant Number: 1757517  
Principal Investigator / Faculty Mentor: Surujhdeo Seunarine

Title: Cellular Responses to Patterned Laser Wounding  
Presenter(s): Lila S. Nassar  
REU Site: Vanderbilt University Research Experiences for Undergraduates in Physics & Astronomy  
Host Institution: Vanderbilt University  
Grant Number: 1852158  
Principal Investigator / Faculty Mentor: David Ernst and Keivan Stassun | M. Shane Hutson
Title: Transitions in S II including Diagnostic Techniques in Atomic Physics
Presenter(s): Robert Snuggs
REU Site: Research Experiences for Undergraduates in Physics and Astronomy at the University of Toledo
Host Institution: University of Toledo
Grant Number: 1950785
Principal Investigator / Faculty Mentor: Richard E. Irving

NSF Division: Social, Behavioral, and Economic Sciences

Breakout Room: 4
Title: Cross-Linguistic Transfer in Chinese-English and Spanish-English Bilinguals with Reading Impairments
Presenter(s): Cecilia Pilar Guerrero
REU Site: Michigan Summer Program in Cognition and Early Development
Host Institution: University of Michigan - Ann Arbor
Grant Number: 2050471
Principal Investigator / Faculty Mentor: Rachel Eggleston | Ioulia Kovelman

Title: Quantitative Content Analysis of Maine’s Newsprint Media Coverage of Browntail Moth Outbreaks
Presenter(s): Chelsea Patterson
REU Site: REU Accelerating New Environmental Workskills (ANEW)
Host Institution: University of Maine
Grant Number: 1849802
Principal Investigator / Faculty Mentor: Anne Lichtenwalner | Angela Mech

Title: Impacts of Italian Language and Heritage on DH-Stopping Rates in Philly English
Presenter(s): Drey Diggs
REU Site: Summer Research Experiences in Interdisciplinary Mind & Brain Studies
Host Institution: University of Pennsylvania
Grant Number: 2050803
Principal Investigator / Faculty Mentor: Florian Schwarz | Meredith Tamminga

Breakout Room: 12
Title: The Struggle of the Lone Soldiers: Who They Are and What We Can Do to Help
Presenter(s): Arielle Hershkovich
REU Site: Intensive Mentored Research Experiences for Undergraduates (REU) in Psychology and Neuroscience at an Urban Public College
Host Institution: Brooklyn College of CUNY
Grant Number: 1757560, 2050755
Principal Investigator / Faculty Mentor: Laura Rabin | Faigy Mandelbaum

Title: Dogs Attend to Their Owner’s Attention to Them
Presenter(s): Olivia Anderson
REU Site: Michigan Summer Internship in Cognition and Early Development: MSPICED
Host Institution: University of Michigan
Grant Number: 2050471
Principal Investigator / Faculty Mentor: Felix Warneken | Henry Wellman
Student Presentations Session 2: 1:45-2:15 PM ET

NSF Division: Biological Sciences

Breakout Room: 20

Title: The Role of Lipid Mediators Maresin 1, RvD1 and RvD5 in the Activation of Microglia
Presenter(s): Alexandra Minnard
REU Site: Research Experience for Undergraduates in Genomics and Biochemistry
Host Institution: Louisiana State University - New Orleans
Grant Number: 1659752
Principal Investigator / Faculty Mentor: Fern Tsien | Jorgelina Calandria

Title: Clinically Relevant Bacteriophage Adsorption to Mycobacterium smegmatis
Presenter(s): Andorra Mashka Bastien
REU Site: Summer Undergraduate Research Experience in Biological Mechanisms at the University of North Carolina at Chapel Hill
Host Institution: University of North Carolina at Chapel Hill
Grant Number: 2048087
Principal Investigator / Faculty Mentor: Miriam Braunstein and Mark Peifer

Title: Evaluating the Effects of Drought on Four Diverse Lines of Sorghum Bicolor at Physiological and Molecular Levels
Presenter(s): Angela Meyer
REU Site: Research Experiences for Undergraduates in Plant Science at the Donald Danforth Plant Science Center
Host Institution: Donald Danforth Plant Science Center
Grant Number: 2050394
Principal Investigator / Faculty Mentor: Sona Pandey

Breakout Room: 21

Title: Analyzing Neural Spikes from a Memory-Guided Saccade Task
Presenter(s): Hannah Peeples
REU Site: Summer Research Experiences in Interdisciplinary Mind & Brain Studies
Host Institution: University of Pennsylvania
Grant Number: 2050803
Principal Investigator / Faculty Mentor: Florian Schwarz | Joshua Gold

Title: Using Fountain Code to Store and Retrieve Image and Text File Data on DNA
Presenter(s): Janavi Mehta
REU Site: REU in Synthetic Biology at NC A&T State University
Host Institution: North Carolina A&T State University
Grant Number: DBI-1852319
Principal Investigator / Faculty Mentor: Reza Zedagen | Robert H. Newman

Title: It’s (on) the Bee’s Knees: The Effect of Local Habitat on Pollen Foraging Efficiency in Bombus impatiens
Presenter(s): Jaya Nagarajan-Swenson
REU Site: Ecology and Evolutionary Biology at Virginia’s Blandy Experimental Farm
Host Institution: Blandy Experimental Farm
Grant Number: DBI 1659816
Principal Investigator / Faculty Mentor: Kyle J. Haynes | David E. Carr
Breakout Room: 24
Title: Archaeobotanical Impact Of Pre-Colonial Andean Mining: Investigating Crop Phytoaccumulation of Lead and Mercury
Presenter(s): Marina Ellis
REU Site: Natural History Research Experiences
Host Institution: Smithsonian Institution's National Museum of Natural History
Grant Number: OCE-1560088
Principal Investigator / Faculty Mentor: Elizabeth Cottrell | Logan Kistler

