Simons Summer Research Symposium

Wang Center Theatre Lobby

August 11, 2023

10:00 am -11:30 am

INDEX OF POSTER PRESENTATIONS

#	Student Presenter(s)	Project Title	Mentor(s)
1	**Evan Xie** *The Pingry School (NJ)*	Discovery of a BACE1 Inhibitor for Alzheimer's Disease with Generative AI	Dr. Yuefan Deng *Applied Mathematics & Statistics*
2	**Rohan Dalal** *Johns Creek HS (GA)*	Neuromesodermal Progenitor Cells (NMPs) Give Rise to Blood through a Myoblast/Hemangioblast Bipotential	Dr. Benjamin Martin *Biochemistry & Cell Biology*
3	**Anushka Pandya** *Half Hollow Hills HS West (NY)*	Investigating the Role of SPO71 in *Saccharomyces cerevisiae* Sporulation	Dr. Aaron Neiman *Biochemistry & Cell Biology*
4	**Sofia Perez** *Baldwin School of Puerto Rico*	Screening for New Antifungal Drugs against *Aspergillus fumigatus* and *Cryptococcus neoformans*	Dr. Michael Airola *Biochemistry & Cell Biology*
5	**Ian Aguilar-Hwang** *Hanover HS (NH)*	Nitro-Oxidized Cellulose-Based Biogels for Coastal Resilience	Dr. Benjamin Hsiao *Chemistry*
6	**Emerson Briggs** *Staples HS (CT)*	Inhibition of Sterylglucosidase 1 as a Novel Antifungal Drug Target	Dr. Iwao Ojima *Chemistry, Institute for Chemical Biology & Drug Discovery*
7	**Gracelynne Hao** *Bridgewater Raritan HS (NJ)*	Efficient Synthesis of Black TiO_2 for Dye Degradation	Dr. Benjamin Hsiao *Chemistry*
8	**Emily Igwike** *University School of Milwaukee (WI)*	Characterizing the role of NosP and NahK Signaling in Ampicillin Resistance in *Pseudomonas aeruginosa*	Dr. Elizabeth Boon *Chemistry*

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9	**Gavin Onghai** *Earl Vandermeulen HS (NY)*	Effect of FeO on Carboxycellulose Production From Raw Bagasse via One-Pot Nitro-Oxidation Process	Dr. Benjamin Hsiao *Chemistry*
10	**Esmeralda Swietelsky** *Ransom Everglades HS (FL)*	Volume Expansion of Nanocellulose Biogels below Freezing Temperature	Dr. Benjamin Hsiao *Chemistry*
11	**Fiona Wong** *Sanford H. Calhoun HS (NY)*	Computer-Aided Drug Design and Chemical Synthesis of Inhibitors of Sterylglucosidase A to Treat Aspergillosis	Dr. Iwao Ojima *Chemistry, Institute for Chemical Biology & Drug Discovery*
12	**Julianne Wu** *University HS (CA)*	Evaluation of FABP Inhibitors for Next-Generation Pain Management	Dr. Iwao Ojima *Chemistry, Institute for Chemical Biology & Drug Discovery*
13	**Andy Zhou** *Newton North HS (MA)*	Can We Modify Cellulose to Filter Out PFAS?	Dr. Benjamin Hsiao *Chemistry*
14	**Jacqueline Fan** *Ardrey Kell HS (NC)*	Exploring Fairness through Visualization: A Web Application for Assessing Disparities between Group and Individual Fairness	Dr. Klaus Mueller *Computer Science*
15	**Daniel Ryckman** *Academy for Science & Design (NH)*	Providing Efficient and Low-overhead Heap Overflow Protection with TailCheck	Dr. Mike Ferdman *Computer Science*
16	**Mason SabellaRosa** *Columbia Grammar & Preparatory School (NY)*	Property-Based Home Automation	Dr. Omar Chowdhury *Computer Science*
17	**Arihant Singh** *The Early College at Guilford (NC)*	Large Scale, Incrementally Updatable RNA-seq Search with Mantis	Dr. Mike Ferdman *Computer Science*
18	**Riya Tyagi** *Phillips Exeter Academy (NH)*	Generating CT Lung Cancer Pathology to Augment Imbalanced Datasets	Dr. Klaus Mueller *Computer Science*
19	**John Du** *Methacton HS (PA)*	Decentralized Multi-Agent Systems in a Heterogenous Arm-Subset Scenario Multi-Armed Bandit Problem	Dr. Ji Liu *Electrical & Computer Engineering*

