Listing by Time, including presenter, project title, mentor

10:20 AM

* **Room** **1: Biology Explorations/URECA; MARC**
***Presenter:*** Heera Bandi  in collaboration with Nicole Gladstein *(Stony Brook University)*
***Title:*** MlrA Expression in E. coli to Break Down Microcystin from Cyanobacterial Harmful Algal Blooms
***Faculty mentor:*** Dr. Peter Gergen *(Biochemistry & Cell Biology)*
* **Room 2: BioPREP**
***Presenters:*** Paul Donato *(Suffolk County Community College)*; Adam McConnell, Jernaire Mitchell *(Queensborough Community College)*
***Title:*** The effect of green tea on non-small lung cancer cells
***Faculty mentor:*** Dr. Daniel Moloney *(I-STEM)*
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Oliver Diamond *(Wesleyan University)*
***Title:*** Learning the Force Field of Two Interacting Ellipsoids from Massive Data Generated with Particle-based Lennard-Jones Potential
***Faculty mentor:*** Dr. Yuefan Deng *(Applied Mathematics & Statistics)*
* **Room 4: INDUCER**
***Presenter:*** Sasha McKay *(Stony Brook University)*
***Title:*** Racial and Geographical Disparities in Colorectal Cancer Incidence in Mississippi, 2003-2018
***Faculty mentor:*** Dr. Jaymie Meliker *(Family, Population & Preventive Medicine)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Stephanie Helbock *(Stony Brook University)*
***Title:*** Analyzing SARS-CoV-2 Spike Protein Protonation State Changes Under Different pH Mediums
***Faculty mentor:*** Dr. Carlos Simmerling *(Chemistry)*
* **Room 6: REU Big Data, AI & Medical Informatics**
***Presenter:*** Fiona Murphy *(Stony Brook University)*
***Title:*** Geospatial and Demographic Analysis of Cancer Patterns in New York State***Faculty mentor:*** Dr. Fusheng Wang *(Biomedical Informatics, Computer Science)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Carlos Ventura *(Adelphi University)*
***Title:*** Computational development of *Trichomonas vaginalis* nucleoside hydrolase inhibitors***Faculty mentor:*** Dr. Iwao Ojima *(Chemistry)*
* **Room 8: REU Chemistry (group B)**
***Presenter:*** Ada Eke *(Wellesley College)*
***Title:*** Investigation and Synthesis of possible SARS-CoV-2 Mpro degraders***Faculty mentor:*** Dr. Peter Tonge *(Chemistry)*
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Olumide Olubiyi *(Medgar Evers College)*
***Title:*** Visualization of the low intensity vibration-induced proliferation of CAR T-cell to aid the termination of some type of cancer cells***Faculty mentor:*** Dr. Mei Lin (Ete) Chan *(Biomedical Engineering)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Adam Fletcher *(Suffolk County Community College)*
***Title:*** Particle Identification with GridPix Detector at EIC***Faculty mentor:*** Dr. Prakhar Garg, Dr. Thomas Hemmick *(Physics & Astronomy)*

10:30 AM

* **Room 1: Biology Explorations/URECA; MARC**
***Presenter:*** Daniel Wong Gutierrez *(Stony Brook University)*
***Title:*** Structure and Function of the C-Terminal Domains of Human Perilipins 4 and 5
***Faculty mentor:*** Dr. Peter Gergen *(Biochemistry & Cell Biology)*
* **Room 2: BioPREP** (continued)
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Phil Kaelbling *(Wesleyan University)*
***Title:*** Robust Learning of Subregular Languages
***Faculty mentor:*** Dr. Jeffrey Heinz *(Linguistics)*
* **Room 4: INDUCER**
***Presenter:*** Vanessa Diaz Almanzar *(Stony Brook University)*
***Title:*** Regulation of pancreatic stellate cells activation by modified miR-15a
***Faculty mentor:*** Dr. Agnieszka Bialkowska *(Medicine)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Andrew Bae *(Stony Brook University)*
***Title:*** Comparing X-Ray Data Analysis Techniques to Study Plant Material Dynamics
***Faculty mentor:*** Dr. Benjamin Hsiao *(Chemistry)*
* **Room 6: REU Big Data, AI & Medical Informatics**
***Presenter:***  Erica Chen *(Stony Brook University)*
***Title:*** Integrating Heterogeneous Data Toward Better Human Movement Simulation***Faculty mentor:*** Dr. Fusheng Wang *(Biomedical Informatics, Computer Science)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Sharena Brown *(Grinnell College)*
***Title:*** Designed Disulfide May Prevent Fusion Machinery of SARS CoV 2 Protein Spike ***Faculty mentor:*** Dr. Carlos Simmerling *(Chemistry)*
* **Room 8: REU Chemistry (group B)**
***Presenter:*** Evan Neu *(Trinity College)*
***Title:*** Simulating Smog Formation in Titan's Atmosphere***Faculty mentor:*** Dr. Trevor Sears *(Chemistry)*
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Genna Mahabeer *(Binghamton University)*
***Title:*** A Non-Invasive Approach to Reconstructing Coronary Arteries for use in Fluid Structure Interaction Modeling
***Faculty mentor:*** Dr. Wei Yin *(Biomedical Engineering)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Othman Alrawi *(Georgia Institute of Technology)*
***Title:*** Comparison of Scattering and Extinction Spectra by Finite Element Analysis and Analytical Methods***Faculty mentor:*** Dr. Klaus Dehmelt *(Physics & Astronomy)*