Title: Using Fountain Code to Store and Retrieve Image and Text File Data on DNA
Presenter(s): Tra-Vaughn James
REU Site: REU in Synthetic Biology at NC A&T University
Host Institution: North Carolina A&T State University
Grant Number: DBI-1852319
Principal Investigator / Faculty Mentor: Reza Zadegan | Robert H. Newman

Breakout Room: 25
Title: Both Catalase Positive and Catalase Negative Bacteria are Common in Natural Habitats of the Nematode C. elegans
Presenter(s): Oluwatosin Banjo
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Javier Apfeld

Title: Defining the Spatial Patterning of Spinal Cord Regeneration in Axolotl Salamanders
Presenter(s): Paula Espinoza
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Justin Crane

Title: Look Where You’re Going: Visuomotor Control of Human Walking
Presenter(s): Rachel Lee Huynh
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Jon Matthis

Breakout Room: 28
Title: Construction of UniRap-Kinase Variants of ERK2 and PKC iota for Tight Spatiotemporal Control of Cellular Signaling Pathways
Presenter(s): Olivia Armandarez | Ria Holloman
REU Site: REU in Synthetic Biology at NC A&T University
Host Institution: North Carolina A&T State University
Grant Number: DBI-1852319
Principal Investigator / Faculty Mentor: Robert H. Newman
Title: Development of a Genetically-Targetable NEK Activity Reporter to Track Spatiotemporal Changes in NEK Activity in Living Cells  
Presenter(s): Peter Opara
REU Site: REU in Synthetic Biology at NC A&T University  
Host Institution: North Carolina A&T State University  
Grant Number: DBI-1852319  
Principal Investigator / Faculty Mentor: Robert H. Newman

**Breakout Room: 30**

Title: Development of Image Classification Model for Use with a Study on the Effects of Recreational Trail Use on Small Mammal Species Richness and Activity  
Presenter(s): Daniel Novoa  
REU Site: Field Research in Ecology and Evolutionary Biology at the Rocky Mountain Biological Laboratory  
Host Institution: Rocky Mountain Biological Laboratory  
Grant Number: 1755522  
Principal Investigator / Faculty Mentor: Jennifer Reithel | Rosemary Smith

Title: Comparative Proteomics of Stomatal Immunity against Pseudomonas syringae in Wild Type and a Myrosinase Mutant  
Presenter(s): Gedrick Mangual  
REU Site: Undergraduate Research Experience in Genomics, Proteomics, and Bioinformatics  
Host Institution: Florida A&M University  
Grant Number: 1560049  
Principal Investigator / Faculty Mentor: Ramesh Katam | Sixue Chen

Title: Metabolomics of Pathogen Immune Responses of Arabidopsis Wild Type and Vam3  
Presenter(s): Lin L. Lu  
REU Site: Undergraduate Research Experience in Genomics, Proteomics, and Bioinformatics  
Host Institution: Florida A&M University  
Grant Number: 1560049  
Principal Investigator / Faculty Mentor: Ramesh Katam | Sixue Chen

**NSF Division: Chemistry**

**Breakout Room: 38**

Title: Comprehensive Characterization of Technical Lignins Based on Carbon Speciation  
Presenter(s): Mason Clobes  
REU Site: Interdisciplinary Renewable and Environmental Collaborative REU Program  
Host Institution: University of North Dakota  
Grant Number: 1757922  
Principal Investigator / Faculty Mentor: Frank Bowman | Alena Kubatova

Title: Conversion of Waste Biomass Derived Lignin  
Presenter(s): Vera Alevnicheva  
REU Site: Interdisciplinary Renewable and Environmental Collaborative - IREC  
Host Institution: University of North Dakota  
Grant Number: 1757922  
Principal Investigator / Faculty Mentor: Frank Bowman | Alena Kubatova
**NSF Division: Computer and Information Science and Engineering**

**Breakout Room: 23**

**Title:** Testing Compiler Error Messages through Program Mutation  
**Presenter(s):** Benjamin Thomas Givens  
**REU Site:** Software and Data Analytics  
**Host Institution:** East Carolina University  
**Grant Number:** 2050883  
**Principal Investigator / Faculty Mentor:** Nasseh Tabrizi | Mark Hills

**Title:** Drug-Drug Interaction Prediction Using a Purely SMILES Based Approach  
**Presenter(s):** Briana Bumgardner  
**REU Site:** Big Data Analytics at Oklahoma State University  
**Host Institution:** Oklahoma State University  
**Grant Number:** 1659645  
**Principal Investigator / Faculty Mentor:** Esra Akbas

**Title:** Enforcing Individually Fair Graph Neural Networks via a Fairness Graph from Human Judgement  
**Presenter(s):** Do Thanh Ngan  
**REU Site:** Research Experience for Undergraduates (REU) Combinatorics and Algorithms for Real Problems (CAAR)  
**Host Institution:** University of Maryland  
**Grant Number:** 1852352  
**Principal Investigator / Faculty Mentor:** William Gasarch | Furong Huang

**Breakout Room: 27**

**Title:** Measuring User Experiences of Interactions between Digital and Physical Objects through Augmented Reality and Internet of Things Devices  
**Presenter(s):** Connor Daniel Flick  
**REU Site:** Research Experiences on Internet of Things (IoT)  
**Host Institution:** University of Central Florida  
**Grant Number:** 1852002  
**Principal Investigator / Faculty Mentor:** Damla Turgut | Greg Welch and Gerd Bruder

**Title:** Private Blockchain for Visitor Authentication and Access Control  
**Presenter(s):** Ka Ying Chan | Mason Lovett  
**REU Site:** Security and Privacy for Mobile Sensing and the Internet of Things  
**Host Institution:** Columbus State University  
**Grant Number:** 1950416  
**Principal Investigator / Faculty Mentor:** Alfredo Perez | Yesem Kurt Peker

