SIMONS SUMMER RESEARCH PROGRAM

POSTER PRESENTATIONS, AUGUST 2016

Programs for Research & Creative Activity
Stony Brook University

Student Presenter(s)	Project Title	Mentor(s)
Shahira Amin *MDQ Academy (NY)*	The Parallels of Metabolic Asymmetry, Sleep, and Auditory Evoked Potentials in Major Depressive Disorder	**Dr. Christine DeLorenzo** *Center for Understanding Biology using Imaging Technology (CUBIT)*
Escher Campanella *Darien HS (CT)*	A Radio Transceiver Based Wearable Device to Help Visually Impaired Users Cross the Street	**Dr. Aruna Balusubramaniam** *Computer Science*
Annette Chang *Woodbridge HS (CA)*	Elucidating the Drug Resistance Mechanism of Atazanavir, Indinavir, and Nelfinavir in HIV 1 Protease with Molecular Dynamics Simulations	**Dr. Carlos Simmerling** *Chemistry*
Elynna Chang *Lambert HS (GA)*	FGF Promotes Neuromesodermal Progenitor (NMP) Development through *eve1* Regulation	**Dr. Benjamin Martin** *Biochemistry & Cell Biology*
Aurnov Chattopadhyay *University HS (CA)*	Sustainable Heavy Metal Remediation through Novel Carboxy-Cellulose Nanofiber Coagulants	**Dr. Benjamin Hsiao** *Chemistry*
Nicholas Cimaszewski *Regis HS (NY)*	Mining Intentions from 3D Reconstructed Eye Tracking Data	**Dr. Dimitris Samaras** *Computer Science*
Andrea Dahl *Olathe North HS (KS)*	Formation and Change of Vocal Dialects in Captive Gentoo Penguin *Pygoscelis papua* Colonies	**Dr. Heather Lynch** *Ecology & Evolution*
Ritwik Dixit *Homestead HS (CA)*	Automatic Material Identification through Smartphone-Based Acoustic Signal Emission	**Dr. Fan Ye** *Electrical & Computer Engineering*
Clara Fontaine *Thomas Jefferson HS for Science & Technology (VA)* **Pooja Deshpande*** *Rocky Point HS (NY)* **Independent HS Research*	Characterizing Recovery of Functional Motor Behaviors after Rostral and Caudal Cervical Spinal Cord Injuries in Adult Rats	**Dr. Prithvi Shah** *Physical Therapy*
Eric Han *Harvard-Westlake School (CA)*	Conjugating Antibody 60.11 to Albumin Nanoparticles to Suppress Tumor Proliferation	**Dr. Berhane Ghebrehiwet** *Medicine*
Michael Huang *Westlake HS (TX)*	The Effect of Quadcopter Guidance in Crowd Emergency Evacuation Scenarios: Simulation and Analysis	**Dr. Minh Hoai Nguyen** *Computer Science* **Dr. Nilanjan Chakraborty** *Mechanical Engineering*
Satya Jella *Gwinnett School of Mathematics, Science & Technology(GA)*	Classical Conditioning in Larval Zebrafish with Olfactory Stimuli	**Dr. Scott Laughlin** *Chemistry*
Karen Jiang *Horace Mann School (NY)*	Elucidating the Role of the REST C-Terminus in Zebrafish Development and Behavior	**Dr. Howard Sirotkin** *Neurobiology & Behavior*

