

Intel Science Talent Search

The Science Talent Search was created to encourage high school seniors who demonstrate exceptional ability in science, math and engineering through individual research projects. Over the years the Science Talent Search has become the most prestigious high school science competition in the country, with broad support of the academic and scientific communities. Educators, scientists, engineers and journalists throughout the U.S. have enthusiastically enabled this annual event. Many STS participants have gone on to distinguished careers; six of these remarkable scientists have won the Nobel Prize.

Science Service is the nonprofit organization which has administered the Science Talent Search since its inception in 1942. The mission of Science Service is to advance the understanding and appreciation of science. In addition to its education programs, Science Service publishes the weekly magazine *Science News*.

2006 Semifinalists

The Semifinalists of the 65th Science Talent Search were chosen from among 1558 entrants representing 486 high schools in 44 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands and an overseas school. From among the Semifinalists, 40 Finalists will be selected to attend the Science Talent Institute in Washington, D.C. from March 9-14, 2006. During their visit to Washington, the Finalists will present their research to the public, participate in final judging and share in \$530,000 in scholarships.

Each of the 300 students named a Semifinalist in the Intel Science Talent Search will receive a \$1,000 award for their outstanding science research, to be received in April 2006.

Additionally, to recognize excellence in teaching and school support of individual student research, the high schools of Semifinalists will receive an award of \$1,000 for each Semifinalist named in the Intel Science Talent Search. This award is used to further excellence in science, math and engineering education at the recipient school. In the case of home schooling, the awards are given to the affiliated school or school district of the home school. School awards are also distributed in Spring, upon completion by the principal of the School Award Program Application.

Colleges and universities regard the Semifinalist award to be evidence of exceptional scientific promise. Each Semifinalist is provided with a certificate of accomplishment, which may be sent with their applications for college admission and scholarships. A listing in this book, as well as at www.sciserv.org/sts, is also generally accepted as documentation of the honor.

Intel Science Talent Search Finalists will be announced January 25, 2006 and published in the January 28, 2006 edition of *Science News* magazine.

This list of Intel STS Semifinalists is compiled by Science Service, based upon information provided by each student in their entry. If a student's city of residence differs from that of the school, the city of residence will be listed.

ALABAMA

Florence

Florence High School

Taylor, Jennifer Ann, 18

Investigation of Prescription Antibiotics and Multidrug Resistant Pathogens in the Tennessee River

ARIZONA

Tempe

Corona del Sol High School

Muralidhar, Vinayak, 16, Chandler

Lethal Gene Detection through Topological Analysis of Regulatory Networks

Tucson

University High School

Baker, Elizabeth Anne, 17

The Bi-Orbital Rotational Therapy Swing: A New Hope for Children with ADHD

ARKANSAS

Forrest City

Forrest City High School

McCollum, Frederick Newton, 16

Dynamic and Ergodic Properties of the Generalized $3x + 1$ Mapping

CALIFORNIA

Fremont

Mission San Jose High School

Gao, Jason Hao, 18

Prototyping a Cost-effective Robot with Radiation Detection Capabilities

Mao, Angelo Shang-Cheng, 17

The Effects of Enzyme Addition on Anaerobic Digestion and the Time-Growth Model for Biogas Production

Fullerton

Troy High School

Jee, Justin Russell, 17, Anaheim

Reaction Mechanism and Kinetics for the Oxidations of Organic Sulfides by Nitrate Radical

Nguyen, Anthony Tuan, 17

A New Quantum Chemical Approach in the Determination of the Octanol-Water Partition Coefficients (K_{ow}) of Organic Aromatic Compounds

Wang, John, 17

Conformational Analysis of Proline Dipeptide Using Density Functional Theory

La Jolla

La Jolla High School

Zhang, Elizabeth Jianing, 17, San Diego

Do El Niño and La Niña Have Any Impact on Typhoons?