**Breakout Room: 29**

**Title:** Integrating Safety and Functional Requirement Analysis for Effective Detection of Faults in Safety-Critical Systems  
**Presenter(s):** Shreya Soman | Sheridan Ingram  
**REU Site:** Software Safety and Reliability: Research, Practice, and Innovation  
**Host Institution:** University of Texas at Dallas  
**Grant Number:** 2050869  
**Principal Investigator / Faculty Mentor:** W. Eric Wong
Title: Improving the Identification of Substance Use from Clinical Notes with BERT  
Presenter(s): Stuart Waller  
REU Site: Program for Access to Training in Health Informatics  
Host Institution: Vanderbilt University Medical Center  
Grant Number: 2050895  
Principal Investigator / Faculty Mentor: Kim Unertl | Cosmin (Adi) Bejan

**Breakout Room: 31**

Title: Recurrent Variational Open Set Recognition: Recognizing Unknown Classes in Smartphone Sensor Data  
Presenter(s): Benjamin Abraham Diamond | Amelia Norman | Sean Jordan  
REU Site: Data Science Research for Healthy Communities in the Digital Age  
Host Institution: Worcester Polytechnic Institute  
Grant Number: CNS-1852498  
Principal Investigator / Faculty Mentor: Elke Rundensteiner

Title: Perceptions of Human and AI-generated Stories by News Consumers  
Presenter(s): Rachel Miller  
REU Site: Computational Sensing for Human-centered AI  
Host Institution: Rochester Institute of Technology  
Grant Number: 1851591  
Principal Investigator / Faculty Mentor: Cecilia O. Alm (PI), Ammina Kothari, and Reynold Bailey

**NSF Division: Earth Science**

**Breakout Room: 32**

Title: The Impact of Benthic Organisms on Water Filtration in the Indian River Lagoon  
Presenter(s): Alyssa Sharma  
REU Site: Statistical Models with Applications to Geoscience  
Host Institution: Florida Institute of Technology  
Grant Number: 1950768  
Principal Investigator / Faculty Mentor: Nezamoddin Nezamoddini-Kachouie | Kelli Hunsucker

Title: Submarine Groundwater Discharge and Related Contaminant Fluxes in Shark’s Cove Kapo’o Tide Pools  
Presenter(s): Aston Salviejo Ramos  
REU Site: Earth Science on Volcanic Islands REU  
Host Institution: University of Hawaii at Manoa  
Grant Number: 1950941  
Principal Investigator / Faculty Mentor: Bridget Smith-Konter | Henrietta Dulai

Title: Dynamics of Air Pollution in Lebanon and its Impacts  
Presenter(s): Ayah Halabi  
REU Site: Summer Undergraduate Research Fellowship in Earth and Environmental Sciences (SURFEES)  
Host Institution: Chapman University  
Grant Number: 1757991  
Principal Investigator / Faculty Mentor: Christopher Kim | Ramesh Singh
**NSF Division: Engineering**

**Breakout Room: 19**
Title: Total Ionizing Dose Effects in Physical Unclonable Functions  
Presenter(s): Shane Smith  
REU Site: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga (UTChattSat)  
Host Institution: University of Tennessee at Chattanooga  
Grant Number: 1757777  
Principal Investigator / Faculty Mentor: Daniel Loveless

Title: Radiation Effects in Cryogenic Electronics  
Presenter(s): Spencer Westfall  
REU Site: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga (UTChattSat)  
Host Institution: University of Tennessee at Chattanooga  
Grant Number: 1757777  
Principal Investigator / Faculty Mentor: Daniel Loveless

Title: Evaluation of Sodium Nanoparticles for Implementation in Photonic Automotive Sensors and Circuits  
Presenter(s): Sylvia Lupa | William Welch  
REU Site: Automotive and Energy Research and Industrial Mentorship Research Experience for Undergraduates  
Host Institution: Oakland University  
Grant Number: EEC-1852112  
Principal Investigator / Faculty Mentor: Laila Guessous | Ankun Yang

**Breakout Room: 22**
Title: Spatial Mapping of Nanoparticle Confinement in Living Cells  
Presenter(s): Madison Seefeld  
REU Site: Frontiers in Biomedical Imaging  
Host Institution: University of Illinois at Urbana-Champaign  
Grant Number: 1757837  
Principal Investigator / Faculty Mentor: Andrew M. Smith

Title: Quantum Neural Network Benchmarking with the MNIST Dataset  
Presenter(s): Matthew Dobson  
REU Site: Sensor, Signal and Information Processing (SenSIP) Devices and Algorithms  
Host Institution: Arizona State University  
Grant Number: 1659871  
Principal Investigator / Faculty Mentor: Andreas Spanias

Title: Studying the Dielectrophoretic Behavior of the Trypanosoma brucei Parasite  
Presenter(s): Megan Giacobbi  
REU Site: Nature’s Machinery through the Prism of Physics, Biology, Chemistry, and Engineering  
Host Institution: Clemson University  
Grant Number: 1757658  
Principal Investigator / Faculty Mentor: Rodrigo Martinez-Duarte
Breakout Room: 33
Title: Collision Detection and Avoidance System for a Multicopter UAV using Stereovision and LiDAR
Presenter(s): Hetkumar Ghadia
REU Site: Research Experience for Undergraduates in UAV Technologies
Host Institution: California State Polytechnic University, Pomona
Grant Number: 1950612
Principal Investigator / Faculty Mentor: Subodh Bhandari (PI) and Amar Raheja

Title: Separation of R-410A Using Fluorinated Polymeric Membranes
Presenter(s): Julia Elizabeth Vallier
REU Site: IDEA Incubator for Porous Materials: Integrating Discovery, Engineering, and Art
Host Institution: University of Kansas
Grant Number: 1852308
Principal Investigator / Faculty Mentor: Mark B. Shiflett