10:40 AM

* **Room 1: Biology Explorations/URECA; MARC**
***Presenter:*** Sarah Vaccaro *(Stony Brook University)*
***Title:*** Genomic Evolution of the Three-Spined Stickleback
***Faculty mentor:*** Dr. Krishna Veeramah (*Ecology & Evolution*)
* **Room 2: BioPREP**
***Presenter:***Suncheng Gao, Jordan Nacimba *(Queensborough Community College)*
***Title:*** The Science Behind Broccoli: The Effects of Sulforaphane on non-small Lung Cancer Cells
***Faculty mentor:*** Dr. Daniel Moloney *(i-STEM)*
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Josh Poravanthattil *(University of Pittsburgh)*
***Title:*** Fitting nonlinear spiking neuron model via Wasserstein minimization
***Faculty mentor:*** Dr. Memming Park *(Neurobiology & Behavior)*
* **Room 4: INDUCER**
***Presenter:*** Audrey Fernandez *(Stony Brook University)*
***Title:*** Examining the Expressions of a Potential Therapeutic Target, gC1qR, in African-American Breast Cancer to Address Racial Disparities
***Faculty mentor:*** Dr. Berhane Ghebrehiwet *(Medicine)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Pei Liu *(Stony Brook University)*
***Title:*** Animated Poseur Research Project for (CSE380) 2D Game Programming Class
***Faculty mentor:***Dr. Richard McKenna *(Computer Science)*
* **Room 6: REU Big Data, AI & Medical Informatics**
***Presenter:*** Joohak Lee *(Stony Brook University)*
***Title:*** Face Mask Detection with Amazon Deep Lens***Faculty mentor:*** Dr.  Fusheng Wang *(Biomedical Informatics, Computer Science)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Kezia Kelly *(Adelphi University)*
***Title:*** Comparing the membrane fusion mechanisms in SARS, SARS-CoV-2 and MHV ***Faculty mentor:*** Dr. Carlos Simmerling *(Chemistry)*
* **Room 8: REU Chemistry (group B)**
***Presenter:*** Max Buskirk *(California Polytechnic State University)*
***Title:*** *Computational High-Resolution 2D-IR Spectroscopy of CO and CH3Cl****Faculty mentor:*** Dr. Thomas Allison *(Chemistry, Physics & Astronomy)*
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Olivia Bennett *(Tufts University)*
***Title:*** Characterization Techniques for Lithium-Ion Batteries: Magnetite as a Cathode Material***Faculty mentor:*** Dr. Esther Takeuchi *(Chemistry, Materials Science & Chemical Engineering);* Dr. Kenneth Takeuchi, Dr. Amy Marschilok *(Chemistry)*
* Room 10: REU Physics & Astronomy
Presenter:  Roswell DeMott (*Colorado School of Mines)*Title: Convergence Properties of Green's Functions in the sPHENIX Detector
Faculty mentor: Dr. Ross Corliss *(Physics & Astronomy)*