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Apoorv Khandelwal *Tesla STEM HS(WA)*	Modeling Affinity Maturation for Antibodies Targeting Influenza Hemagglutinin	**Dr. Dmytro Kozakov** **Dr. Robert Harrison** *Institute for Advanced Computation Science*
Stephen Kyranakis *Smithtown HS West (NY)*	A Novel Microfluidic Chip for Modeling Ischemia *in vitro*	**Dr. Wei Yin** *Biomedical Engineering*
Tracy Lang *Irvine HS (CA)*	Analyzing the Distribution of Neuronal Primary Cilia Orientation in the Brain	**Dr. Shaoyu Ge** **Dr. Qiaojie Xiong** *Neurobiology & Behavior*
Sophia Li *Miramonte HS (CA)*	Investigating Low-Intensity Ultrasound as a Mechanism to Induce Apoptosis and its Potential for Enhancing Cell Proliferation, Differentiation, And Reprogramming	**Dr. Yi-xian Qin** **Dr. Wei Lin** *Biomedical Engineering*
Vincent Li *Spackenkill HS (NY)*	Highly Permeable Cellulose Nanocrystal-Based Ultrafiltration Membranes for Treating Oily Wastewater	**Dr. Benjamin Hsiao** **Dr. Hongyang Ma** *Chemistry*
Chiu Fan Bowen (Leo) Lo* *Jericho HS (NY)* **William Zheng*** *Great Neck South HS (NY)* ***Independent HS Research*	A Novel Computational Approach Characterizing Local Inhomogeneities in Gold-Deposited Silicon Substrate	**Dr. Mengkun Liu** *Physics & Astronomy*
Anna Lou *Oxford Academy (CA)*	Enhancing Molecular Visualization in VMD with Leap Motion	**Dr. Carlos Simmerling** *Chemistry*
Casey Macolino *Northport HS (NY)*	Will Restored *Spartina* Marshes in Jamaica Bay Mature Into Stable Ecosystems?	**Dr. Stephen Baines** *Ecology & Evolution*
John McEnany *Hunter HS (NY)*	Localizing 3xGFP Tagged Proteins During *Saccharomyces cerevisiae* Sporulation	**Dr. Aaron Neiman** *Biochemistry & Cell Biology*
Huiwen (Wenny) Miao *Shaker HS (NY)*	Customized Electronic Biophysical Sensors for Video Game Control with Biomedical Engineering Applications	**Dr. Clinton Rubin,** **Dr. Mei Lin Chan** *Biomedical Engineering*
Lillian Mo *The Chapin School (NY)*	Alteration of Femoral Mechanical Properties by Induced Osteoarthritis and Ultrasound Treatment under Axial and Torsional Loading	**Dr. Yi-xian Qin** **Dr. Wei Lin** *Biomedical Engineering*
Veda Murthy *Lexington HS (MA)*	Towards a More Accurate Classifier of Shapes and Attributes in Glioma Nuclear Images	**Dr. Dimitris Samaras** *Computer Science*
Kirti Nath *Ward Melville HS (NY)*	Using Zebrafish (*Danio rerio*) to Investigate Early Life Stage Developmental Toxicity of Neuroactive Pharmaceuticals	**Dr. Anne McElroy** *School of Marine & Atmospheric Sciences*

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Minh-Thi Nguyen *Los Alamitos HS (CA)*	Light Field Generated by Coupling Atoms to a Resonant Cavity in the Strong Coupling Regime	**Dr. Tzu-Chieh Wei** *Physics & Astronomy*
Harsha Paladugu *DuPont Manual HS (KY)*	Podocyte-specific Loss of *Klf4* Exacerbates STAT3 Activation in Two Models of Glomerulonephritis	**Dr. Sandeep Mallipattu** *Medicine*
Naeha Pathak *Herricks HS (NY)*	Btk and Osteoarthri/s: Correla/ng Target Occupancy and Efficacy	**Dr. Peter Tonge** *Chemistry*
Emily Peterson *Smithtown HS East (NY)*	The Role of Lecithin-Retinol Acyl Transferase in Squamous Cell Carcinoma Motility	**Dr. Marcia Simon** *Oral Biology & Pathology*
Alec Qin* *Ward Melville HS (NY)* **Independent HS Research*	Effects of Ultrasound Intensities and Nanoparticle Concentration on Stem Cell Proliferation and Osteogenesis	**Dr. Yi-xian Qin** **Dr. Minyi Hu** Biomedical Engineering
Ben Rhee *Syosset HS (NY)*	An Analysis of Power Dissipation in Extratropical Cyclones	**Dr. Brian Colle** *School of Marine & Atmospheric Sciences*
Hannah Rosenthal *Smithtown HS West (NY)*	Genetics and Morphology of the Vomeronasal Organ	**Dr. Liliana Davalos** *Ecology & Evolution*
Anushka Roy *Comsewogue HS (NY)*	Furfuryl Alcohol Dehydration Over Zeolite Catalysts	**Dr. Taejin Kim** *Materials Science & Engineering*
Aakansha Saxena *Desert Mountain HS (AZ)*	Generalized Structure Search Method for Molecular Clusters Involved in Atmospheric New Particle Formation	**Dr. Christopher Johnson** *Chemistry*
Tyler Shen *Phillips Andover (MA)*	The Existence of the Circular Pleat	**Dr. Martin Rocek** *C.N. Yang Institute for Theoretical Physics*
Arjun Subramaniam *Harker Upper School (CA)*	CadML: Computational Antibody Design through Deep Learning and Structural Protein Analysis	**Dr. Thomas MacCarthy** *Applied Mathematics & Statistics*
Alec Sun *Phillips Exeter Academy (NH)*	Temperature Dependence of $BaTiO_3$ Thin Film Growth Rate	**Dr. Matthew Dawber** *Physics & Astronomy*
Sharanya Suresh *Westview HS (OR)*	The Role of gC1qR in Lymphoproliferative Disorder Associated Angioedema	**Dr. Berhane Ghebrehiwet** *Medicine*
Lina Takemaru* *Ward Melville HS (NY)* **Independent HS Research*	Driver and Dependency Screen in Breast Cancer	**Dr. R. Scott Powers** **Dr. Adaobi Mofunanya** *Pathology*
Jessica Tian *Del Norte HS (CA)*	Decoration of Nanocellulose Membranes with Ag/TiO2 Nanoparticles for Enhanced Antibacterial Performance	**Dr. Benjamin Hsiao** *Chemistry*