Breakout Room: 34
Title: Predictive Modeling of Drop Impact Force on a Concave Substrate Using Machine Learning
Presenter(s): Jacob Buckelew
REU Site: Research Experiences on the Internet of Things (IoT)
Host Institution: University of Central Florida
Grant Number: 1852002
Principal Investigator / Faculty Mentor: Damla Turgut | Andrew Dickerson

Title: Design of a Virtual Reality Training System for Human-Robot Collaboration in Manufacturing Tasks
Presenter(s): Jake Pierson
REU Site: Summer Academy in Sustainable Manufacturing
Host Institution: Wayne State University
Grant Number: 1950192
Principal Investigator / Faculty Mentor: Jeremy Rickli | Sara Masoud

Breakout Room: 36
Title: A Case for Solar Energy System Dashboards to Validate Performance Warranties
Presenter(s): Amaya McNealey
REU Site: Growing Entrepreneurially-Minded Undergraduate Researchers with New Product Development in Applied Energy
Host Institution: Purdue University
Grant Number: 2050451
Principal Investigator / Faculty Mentor: Lisa Bosman

Title: Optimizing Return on Investment for Solar Energy Systems
Presenter(s): Kayla Fericy
REU Site: Growing Entrepreneurially-Minded Undergraduate Researchers with New Product Development in Applied Energy
Host Institution: Purdue University
Grant Number: 2050451
Principal Investigator / Faculty Mentor: Lisa Bosman

Title: Ultranarrow Optical Modes for Sensing Degradation in Quasi-2D Layered Perovskite
Presenter(s): Kevin Li
REU Site: The Summer Undergraduate Fellowship in Sensor Technologies (SUNFEST)
Host Institution: University of Pennsylvania
Grant Number: 1950720
Principal Investigator / Faculty Mentor: Deep Jariwala
Breakout Room: 39
Title: The Effects of Geometry, Materials, and Voltage on the Temperature Rise of a Microheater
Presenter(s): Nyvia Lyles
REU Site: Singh Center/NNCI REU
Host Institution: University of Pennsylvania
Grant Number: NNCI-2025608
Principal Investigator / Faculty Mentor: Daeyeon Lee

Title: Generative Adversarial Networks for Topology Optimization of Piezoelectric Energy Harvesters
Presenter(s): Priyanka Sarangabany
REU Site: Power Optimization of Electro-Thermal Systems (POETS) REU
Host Institution: University of Illinois at Urbana-Champaign
Grant Number: 1659794
Principal Investigator / Faculty Mentor: Andrew Alleyne | Kai James

Title: Measurement of TID and Temperature Effects in Semiconductor Devices
Presenter(s): Rebecca Barry
REU Site: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga (UTChattSat)
Host Institution: University of Tennessee at Chattanooga
Grant Number: 1757777
Principal Investigator / Faculty Mentor: Daniel Loveless

Breakout Room: 40
Title: Research in Sustainable Alternative Fischer-Tropsch Aerospace Fuels using Low-Temperature Combustion for Reduction of Green House Gasses
Presenter(s): Richard C. Smith III
REU Site: Propulsion, Aerodynamics, Materials and Controls of Aerial Vehicles
Host Institution: Georgia Southern University
Grant Number: 1950207
Principal Investigator / Faculty Mentor: Valentin Soloiu

Title: Low-Temperature Ion Conductor Processing Strategies for Solid Oxide Fuel Cells
Presenter(s): Seth Jacob Dennison
REU Site: Growing Entrepreneurially-Minded Undergraduate Researchers with New Product Development in Applied Energy
Host Institution: Purdue University
Grant Number: EEC-2050451
Principal Investigator / Faculty Mentor: Sunghwan Lee

Breakout Room: 41
Title: Effect of Percolation Ratio on the Electrical Conductivity of Cyanoacrylate Bound Carbon Graphite Electrodes
Presenter(s): Alexandria Dillon
REU Site: Research Experience for Undergraduates in Nanomaterials for Energy and Biological Applications
Host Institution: Indiana University - Purdue University Indianapolis
Grant Number: 1950672
Principal Investigator / Faculty Mentor: Mangilal Agarwal | Ken Yoshida
Title: An Investigation of the Quantum Magic Square Game in Realistic Scenarios
Presenter(s): Maxwell Poster
REU Site: Applying the Tools of Physics to Explore the Macroscopic, Microscopic, and Quantum Worlds
Host Institution: University of Illinois Urbana-Champaign
Grant Number: 1950744
Principal Investigator / Faculty Mentor: Taylor Hughes | Eric Chitambar

**NSF Division: Materials Research**
**Breakout Room: 40**
Title: The Effect of Carrier Density-Tunable Work Function Buffer on the Amorphous InZnO-Based Thin Film Transistors
Presenter(s): Molly Isabel Rothschild
REU Site: P-type Oxides for CMOS Devices: Thermodynamics-based In-situ Synthesis and In-Situ Integration
Host Institution: Purdue University
Grant Number: ECCS-1931088
Principal Investigator / Faculty Mentor: Sunghwan Lee

**NSF Division: Mathematical Sciences**
**Breakout Room: 41**
Title: Role of Aquaporins in Gastric Cancer and Promotion of Cancer Cell Stemness
Presenter(s): Saurav Kiri
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences
Host Institution: Bethune Cookman University
Grant Number: 1755561
Principal Investigator / Faculty Mentor: Seenith Sivasundaram | Raphael Isokpehi

**Breakout Room: 26**
Title: An Application of Cooperative Game Theory to Study the Economic Behavior of Illicit Operators
Presenter(s): Layla Devlin
REU Site: Security Printing and Anti-Counterfeiting Technology
Host Institution: South Dakota School of Mines and Technology
Grant Number: 1852336
Principal Investigator / Faculty Mentor: Grant Crawford | Saurav Kumar Dubey