Los Angeles

Milken Community High School

Miller, Thais, 17

Function and Expression of miR171 in Embryonic and Seedling *Arabidopsis* Development

North Hollywood	<u>Harvard-Westlake School</u> <i>Greeno, Remy Billingsley, 17, Los Angeles</i> Construction of an <i>in vivo</i> Imaging System for Gene Therapy
	<u>North Hollywood High School</u> <i>Hsieh, Timothy Hwa-wei, 17, Tarzana</i> Properties of Laser-induced Cavitation Luminescence in Alkali and Alkaline Earth Solutions
Oakland	<u>The Head-Royce School</u> <i>Jairam, Vikram, 17, Fremont</i> Acrolein Mediates Structural Modification and Functional Impairment of Apolipoprotein E: New Implications in Cardiovascular Disease
Palo Alto	<u>Henry M. Gunn High School</u> <i>Mehrotra, Mahncy, 17, Los Altos</i> The Effects of Flow on Differentiation of Stem Cells in a Culture Chamber
	<u>Palo Alto High School</u> <i>Steinman, Jonathan Baruch, 17</i> Electrophoresis in Nanochannels: A Novel Method for Rapid, High Resolution Separation of DNA
Pasadena	<u>Westridge School</u> <i>Rengarajan, Sophie, 17</i> Gamma-Ray Bursts and Post Mass Extinction Faunal Radiation
Redondo Beach	<u>Redondo Union High School</u> <i>Williams, Genevieve, 17, Palos Verdes Estates</i> Foraging Behavior and Food Preferences of Argentine Ants
Rowland Heights	<u>Oxford School</u> <i>Wu, Jing, 17</i> Soft-lithography-based Optical Interconnect with High Misalignment Tolerance
Sacramento	<u>Mira Loma High School</u> <i>Chi, Albert Hoyoung, 18, Gold River</i> Resonance Energy Transfer in Large Strands of dsDNA Using 13nm-Au Nanoparticles
	<i>Griffiths, Patricia Elizabeth, 17</i> Catecholamines and the β -2 Adrenergic Receptor Modulate Wound Healing
San Diego	<u>Josan Academy</u> <i>Viscardi, Michael Anthony, 16</i> On the Solution of the Dirichlet Problem with Rational Boundary Data
San Francisco	<u>Leadership High School</u> <i>Ye, Guangxiang, 18</i> This Requires Action: To Overhaul the SI Units
San Jose	<u>Boiko Home School</u> <i>Boiko, Julie Renee, 17</i> Allogeneic Antibodies Develop from Donor Hematopoietic Stem Cells
	<u>Presentation High School</u> <i>Brown, Kate Marie, 17</i> Urea Uptake in a Hydroponic System for Growing <i>Nasturtium officinalis</i>

San Jose

The Harker School

Sun, Yi, 17

On the Expected Winding Number of a Random Walk on the Unit Lattice

Santa Monica

Santa Monica High School

Chang, ZeNan Li, 17

A Finding of Genetic Polymorphisms Associated with Meningioma Progression: *MDM2* SNP309 and the *p53* Codon 72 SNP

COLORADO

Boulder

Glissmann Home School

Glissmann, Robert Vaughan, 18

Utilizing Audio Profile Matching Technology for Replicating Body Kinesis

Colorado Springs

William J. Palmer High School

Sidman, Adam Daniel, 17

A Handheld Multi-axis Camera Stabilization Device Utilizing MEMS Gyro Sensors

Greenwood Village

Cherry Creek High School

Sridhar, Ananth V., 16, Denver

A Novel, Cost-effective Method for Determination of Site-specific Water Quality Criteria for Copper

Highlands Ranch

Highlands Ranch High School

Xu, Chenxu, 16, Highlands Ranch

Consideration of Stomatal Conductance in a Revised Energy Balance Equation for the Estimation of Canopy Temperature

CONNECTICUT

Darien

Darien High School

Grejtak, Timothy Banks, 18

The Design and Construction of a Novel Hydrogen-fueled Engine

East Lyme

East Lyme High School

Ranade, Raj Gautam, 17

A Computer Model for Optimization of a Non-isothermal Chlorination Reactor

Wallingford

Choate Rosemary Hall

Pendri, Kiran Reddy, 17, South Glastonbury

Macrocyclization Using Ring-Closing Olefin Metathesis: Synthesis of a 13-Member Dithiolactone

Westport

Staples High School

Sellon, Jonathan Blake, 18

Modeling Auditory Attention by Implementing IHC Movement into Frequency Selectivity of the Inner Ear: A Novel Approach to Stimuli Separation

FLORIDA

Cooper City

Cooper City High School

Esiobu, Nkemka Udo, 16, Hollywood

Marine Drug Discovery: Novel Antimicrobial Agents Extracted from Gorgonians and Sponges