10:50 AM

* **Room 1: Biology Explorations/URECA; MARC**
***Presenter:*** Isabel Hernandez *(Stony Brook University)*
***Title:*** Using analysis of heart rate variability (HRV) to investigate interactions between autonomic balance and urinary function in rats
***Faculty mentor:*** Dr. William Collins *(Neurobiology & Behavior)*
* **Room 2: BioPREP** (continued)
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Michael Ilobi *(CUNY Hunter College)*
***Title:*** US State Cultural Similarity Scores Derived from Millions of Self-Descriptions
***Faculty mentor:*** Dr. Jason Jones *(Sociology)*
* **Room 4: INDUCER**
***Presenter:*** Breanna James *(Stony Brook University)*
***Title:*** Differential Expression of Lung Cancer Biomarkers for Early Detection
***Faculty mentor:*** Dr. Jennie Williams *(Family, Population & Preventive Medicine)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Lia Strait *(Stony Brook University)*
***Title:*** Proteins can Indicate Alterations in the Brain Caused by Low-intensity Mechanical Vibrations in Mouse Model
***Faculty mentor:*** Dr. Mei Lin (Ete) Chan & Dr. Clinton Rubin *(Biomedical Engineering);* Dr .Stella Tsirka *(Pharmacological Sciences)*
* **Room 6: REU Big Data, AI & Medical Informatics**
***Presenter:*** Joshua Kartzman *(Stony Brook University)*
***Title:*** Leveraging Model-Agnostic Explanations in Detecting Opioid Use Disorder***Faculty mentor:*** Dr. Fusheng Wang  *(Biomedical Informatics, Computer Science)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Kevin Torres *(John Jay College of Criminal Justice)*
***Title:*** Quantifying the Effects of Solvents on the Emission Spectrum of Fluorescent Dyes***Faculty mentor:*** Dr. Benjamin Levine, Dr. Arshad Mehmood *(Chemistry)*
* **Room 8: REU Chemistry (group B)**
***Presenter:*** Emily Alvarez-Toucet *(University of Puerto Rico Cayey Campus)*
***Title:*** Analysis on the Stem Region of Folded RNAs Simulated with Molecular Dynamics Methods***Faculty mentor:*** Dr. Maria Nagan *(Chemistry)*
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Fiza Khader *(New York University)*
***Title:*** Bibliometrics analysis of dental nanotechnology research from 2000 - 2021***Faculty mentor:*** Dr. Thomas Woodson *(Technology & Society)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Melissa Rasmussen *(Utah State University)*
***Title:***Blowing Up a White Dwarf: Simulations of the Sub-Chandra Type Ia Supernovae
***Faculty mentor:*** Dr. Michael Zingale *(Physics & Astronomy)*

11:00 AM

* **Room 2: BioPREP**
***Presenter:***Monica Bustamante *(Suffolk County Community College)*, Dontaye Daniels *(Queensborough Community College)*, Angela Noel *(Nassau Community College)*
***Title:*** The impact of curcumin on H460 lung cancer cells
***Faculty mentor:*** Dr. Daniel Moloney *(I-STEM)*
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Raj Das *(Columbia University)*
***Title:*** Predicting Future Political Ideology from Present Self-Description: A Study of US Twitter Users 2015-2020
***Faculty mentor:*** Dr. Jason Jones *(Sociology)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Julia Capobianco *(Stony Brook University)*
***Title:*** Development of Photo Imaging to Monitor Progression of T cell Proliferation Augmented by Low Intensity Vibrations for Improvement of Biotechnology Manufacturing Experiments
***Faculty mentor:*** Dr. Mei Lin (Ete) Chan *(Biomedical Engineering)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Danika Heaney *(Wellesley College)*
***Title:*** Investigating Iodine Containing Structures for Atmospheric New Particle Formation***Faculty mentor:*** Dr. Christopher Johnson *(Chemistry)*
* **Room 8: REU Chemistry (group B)**
***Presenter:*** Emily Haines  *(The College of Wooster)*
***Title:*** Characterization of Small RNA Loops From NMR Structures Using a Computational Approach***Faculty mentor:*** Dr. Maria Nagan *(Chemistry)*
* **Room 9: REU Nanotechnology**
***Presenter:*** Anthony Del Valle *(Stony Brook University)*
***Title:*** Usage of Linearly Combed DNA for Ordered Fragmentation and Sequencing using Polydimethylsiloxane***Faculty mentor:*** Dr. Jonathan Sokolov & Dr.Miriam Rafailovich *(Materials Science & Chemical Engineering)*
* **Room 10: REU Physics**
***Presenter:*** Jeff Backus *(Cornell University)****Title:*** Measuring the self-coupling of the Higgs boson at ATLAS: a neural network mass estimate of the di-Higgs system in events with two b quarks and two hadronically-decaying tau leptons***Faculty mentor:*** Dr. Giacinto Piacquadio *(Physics & Astronomy)*