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20	**Eric Tang** *River Hill HS (MD)*	Redundancy in Resilient Distributed Optimization	Dr. Ji Liu *Electrical & Computer Engineering*
21	**Angela Guo** *Adlai E. Stevenson HS (IL)*	Crustal Architecture of Alaska Imaged by a 2-layer H-κ Stacking Method	Dr. Weisen Shen *Geosciences*
22	**Maeve McCarthy** *Bethlehem Central HS (NY)*	Crustal Thickness and Vp/Vs Ratio in Western Canada through H-κ Stacking of P-wave Receiver Functions	Dr. Weisen Shen *Geosciences*
23	**Aarav Arora** *Del Norte HS (CA)*	Analysis of C1q receptors (gC1qR and cC1qR) in Lung Cancer Cells	Dr. Berhane Ghebrehiwet *Medicine*
24	**Allison Blosser** *Harborfields HS (NY)*	Analysis of the Role of the gC1qR Molecule in Japanese Cervical Cancer Cells	Dr. Berhane Ghebrehiwet *Medicine*
25	**Aanya Gupta** *Bergen County Academies (NJ)*	Analyzing the Role of gC1qR in Caucasian and African-American Breast Cancer Cells	Dr. Berhane Ghebrehiwet *Medicine*
26	**Kiran Johar*** *Jericho HS (NY)* **Independent Research*	Determination and Analysis of Apolipoprotein - L1 Binding Site Nature to Treat APOL1- Mediated Kidney Dysfunction	Dr. Shipra Agrawal *Medicine*
27	**Alexandra Duan** *Ward Melville HS (NY)*	Nonsteroidal Anti-inflammatory Drug Increases Adult Hippocampal Neurogenesis in Alzheimer's Mice	Dr. Qiaojie Xiong *Neurobiology & Behavior*
28	**Sadie Fournier*** *Montgomery Blair HS (MD)* **Independent Research*	Role of the GluN2D NMDA Receptor Subunit in Zebrafish Locomotor Behaviors and Development	Dr. Howard Sirotkin *Neurobiology & Behavior*
29	**Jack Goldfried** *Half Hollow Hills HS East (NY)*	Effects of VAChT Knockdown on Non-grooming Behaviors in a SAPAP3 Null Mouse Model of OCD	Dr. Joshua Plotkin *Neurobiology & Behavior*
30	**Catalina Molina** *Princeton HS (NJ)*	NEMF Mouse Model of Neurodegeneration Exhibits Altered Expression of ALS-Linked Genes	Dr. Roger Sher *Neurobiology & Behavior*
31	**Erin Meymarian** *Chantilly HS (VA)*	Bone Recovery After Simulated Lunar, Martian, and Low Earth Orbit Gravity	Dr. David Komatsu *Orthopaedics*

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32	**Gabrielle Alli** *Biotechnology HS (NJ)*	Developing Cell Surface-specific Protein Tagging in *Mycobacteria*	Dr. Jessica Seeliger *Pharmacological Sciences*
33	**Derek Days** *Noble & Greenough Schools (MA)*	Synthesizing an in vivo BER Detection Probe and Precipitating Glycogen for Patch Size Identification	Dr. Bruce Demple *Pharmacological Sciences*
34	**Abigail Callaghan** *Rutgers Preparatory School (NJ);* **Shannon Higgins** Walter O'Connell Copiague HS (NY)	Using Machine Learning to Predict Dissociation Energy for Diatomic Molecules	Dr. Jesús Pérez Ríos *Physics & Astronomy*
35	**Julia Hudson** *New Trier Township HS (IL)*	Spacecraft Coatings Optimizing LiDAR Debris Tracking and Light Pollution Impacts	Dr. Eric Jones *Laser Teaching Center, Physics & Astronomy*
36	**Tiffany Zhang** *Great Neck South HS (NY);* **Victoria Tan** *Jericho HS (NY);*	Mass Estimations of LIGO Black Hole–Neutron Star Merger Candidates	Dr. James Lattimer *Physics & Astronomy*
37	**Muen Teng** *Lake Oswego HS (OR)*	AI Enhanced Optical Scanning Probe Microscopy: Noise2Void Artificial Algorithm for Image Analysis	Dr. Mengkun Liu *Physics & Astronomy*
38	**Angelika Wang** *Cary Academy (NC)*	Development of Speckle Optical Tweezers	Dr. Eric Jones *Laser Teaching Center, Physics & Astronomy*
39	**Nikita Agrawal** *Whitney M. Young Magnet HS (IL)*	Using Machine Learning to Improve Ensemble Model Tropical Cyclone Track Forecast	Dr. Brian Colle *School of Marine & Atmospheric Sciences*
40	**Abhinav Avvaru** *Nashua HS South (NH)*	The Interactions Between Nanobubbles and Perfluorooctanoic Acid (PFOA)	Dr. Arjun Venkatesan *School of Marine & Atmospheric Sciences*
41	**Nicole Ma** *Sage Hill School (CA)*	Using Machine Learning to Improve Offshore Wind Resource Assessment and Forecasting	Dr. Brian Colle *School of Marine & Atmospheric Sciences*

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42	**Jennifer Tian** *Montgomery HS (NJ)*	The Effect of Temperature on the Development of an Apicomplexan Parasite Threatening Northern Bay Scallops (*Argopecten irradians irradians*)	Dr. Bassem Allam, Dr. Emmanuelle Pales-Espinosa *School of Marine & Atmospheric Sciences*
43	**Tanakamon ("Min") Yimisiri** *Emma Willard School (NY)*	Investigating the Adsorption of Perfluorooctane Sulfonate (PFOS) on Pristine and Aged Microplastics (MPs)	Dr. Arjun Venkatesan *School of Marine & Atmospheric Sciences*