Title: On the Girth of Assignment Graphs Generated from Digraphs
Presenter(s): Xufei Liu
REU Site: Research Challenges of Computational and Experimental Mathematics
Host Institution: Moravian University
Grant Number: 1852378
Principal Investigator / Faculty Mentor: Nathan Shank | Eugene Fiorini

Title: Tensor-Based Approaches to fMRI Classification
Presenter(s): Yihua Xu | Katherine Keegan
REU Site: Computational Mathematics for Data Science
Host Institution: Emory University
Grant Number: 2051019
Principal Investigator / Faculty Mentor: Lars Ruthotto | Elizabeth Newman
**NSF Division: Physics**

**Breakout Room: 37**

**Title:** Characterization and Optimization of a Magneto-Optical Trap in Miami University’s Bose-Einstein Condensation Setup  
**Presenter(s):** Darius Desnoes  
**REU Site:** Physics at Miami University  
**Host Institution:** Miami University  
**Grant Number:** 1757575  
**Principal Investigator / Faculty Mentor:** Herbert Jaeger | Edward Carlo Samson

**Title:** Simulating Quantum Transport Phenomena in Synthetically Coupled Mechanical Lattices  
**Presenter(s):** DaVonté Lewis  
**REU Site:** Applying the Tools of Physics to Explore the Macroscopic, Microscopic, and Quantum Worlds  
**Host Institution:** University of Illinois at Urbana-Champaign  
**Grant Number:** 1950744  
**Principal Investigator / Faculty Mentor:** Taylor Hughes | Bryce Gadway

**Title:** Mapping Milky Way Halo Substructure  
**Presenter(s):** Griffin Thomas Goodwin  
**REU Site:** Summer Research Experience for Undergraduates in Physics  
**Host Institution:** Rensselaer Polytechnic Institute  
**Grant Number:** 1852309  
**Principal Investigator / Faculty Mentor:** Peter Persans | Heidi Newberg

**NSF Division: Social, Behavioral, and Economic Sciences**

**Breakout Room: 35**

**Title:** The Moderating Roles of Resilience and Coping in Intimate Partner Violence among Veterans with PTSD  
**Presenter(s):** Aliza Brown  
**REU Site:** Training Diverse Undergraduate Teams of Veterans and non-Veterans to Conduct Trauma Research with Veterans  
**Host Institution:** Syracuse University  
**Grant Number:** 1852104  
**Principal Investigator / Faculty Mentor:** Karen Wolford | Samara Rice

**Title:** When to Warn: When are Warnings for Misinformation Most Effective?  
**Presenter(s):** Aysha Gisbat  
**REU Site:** Summer Research Experiences in Interdisciplinary Mind and Brain Studies  
**Host Institution:** University of Pennsylvania  
**Grant Number:** 2050803  
**Principal Investigator / Faculty Mentor:** Florian Schwarz | Joseph Kable
Student Presentations Session 3: 2:30 – 3:00 PM ET

**NSF Division: Astronomical Sciences**

Breakout Room: 57
Title: Searching for White Dwarf Star Transits using the New Van Vleck 24" Telescope
Presenter(s): Natasha Jones
REU Site: Keck Northeast Astronomy Consortium
Host Institution: Wesleyan University
Grant Number: 1950797
Principal Investigator / Faculty Mentor: Seth Redfield

Title: Solar Soft X-ray Irradiance Obtained with Hinode/XRT Full-Sun Images
Presenter(s): Stefanie Davis
REU Site: Solar Physics Program at Montana State University
Host Institution: Montana State University
Grant Number: AGS-1851822
Principal Investigator / Faculty Mentor: Jiong Qiu | Aki Takeda

**NSF Division: Atmospheric Sciences and Geospace**

Breakout Room: 57
Title: Detecting Organization of Shallow Cumulus Clouds in the Central Pacific using Artificial Intelligence
Presenter(s): Emma Joy Layton
REU Site: Earth Science on Volcanic Islands REU
Host Institution: University of Hawaii at Manoa
Grant Number: 1950941
Principal Investigator / Faculty Mentor: Bridget Smith-Konter | Giuseppe Torri and Alison D. Nugent

**NSF Division: Biological Sciences**

Breakout Room: 45
Title: Effects of Water Hardness and Road Salt Concentration on Zooplankton Survival and Reproduction
Presenter(s): Aniyah Woodley
REU Site: Addressing Environmental Challenges and Proposing Sustainable Solutions at the Lake Erie Land-Lake Interface
Host Institution: University of Toledo
Grant Number: DBI-1852245
Principal Investigator / Faculty Mentor: Jeanine Refsnider | Bill Hintz

Title: Regulation of Downstream Genes by Leaderless small Open Reading Frames in Mycobacterium smegmatis
Presenter(s): Anjelina King
REU Site: Networked Projects in Cell and Molecular Biology at the Wadsworth Center
Host Institution: Wadsworth Center
Grant Number: 1757170
Principal Investigator / Faculty Mentor: Matthew Kohn | Todd Gray

Title: The Study of Axolotl Spinal Cord Patterning using mRNA Localization
Presenter(s): Antonio C. Villanueva
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | James Monaghan
Breakout Room: 50
Title: Microbial Communities from the Ground to the Canopy: Assessing Assembly Processes and Decomposition in a Tropical Forest
Presenter(s): Roman Robledo
REU Site: Translational Ecology for Undergraduates
Host Institution: Cary Institute of Ecosystem Studies
Grant Number: DBI-1559769
Principal Investigator / Faculty Mentor: Alan Berkowitz | Evan Gora and Jane Lucas

Title: Ants on Plants: Costs and Benefits of Extrafloral Nectaries in Black-Eyed Peas, Vigna unguiculata Walp. (Fabaceae)
Presenter(s): Syntyche Kane
REU Site: Blandy REU Program in Ecology and Evolution
Host Institution: University of Virginia
Grant Number: 1659816
Principal Investigator / Faculty Mentor: Kyle Haynes | Mary McKenna