Fort Lauderdale

Pine Crest School

Gordon, Andrew Christian, 17, Boca Raton

Hysteresis in Magnetically Susceptible Nanoparticles to Alter Intracellular Events and Affect Atherosclerotic Plaque Behavior

Tell, Shoshana Sophie Rothman, 17, Coral Springs

Characterizing the Wnt/ β -Catenin Signaling Pathway in Retinoblastoma

Key Biscayne

MAST Academy

Robel, Alexander Abram, 17, Miami

ENSO Dampening of Atlantic Tropical Cyclone Activity via Thermal Wind

Melbourne

West Shore High School

Zhang, Zihao, 18

A Multifractal Analysis of the Universe

Niceville

Niceville High School

Mohammed, Yahya Maqsood, 17

Sustained Reduction of Pathogen Load in Fresh Seafood: Development of a Novel Antibacterial Packaging for Seafood Safety

Orlando

Lake Highland Preparatory School

Gianelli, Gabrielle Alyce, 17

Fractal Dimension Analysis of Putative Martian Coastlines

GEORGIA

Chamblee

Chamblee High School

Shaket, Lev Alexander, 17, Atlanta

Unwrapping Myelination: Myelination Regulation in TM-NRG1 \pm Transgenic Mice

College Park

Woodward Academy

Sattin, Benjamin Leavell, 18, Atlanta

Feasibility of Using a Carbonate Conducting Anion Exchange Membrane for Direct Methanol Fuel Cell Purposes

Marietta

Wheeler High School

Haines, Lindsay Kim, 17

Targeting Intracellular Proteins Resistant to Trail Induced Apoptosis in Cancer Cells

Regitsky, Drew Daniel, 17

Use of Emulsion Polymerization to Prepare Inorganic/Polymer Nanocomposites for Application in Creating Lotus Effect Surfaces

IDAHO

Moscow

Moscow High School

Moller, Lucas Edward, 17

Micromechanics of Mars Dust on Round Surfaces: A Precursor Measurement for the Safe Human Exploration of Mars

ILLINOIS

Aurora

Illinois Mathematics & Science Academy

Chen, Jason Andrew, 15, Hoffman Estates

Nuclear Medicine Imaging of Vulnerable Plaque: Contrast Improvements through Multi-labeling of Nanoparticles

Chen, William Barry, 15, Hoffman Estates

Identity Configuration of the Sandpile Group

Hill, Jamison Avery, 17, Libertyville

Tuning Pitch of Synthetic Helices

Wang, Xin, 17, Geneva

nm2608A: A New Naturally Arising Mouse Model for Human Autosomal Recessive Achromatopsia 2

Zhang, Letian, 17, Chicago

GLY Conjecture on Upper Estimate of Integral Points in Real Tetrahedra

Northbrook

Glenbrook North High School

Ranjan, Sukrit, 18

The Influence of Topography on Martian Polar Clouds

INDIANA

Kokomo

Northwestern High School

Naegeli, Kaleb Marcus, 18

Analyses of Sugar Substitute Mutagenicity and Neurological Effects

Mishawaka

Penn High School

Chun, Yeona, 17

Structural Model and Opsin Localization of *Aedes aegypti* Ommatidia

Noblesville

Noblesville High School

Pandit, Caaminee Mayank, 18

Can Remote Sensing Data Improve Children's Health? Using Hyperspectral Analysis to Determine Lead Concentrations in Soil

South Bend

John Adams High School

Hurwich, Jordan Andrew, 17

Evaluating the Effectiveness of Carbon Nanofoam Electrodes in the Direct Methanol Fuel Cell Under Various Conditions

KANSAS

Manhattan

Manhattan High School

Maatta, Sara, 18

The Effect of Day and Night Cycles on the Lipid Composition of *Arabidopsis thaliana*

Schurle, Alan J., 17

Novel Synthesis Methods of Silver Nanoparticles and the Dramatic Accompanying Rise in Bactericidal Activity

KENTUCKY

Louisville

duPont Manual Magnet High School

Vitale, Rebecca Joy, 17

The Glucose Dependence of CD4⁺ T-lymphocytes

LOUISIANA

Natchitoches

Louisiana School for Math, Science and the Arts

Lowry, Kate Elizabeth, 17, Slidell

Gullies in the Northern Hemisphere of Mars: How Much Water Was Needed for Gully Formation?