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Jocelyn Tolpin *Newark Academy (NJ)*	Investigation of Photocurrent Effect in PbTiO 3 /SrTiO 3 Superlattices using I-V Measurements	**Dr. Matthew Dawber** *Physics & Astronomy*
Caitlin Unkenholtz *Smithtown HS West (NY)*	Purification of the *Yersinia pestis* Response Regulator PhoP Proteins to Study the Effects of a Single Nucleotide Polymorphism Acquired during *Y. pestis* Evolution	**Dr. James Bliska** *Molecular Genetics & Microbiology*
Yogeshwar Velingker *Parkland HS (PA)*	Analysis of Gaze Patterns of Humans During Event Detection	**Dr. Minh Hoai Nguyen** *Computer Science*
Ryan Wu *Manhasset HS (NY)*	Next-Generation Combination Therapy for Treatment of Cancer: Apoptosis, Vascular Disruption, and Nanoemulsion	**Dr. Iwao Ojima** *Chemistry, Institute for Chemical Biology & Drug Discovery*
Christopher Xue *West Windsor-Plainsboro HS North (NJ)*	Persistence of Normal Modes in Anharmonic Lattices Explored by Computer Simulation	**Dr. Philip Allen** *Physics & Astronomy*
Melody Yang *Great Neck South HS (NY)*	Characterization of Lipid Transport-Associated Proteins from Mycobacteria	**Dr. Jessica Seeliger** *Pharmacological Sciences*
Ruisi Zhong *Smithtown HS East (NY)*	Does Cued and/or Contextual Fear Learning Induce Active Neurons in the Ventral Subiculum Area of the Hippocampus?	**Dr. David Talmage** *Pharmacological Sciences* **Dr. Lorna Role** *Neurobiology & Behavior*

Acknowledgements

We'd like to take this opportunity to thank the parents and educators who supported the Simons Fellows in getting involved in research, the Stony Brook faculty mentors and research colleagues who devoted their time, energy and resources to the Simons Fellows, and the Simons Foundation for their generous and ongoing support. Thanks also to Debra Pelio and the Institute for STEM Education for assistance with poster printing.

Karen Kernan, Director, Simons Summer Research Program
Brian Frank, Staff Assistant

About the Simons Summer Research Program

The Simons Program enables academically talented high school students to come to Stony Brook University for a summer to engage in scientific research. Simons Fellows work with distinguished faculty mentors, learn laboratory techniques and tools, become part of active research teams, and experience life at a research university. Today's reception recognizes the students and the faculty with whom they work. The Simons Program is supported by the Simons Foundation and individual faculty grants, and is administered by Programs for Research and Creative Activity.

For more information, call 631.632.7114.
Simons Summer Research Program website:
http://stonybrook.edu/simons

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FACULTY MENTORS, 2016

Dr. Philip Allen, *Physics & Astronomy*

Dr. Stephen Baines, *Ecology & Evolution*

Dr. Aruna Balusubramaniam, *Computer Science*

Dr. James Bliska, *Molecular Genetics & Microbiology*

Dr. Nilanjan Chakraborty, *Mechanical Engineering*

Dr. Mei Lin Chan, *Biomedical Engineering*

Dr. Brian Colle, *School of Marine & Atmospheric Sciences*

Dr. Liliana Davalos, *Ecology & Evolution*

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Dr. Benjamin Hsiao, *Chemistry*

Dr. Christopher Johnson, *Chemistry*

Dr. Taejin Kim, *Materials Science & Engineering*

Dr. Dymtro Kozakov, *Applied Mathematics & Statistics, Inst. for Advanced Computational Science*

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