Title: Cryo-EM Structure of an Assembly Intermediate of the Ribosomal Small Subunit from Leishmania tarentolae Mitochondria
Presenter(s): Tessa Gebert
REU Site: Networked Projects in Cell and Molecular Biology at the Wadsworth Center
Host Institution: Wadsworth Center
Grant Number: 1757170
Principal Investigator / Faculty Mentor: Matthew Kohn | Rajendra Agrawal

Breakout Room: 53
Title: The Occurrence of G Quadruplex DNA in the Cytoplasm of the Human Lung Adenocarcinoma Cell Line A549
Presenter(s): Alana Ferris
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Tovah Day

Title: Run Faster, Jump Higher: The Influence of Limb Symmetry on Anole Locomotion
Presenter(s): Alexandra Magee
REU Site: Research Experience for Undergraduates in Genomics and Biochemistry
Host Institution: Louisiana State University - New Orleans
Grant Number: 1659752
Principal Investigator / Faculty Mentor: Fern Tsien | Brandon Hedrick

Breakout Room: 55
Title: Visualizing BYN-1/GLH-1 Proximity Interactions in C. elegans to Understand the Activation of Signaling Cascades during Human Embryonic Implantation
Presenter(s): Lyn Miranda Portillo
REU Site: Exploring 21st Century Careers in the Biological Sciences: A Comparative Regenerative Biology Approach
Host Institution: MDI Biological Laboratory
Grant Number: 1851962
Principal Investigator / Faculty Mentor: Jane Disney | Dustin Updike
Title: Expanding the Horizons of Rehabilitative Neuroscience with Deep Neural Networks
Presenter(s): Maya Mazen Murry
REU Site: Scientific computing for structure in big or complex datasets
Host Institution: University of Miami
Grant Number: 1949972
Principal Investigator / Faculty Mentor: Burton Rosenberg | Vance Lemmon

Title: Utilizing PlantCV to Measure the Lodging of Teff (Eragrostis tef)
Presenter(s): Michael McGrone
REU Site: Research Experiences for Undergraduates in Plant Science at the Donald Danforth Plant Science Center
Host Institution: Donald Danforth Plant Science Center
Grant Number: 2050394
Principal Investigator / Faculty Mentor: Sona Pandey

Breakout Room: 56
Title: Construction of a Synthetic Mycobacterium Phage Genome using Transformation-Associated Recombination (TAR) Cloning in Saccharomyces cerevisiae
Presenter(s): Emily Costanza
REU Site: A Multisite REU in Synthetic Biology
Host Institution: Simmons University
Grant Number: 1852150
Principal Investigator / Faculty Mentor: Jennifer Roecklein-Canfield

Title: Using Synthetic Biology Methods to Construct an Estrogen Biosensor using the Dimerization-Dependent Red Fluorescent Protein, ddRFP
Presenter(s): Emma Case
REU Site: A Multisite REU in Synthetic Biology
Host Institution: Simmons University
Grant Number: 1852150
Principal Investigator / Faculty Mentor: Jennifer Roecklein-Canfield

Title: Tracking Fine Scale Habitat Use and Interactions between Grey Snapper and Goliath Grouper in a Refuge Habitat
Presenter(s): Lizbeth Gonzalez
REU Site: Understanding Coastal Ecosystems - From the Everglades to the Coral Reefs
Host Institution: Florida International University
Grant Number: DBI-1852123
Principal Investigator / Faculty Mentor: Rolando Santos

Breakout Room: 58
Title: Exploring Capsule Synthesis as a Point of Weakness in Multi-Drug Resistant Acinetobacter baumannii
Presenter(s): Miranda Wu
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Edward Geisinger
Title: A Preliminary Look at Carbohydrate Pathways in the Camel Rumen Metatranscriptome on Three Different Diets
Presenter(s): Myra Arshad
REU Site: REU Accelerating New Environmental Workskills (ANEW)
Host Institution: University of Maine
Grant Number: 1849802
Principal Investigator / Faculty Mentor: Anne Lichtenwalner | Suzanne L. Ishaq

Title: The Master Regulator of Biofilm Development SlrR Undergoes Cleavage in the Presence of DNA Damage
Presenter(s): Nebiyat Kebede Eskndir
REU Site: Teamwork in Biological Inquiry: From Molecules to Organisms
Host Institution: Northeastern University
Grant Number: 1757443
Principal Investigator / Faculty Mentor: Wendy Smith | Yunrong (Win) Chai

**NSF Division: Chemistry**
Breakout Room: 43
Title: Influence of an Ar atom on the Structures, Energetics and Vibrational Frequencies of the Water Hexamer
Presenter(s): Mikhayla Clothier
REU Site: Ole Miss Chemistry Summer Research Program
Host Institution: The University of Mississippi
Grant Number: CHE-1757888
Principal Investigator / Faculty Mentor: Gregory Tschumper

Title: Optimization of Carbon Paste Formulation for Electrochemical Tape-and-Paper-Based Oral pH Sensors
Presenter(s): Rebekah Bogle
REU Site: Multidisciplinary Research for Undergraduates in Nanomaterials for Energy and Biological Applications
Host Institution: Indiana University Purdue University Indianapolis
Grant Number: 950672
Principal Investigator / Faculty Mentor: Mangilal Agarwal | Frederique Deiss

**NSF Division: Computer and Information Science and Engineering**
Breakout Room: 46
Title: The Consumption of Predatory Pelagic Fish and the Incidence of Diabetes in Modern Kanaka Maoli (Native Hawaiians)
Presenter(s): Aliikamaanaekahi Napoleon
REU Site: Cyberinfrastructure Research 4 Social Change
Host Institution: The University of Texas at Austin
Grant Number: 1852538
Principal Investigator / Faculty Mentor: Rosalia Gomez | Kelly Gaither