Shreveport

Caddo Parish Magnet High School

Dyer, Charles William, 17

The Function of a Novel Apoptosis Regulating Protein, XAF-1C, in Breast Cancer Cells

Kumar, Monika, 18

The Role of Junctional Proteins in Viral Dissemination of Human Cytomegalovirus

MARYLAND

Baltimore

Baltimore Polytechnic Institute

Davis, Myers Abraham, 17

Bounding Sphere Images: A Parametric Bounding Volume Hierarchy for Collision Detection on the GPU

Hill, Owen Forgione, 17

Determining the Best Live Show: A Sociological Study of Rock Concerts

Clarksville

River Hill High School

Xing, Jeffrey Chunlong, 17

A Novel Single Nucleotide Polymorphism, T105G, in Intron 9 of the *PIK3CA* Gene Protects Against Follicular Thyroid Cancer

Silver Spring

Montgomery Blair High School

Alm, Alexander Mansfield, 17, Rockville

Vital Signs Monitoring and Patient Tracking for Medical Emergencies

Anand, Pria, 17, Potomac

Toward Understanding the Environmental Causes of Breast Cancer: The Effects of *in utero* Exposure to Indole-3-Carbinol on Breast Cancer Risk Factors

Bhat, Kiran Narayan, 17, North Potomac

Expression and Subcellular Localization of Chloride Intracellular Channel Protein 4 Are Altered during Tumor Progression

Briggs, Clair Danielle, 17

Creating a Transgenic Mouse Line that Knocks Out the Expression of Oxytocin in the Endocrine System

Chen, Lu, 17, Rockville

Dihydroartemisinin: A New Drug in Therapy of Ovarian Cancer

Silver Spring**Montgomery Blair High School (cont'd)*****Cheng, Debbie Fei, 17, North Potomac***

An Experimental Study of Carbon Ordering Kinetics

Chowdhury, Shwetadwip, 17, Burtonsville

ViPAR: A Novel Tool for Visualization, Paint, Alignment, and Rotation in the Study of Cerebellar Peduncle Degeneration and Its Relationship to Ataxia Severity

Howard, Gregory Liang, 17, Bethesda

The Effectiveness of the Monetary Transmission Mechanism in China

Hu, Jun, 17, Rockville

Non-invasive Estimation of Type 1 Angiotensin II Receptor Abundance through Urine Analysis

Huynh-Le, Minh-Phuong, 17

Toward Understanding the Global Carbon Cycle: The Response of Soil Organic Matter to Changes in Forest Density and Flora

Jiang, Andy Mengfei, 17, North Potomac

A New Control Law and Transistorization of Quantum Harmonic Oscillators

Zhang, Yuan, 17, Rockville

Oxidized LDL Metabolites Upregulate Expression of the Adhesion Molecule CX3CL1 in Primary Coronary Artery Smooth Muscle Cells

MASSACHUSETTS**Acton****Acton-Boxborough Regional High School*****Kashin, Konstantin Vsevolodovich, 17***

Proteomics Analysis of the Functional Role of Glycogen Synthase Kinase 3 Phosphorylation of Tumor-Suppressor Protein p130/RBL2

Amherst**Amherst Regional High School*****Martini, Jr., Karl Michael, 18, Pelham***

An Experimental Study of Random Loose Packing of Uniform Spheres

Andover**Phillips Academy*****Chen, Katherine, 17, Yorktown Heights, New York***

Effect of Electrical Stress on Gate Current in Metal-Insulator-Silicon Structures

Boston**Boston Latin School*****Schwob, Anneke Ellen, 17, West Roxbury***

A Novel Role for Telomeres and Telomerase in Neural Differentiation of P19 Embryonal Carcinoma Cells

Burlington**Burlington High School*****Saigal, Amrita, 17***

Layer by Layer Assembly as a Technique to Optimize Fuel Cell Membrane Properties

Lexington**Lexington High School*****Chung, Irving Yee Wing, 18***

Estrogen Mimics in Licorice Extracts: Characterization with an Engineered Yeast Assay

Lexington

Lexington High School (cont'd)