11:10 AM

* **Room 2: BioPREP** (continued)
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Nathanael Gutierrez *(CUNY Lehman College)*
***Title:*** Exploring the sensitivity of Type Iax supernovae to initial conditions
***Faculty mentor:*** Dr. Alan Calder *(Physics & Astronomy)*
* **Room 5: PSEG Explorations in STEM/URECA**
***Presenter:*** Aiden Gauer *(Stony Brook University)*
***Title:*** Fabrication of Nanotopographical Polymer Surfaces for Bactericidal Property
***Faculty mentor:****Dr. Tadanori Koga & Dr. Maya Endoh (Materials Science & Chemical Engineering)*
* **Room 7: REU Chemistry (group A)**
***Presenter:*** Kirsta Foote *(Iona College)*
***Title:*** Aggregation behavior of bovine gamma globulin in varying salts ***Faculty mentor:*** Dr. Surita Bhatia *(Chemistry)*
* **Room 8: REU Chemistry (group 2):** *go to Room 7*
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Inayah Burton *(SUNY Old Westbury)*
***Title:*** Machine learning, Molecular Dynamics, & Force Field Parameters***Faculty mentor:*** Dr. Nav Nidhi Rajput *(Materials Science & Chemical Engineering)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Spencer Tamagni *(University of Central Florida)*
***Title:*** Modeling Systematic Uncertainties for the VH, H->bb ATLAS Analysis: The Diboson Process***Faculty mentor:***Dr. Giacinto Piacquadio *(Physics & Astronomy)*

11:20 AM

* **Room 2: BioPREP**
***Presenter:*** Alexandria Locke**,** Maria Paiva *(Suffolk County Community College)*; Lauren Wood *(Queensborough Community College)*
***Title:*** Analysis of Yerba Mate aqueous solution Effect on H460 Cells
***Faculty mentor:*** Dr. Daniel Moloney *(I-STEM)*
* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Gregory Croisdale *(University of Tennessee, Knoxville)*
***Title:*** Accessible Linear Stencil Optimization
***Faculty mentor:*** Dr. Rezaul Chowdhury *(Computer Science)*
* **Room 7: REU Chemistry (group A & B)**
11:20 Chemistry REU Wrap Up (all participants please join Room 7)
* **Room 9: REU Nanotechnology for Health, Energy & the Environment**
***Presenter:*** Ana M. Datiz Torres *(Universidad Ana G.Méndez)*
***Title:*** Influence of Surface Microstructure of 3D Printed Stainless Steel on Durability under Corrosive Conditions***Faculty mentor:*** Dr. Gary Halada *(Materials Science & Chemical Engineering)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Kate Futrowsky (*University of Maryland College Park)****Title:***Classifying particle collision events using artificial neural networks with rapidity-mass matrices
***Faculty mentor:*** Dr. Dmitri Tsybychev *(Physics & Astronomy)*

11:30 AM

* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Layth Yassin *(The Cooper Union for the Advancement of Science and Art)*
***Title:*** Fast Stencil Computations using Fast Fourier Transforms on GPUs
***Faculty mentor:*** Dr. Rezaul Chowdhury *(Computer Science)*
* **Room 9: REU Nanotechnology**
***Presenter:*** Tyler Lee *(Emory University)*
***Title:*** Effects of varying NaOH concentrations on the deweaving of cotton fabric in aqueous solutions***Faculty mentor:*** Dr. Gary Halada *(Materials Science & Chemical Engineering)*
* **Room 10: REU Physics & Astronomy**
***Presenter:*** Nolan Maher *(Black Hills State University)*
***Title:*** Simulation of a Transverse Electron Probe in a Plasma Wake Field***Faculty mentor:*** Dr. Navid Vafaei-Najafabadi *(Physics & Astronomy)*

11:40 AM

* **Room 3: Data + Computing = DISCOVERY**
***Presenter:*** Trevor Lata *(The University of Arizona)*
***Title:*** Modelling Photochemical Properties of Select Fluorescent Dyes
***Faculty mentor:*** Dr. Benjamin Levine *(Chemistry)*