Title: U.S. Rental Moratorium: A Visual Analysis of the Likelihood of Eviction in the Next Two Months
Presenter(s): Jordan Williams
REU Site: Cyberinfrastructure Research 4 Social Change
Host Institution: The University of Texas at Austin
Grant Number: 1852538
Principal Investigator / Faculty Mentor: Rosalia Gomez | Kelly Gaither
Title: Using a Graph Database for COVID-19 Data Analysis  
Presenter(s): Marcus Bedeau  
REU Site: Cyberinfrastructure Research 4 Social Change  
Host Institution: The University of Texas at Austin  
Grant Number: 1852538  
Principal Investigator / Faculty Mentor: Rosalia Gomez | Kelly Gaither

Breakout Room: 49
Title: Privacy Preserving Deep Learning for Facial Recognition  
Presenter(s): Anis Chihoub  
REU Site: Undergraduate Research Experiences in Big Data Security and Privacy  
Host Institution: California State Polytechnic University Pomona  
Grant Number: 2050826  
Principal Investigator / Faculty Mentor: Tingting Chen

Title: Assessing Performance Differences on False-Belief Tasks through Human and Robot Facilitators  
Presenter(s): Anisa McKenzie Callis  
REU Site: Computational Sensing for Human-centered AI  
Host Institution: Rochester Institute of Technology  
Grant Number: 1851591  
Principal Investigator / Faculty Mentor: Cecilia O. Alm (PI), Jamison Heard, Zhi Zheng and Reynold Bailey

Title: Modeling Cortical Neural Surround Effects Using Deep Neural Networks  
Presenter(s): Annie DeForge  
REU Site: Scientific computing for structure in big or complex datasets  
Host Institution: University of Miami  
Grant Number: 1949972  
Principal Investigator / Faculty Mentor: Burton Rosenberg | Odelia Schwartz

Breakout Room: 59
Title: Machine Learning-Based Framework for Behavior Tracking  
Presenter(s): Ibrohim Nosirov  
REU Site: Cyberinfrastructure Research 4 Social Change  
Host Institution: The University of Texas at Austin  
Grant Number: 1852538  
Principal Investigator / Faculty Mentor: Rosalia Gomez | Huiliang (Evan) Wang and Ethan Ho

Title: AR: Know Where You are, Know Where You're Safe  
Presenter(s): Jane Kavounas  
REU Site: Cyberinfrastructure Research 4 Social Change  
Host Institution: The University of Texas at Austin  
Grant Number: 1852538  
Principal Investigator / Faculty Mentor: Rosalia Gomez | Anne Bowen

Title: Binaural Audio Quality Evaluation using a Binaural Dummy Head and a Spherical Microphone Array  
Presenter(s): Jessica Luo  
REU Site: Computational Methods for Understanding Music, Media, and Minds  
Host Institution: University of Rochester  
Grant Number: 1950460  
Principal Investigator / Faculty Mentor: Ajay Anand | Ming-Lun Lee
NSF Division: Earth Science
Breakout Room: 60
Title: Receiver Function Analysis of the Magmatic Plumbing System beneath Okmok Volcano
Presenter(s): Madeleine Tan
REU Site: Earth Science on Volcanic Islands REU
Host Institution: University of Hawaii at Manoa
Grant Number: 1950941
Principal Investigator / Faculty Mentor: Bridget Smith-Konter | Helen Janiszewski

Title: Modeling Sea Level Rise in Florida: An Exploratory Study
Presenter(s): Marisela Madrid
REU Site: Statistical Models with Applications to Geoscience
Host Institution: Florida Institute of Technology
Grant Number: 1950768
Principal Investigator / Faculty Mentor: Nezamoddin Nezamoddini-Kachouie | Steven Lazarus

Title: Seasonal Changes in Fate and Transport of Pharmaceuticals and Personal Care Products Due to the Efficacy of Onsite Wastewater Treatment Systems in a Sinkhole Lake Environment
Presenter(s): Rachel Guevara
REU Site: REU Program in Earth Sciences: Water sustainability in the urban environment: Improving the sustainable use of water through interdisciplinary research
Host Institution: University of South Florida
Grant Number: 1950458
Principal Investigator / Faculty Mentor: Philip van Beynen

Breakout Room: 61
Title: Statistical Modeling for Estimating Mountain Glacier Variations through Landsat Satellite Imagery
Presenter(s): Thu Thu Hlaing
REU Site: Statistical Models with Applications to Geoscience
Host Institution: Florida Institute of Technology
Grant Number: 1950768
Principal Investigator / Faculty Mentor: Nezamoddin Nezamoddini-Kachouie

Title: Community Outreach on the Erosion of the East Bay Marsh
Presenter(s): Zanti Rains
REU Site: Sustainable Land & Water Resources
Host Institution: Salish Kootenai College
Grant Number: 2054175
Principal Investigator / Faculty Mentor: Peter Gillard | Antony Berthelote

NSF Division: Engineering
Breakout Room: 42
Title: Cross-Sectional Associations between Thigh Muscle Imaging and Function in Older Adults
Presenter(s): Miracle Etim-Andy
REU Site: Imaging and Mechanics-based Projects on Accidental Cases of Trauma (IMPACT)
Host Institution: Wake Forest School of Medicine
Grant Number: 1950281
Principal Investigator / Faculty Mentor: Ashley Weaver | Kristen Beavers
Title: Yap and Piezo1 Signaling Control Macrophage Mechanoenergy in 2D and 3D environments
Presenter(s): Natalie Celt
REU Site: Mechanobiology at VCU
Host Institution: Virginia Commonwealth University
Grant Number: 1852116
Principal Investigator / Faculty Mentor: Rene Olivas-Navarrete

Title: Communicative vs Transitional Features in American Sign Language
Presenter(s): Tania Nguyen
REU Site: Engineering Sensors Systems and Signal Processing for Speech Pathology
Host Institution: The University of Alabama
Grant Number: 1852161
Principal Investigator / Faculty Mentor: Todd Freeborn | Sevgi Gurbuz and Evie Malaia