Kim, Geon, 18

Antibubbles: Factors that Affect Their Stability

Wellesley Hills

Wellesley High School

Scott, Kimberly Megan, 16, Wellesley

A Partial Characterization of Ehrenfeucht-Fraïssé Games on Fields and Vector Spaces

MICHIGAN

Beverly Hills

Detroit Country Day School

Ying, Wendy, 16, Novi

Development and Optimization of an Antibody-Based Biosensor for *Bacillus cereus* Detection

Zhou, John Cong, 17, Northville

Synthesis of Polyaniline-based Conducto-Magnetic Polymers as Nanotransducers in Biosensor Design

Bloomfield Hills

Andover High School

Xu, Alexander Minyi, 17, Bloomfield

Arugula: A Trap Crop for *Meloidogyne hapla* Control

Cranbrook Kingswood School

Pan, Bohao, 17, Canton

The Existence of Resistance Gene Analogues in *Beta vulgaris* and Related Germplasms

International Academy

Chernyak, Alexander, 17, Farmington Hills

Polarization Dynamics of Ytterbium Doped Silica Fiber Laser

Ortonville

Brandon High School

Laviolette, Jessica, 18

Production of Ethanol by Vacuum Process

Rochester Hills

Stoney Creek High School

Shah, Meelap Vijay, 17, Rochester

Extended Fault Tolerance of Hyper-Star Graphs

MINNESOTA

Minneapolis

Breck School

Trusheim, Matthew Edwin, 17, Chaska

The Optical Waveguide: Designing an Instrument for Genetic Testing

Woodbury

Woodbury High School

Liu, Gordon Tianyu, 17

New "Green" Chemistry to Create Isocyanates

MISSOURI

Faucett

Mid-Buchanan R-5 High School

Freeman, Casey Jo, 18, Saint Joseph

Lead to Gold . . . Plants to Plastic: Which Agricultural Resource Will Satisfy the 'Triple Bottom Line' of Sustainability?

Manchester

Parkway South High School

Zhao, Luyi, 17

A Quantitative and Highly Sensitive Luciferase-based Assay for Bacterial Toxins that Inhibit Protein Synthesis

Saint Louis

Mary Institute & Saint Louis Country Day School

Benecke, James Andrew, 18

The Effect of Local Doping on the Fermi Points in Superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$

NEBRASKA

Omaha

Central High School

Olson, Patrick David, 18

The Cloning and Identification of 15 Potential Ribonucleases in *Staphylococcus aureus*

NEW HAMPSHIRE

Derry

Pinkerton Academy

Irivinti, Soumya Maha, 16

A Novel Method for Detection of Seizure Channels

NEW JERSEY

Fort Lee

Fort Lee High School

Lin, Janine Chun Hsuen, 17

An Investigation into Antigenic Variation in *Trypanosoma brucei*: RNAi Knock-down of Proteins Interfering with RNA Polymerase I Transcription of VSG Expression Sites in Procyclics

Jersey City

Dr. Ronald E. McNair Academic High School

Edley, Daniel, 17

New Chemicals from the Mandibular Gland of the Formicine Ant, *Lasius neoniger*

Lincroft

High Technology High School

Fischell, Erin Marie, 18, Fair Haven

That Little Voice in Your Head

Millburn

Millburn High School

Bick, Alexander George, 17, Short Hills

Academic Achievement Enhanced by Personal Digital Assistant (PDA) Use

Princeton

Princeton High School

Sahi, Sauhard, 17

Comparative Dynamics of Protein Networks

NEW MEXICO

Edgewood

Malone Home School

Malone, Sean Thomas, 17

Detection and Analysis of Charge Variations Produced by Moving Objects

NEW YORK

Albany

Academy of the Holy Names

Nguyen-McCarty, Michelle Andrea, 17

Pharmacological Study of Dopamine Transmission in the Rat Nucleus Accumbens

Armonk

Byram Hills High School

Gardner, Allison Mae, 17, Bedford

Mosquito Populations and Arboviral Vectors Associated with Equines

Glatt, Daniel Paul, 17, Pleasantville

Navigational Preferences in the Ant *Temnothorax curvispinosus*: A Comparison Between Visual and Chemical Cues

Goldstein, Matthew Weissman, 17

Predictors of Treatment Response in Adolescents with Social Anxiety Disorder

Marks, Harrison Douglas, 17, Bedford

Retrogenesis and the Diagnosis of the Progression of Alzheimer's Disease Based on Self-Feeding Ability