Breakout Room: 44
Title: Sustainability Assessment of Electroplating Systems: A Methodological Study
Presenter(s): Rebecca Potoff
REU Site: Summer Academy in Sustainable Manufacturing
Host Institution: Wayne State University
Grant Number: 1950192
Principal Investigator / Faculty Mentor: Jeremy Rickli | Yinlun Huang

Breakout Room: 52
Title: Single Event Transient Analysis with Machine Learning
Presenter(s): Berkay Dean
REU Site: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga (UTChattSat)
Host Institution: University of Tennessee at Chattanooga
Grant Number: 1757777
Principal Investigator / Faculty Mentor: Daniel Loveless

Title: A CubeSat Reaction-Wheel-Based Attitude Controller Testbed
Presenter(s): Jessica Fisher
REU Site: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga (UTChattSat)
Host Institution: University of Tennessee at Chattanooga
Grant Number: 1757777
Principal Investigator / Faculty Mentor: Daniel Loveless

NSF Division: Materials Research

Breakout Room: 44
Title: Room-Temperature Fabrication of Dielectric Ceramics
Presenter(s): Alison Block
REU Site: Materials for Society
Host Institution: Boise State University
Grant Number: 1950305
Principal Investigator / Faculty Mentor: Rick Ubic
Title: Photodoping of n-Type Organic Semiconductors using Tertiary Amines
Presenter(s): Jared D. Hamton
REU Site: Collaborative Undergraduate Experience in Energy
Host Institution: University of Massachusetts Amherst
Grant Number: 1659266
Principal Investigator / Faculty Mentor: Kevin R Kittilstved

**NSF Division: Mathematical Sciences**

**Breakout Room: 47**
Title: Optimal Impulse Control of West-Nile Virus
Presenter(s): Adira Cohen
REU Site: Computational Modeling and Simulation in Applied Sciences
Host Institution: Middle Tennessee State University
Grant Number: 1757493
Principal Investigator / Faculty Mentor: Wandi Ding (PI) and Rachel Leander

Title: Mathematical Modeling of a Potential Malaria Vaccine
Presenter(s): Jeffrey Tucker
REU Site: (AM)^2 REU
Host Institution: Arizona State University
Grant Number: DMS-1757663
Principal Investigator / Faculty Mentor: Wenbo Tang | Abba Gumel

Title: M-Shwari Comparisons: An Investigation of Income
Presenter(s): Kathryn Enriquez
REU Site: Rose-Hulman Mathematics REU
Host Institution: Rose-Hulman Institute of Technology
Grant Number: 1852132
Principal Investigator / Faculty Mentor: Wayne Tarrant

**Breakout Room: 48**
Title: Mathematical Modeling, Dynamics, and Control of Atmospheric Carbon Dioxide Emissions Reduction to Slow and Reverse Global Warming Using
Presenter(s): Caleb Ukaonu
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences
Host Institution: Bethune Cookman University
Grant Number: 1755561
Principal Investigator / Faculty Mentor: Seenith Sivasundaram

Title: Coronavirus Disease 2019 (COVID-19) is an Acute Infectious Disease of the Respiratory System that is Caused by the SARS-CoV-2 Virus Infection
Presenter(s): Elizabeth King
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences
Host Institution: Bethune Cookman University
Grant Number: 1755561
Principal Investigator / Faculty Mentor: Seenith Sivasundaram
Title: Mathematical Model of Algal Bloom with Time Delay  
Presenter(s): Sunaina Butler  
REU Site: Mathematical Modeling in Environmental, Biological and Other Sciences  
Host Institution: Bethune Cookman University  
Grant Number: 1755561  
Principal Investigator / Faculty Mentor: Seenith Sivasundaram

**NSF Division: Physics**  
**Breakout Room: 51**  
Title: Algorithm that Recovers Hamiltonian Parameters in Imprecisely Characterized Systems  
Presenter(s): Hebah Shaukat Goderya  
REU Site: Applying the Tools of Physics to Explore the Macroscopic, Microscopic, and Quantum Worlds  
Host Institution: University of Illinois at Urbana-Champaign  
Grant Number: 1950744  
Principal Investigator / Faculty Mentor: Wolfgang Pfaff

Title: Properties of Superconductivity in BaSbTeS2 using X-Ray Diffraction and Raman Spectroscopy  
Presenter(s): Tessa McNamee  
REU Site: An Inclusive REU Program in Physics and Astronomy at the University of Utah  
Host Institution: University of Utah  
Grant Number: 1950785  
Principal Investigator / Faculty Mentor: Jordan Gerton | Shanti Deemyad

**NSF Division: Social, Behavioral, and Economic Sciences**  
**Breakout Room: 54**  
Title: The Role of Speaker Identity in Literal Versus Pragmatic Interpretation  
Presenter(s): Erica Solis  
REU Site: Summer Research Experiences in Interdisciplinary Mind & Brain Studies  
Host Institution: University of Pennsylvania  
Grant Number: 2050803  
Principal Investigator / Faculty Mentor: Florian Schwarz

Title: Enter at Your Own Risk: The Impacts of Joining a Hateful Subreddit  
Presenter(s): Katie Ko  
REU Site: Human Communication in a Connected World  
Host Institution: University of Southern California  
Grant Number: 2051101  
Principal Investigator / Faculty Mentor: Jelena Mirkovic

Title: Sex-Related Dental Wear Patterns in an Alaskan Population  
Presenter(s): Kristen Alipio  
REU Site: Natural History Research Experiences  
Host Institution: National Museum of Natural History, Smithsonian Institution  
Grant Number: OCE-1560088  
Principal Investigator / Faculty Mentor: Elizabeth Cotrrell | Erica B. Jones