Richelson, Caleb Garcia, 17

Determining Whether Children Can See and Use the Repeating Unit Within a Repeating Pattern

Vellone, Joseph Daniel, 17

An Investigation into the Effectiveness of Novel Water Removal Methods Applied to the MEMS-based Gas Diffusion Media of a Passive Micro PEM Fuel Cell

Bedford

Fox Lane High School

Schindel, Rebecca Joyce, 17, Pound Ridge

Hippocampal Atrophy and Phosphorylated Tau in Alzheimer's Disease

Bellmore

John F. Kennedy High School

Katz, Michael, 17, Merrick

The Impact of Attack Ads on Public Perceptions during the 2000 Presidential Campaign

Roberson, Sara Allegra, 17, Merrick

Reliability of the Therapeutic Alliance Scale for Adolescents with Borderline Personality Disorder in Dialectical Behavior Therapy

Solomon, Adam Ross, 16

The Effects of Age on Brown Dwarf Spectral Features in the Near-Infrared

Ulberg, Scott Franklin, 17

The Effects of Problem Difficulty on Group Decision Making

Wellington C. Mepham High School

Gambo, Robert Theodore, 17, North Bellmore

A Juggling Act: The Relationship Between Task-Switching and Academic Performance, Musical Ability and Computer Skills

Seidman, Joshua David, 17, North Bellmore

The Search for Cosmic Ray Induced Lightning Strokes

Bronx**The Bronx High School of Science*****Cui, Yi, 18, Floral Park***

Skimming

Lam, Nicole Elizabeth, 17, SunnysideExamining the Roles of Neuronal Groups in *Drosophila melanogaster* Using the Gal4/UAS System***Leavitt, Joshua Benjamin, 17, New York***Zebrafish Heart Condition, Human Heart Condition: Understanding *Danio rerio* Response to *Wea* Gene Helps Us Understand Human Congenital Heart Disease***Lee, Katharine Elizabeth, 17, Staten Island***

A Study of EGF Receptors and their Ligands in the Longevity of Naked Mole Rats

Pozin, Konstantin, 17

Reducing False and Irrelevant Alarms in Physiological Monitoring Systems

Schonwald, Carter Tazio, 17, New York

Generalizing Direct and Continuation Passing Style Transformations

Brooklyn**Brooklyn Technical High School*****Zverovich, Olga Igorevna, 17***

Progress on the Generalized Satisfiability Problem

Edward R. Murrow High School***Dweck, Isaac Benjamin, 18***

Testing the Validity of the Maximax, Maximin, and Hurwicz's Criteria in Decision-Making

Guardo, Chiara Glenda, 17

The Effects of Cochlear Implants on Deaf Identity: Self-Labeling, Assimilation, Socialization Preferences and Method of Communication

James Madison High School***Dankin, Denis, 17***

Relative Effects of Cognitive and Emotional Intelligence on Social Functioning

Midwood High School at Brooklyn College***Li, Kerry, 17***

Determination of Functional Domains of a Platelet Cell Adhesion Molecule by Site-directed Mutagenesis

Melamed, Elina, 17

Analysis of Nutrition and Health of Children from a 1st-6th Century A.D. Cemetery at Sirmium, Serbia

Vishnevetsky, Michael, 17Genetically Induced Expression of the *p53*-derived PNC-28 Peptide Elicits Selective Apoptosis in Human Pancreatic Cancer Cells**Cedarhurst****Lawrence High School*****Brenner, Nicole Rachelle, 17***

Preparation of a Superparamagnetic Polymer Nanocomposite for Biomedical Applications

Candrea, Jason Thomas, 17, Woodmere

Determining an Optical Method for Cryopreserving Boar Spermatozoa

Cedarhurst

Lawrence High School (cont'd)

Menco, Audrey Dina, 17

Reflecting on a Problem: Aspects of Male Body Image Among Adolescents

Reilly, Christine Jessica, 17

The Effectiveness of Educational Television Programming as a Teaching Tool

Sussman, Melissa, 17, Lawrence

A New Target to Fight Breast Cancer: hHb1-ΔN

Yurkiewicz, Ilana Rachel, 16, Woodmere

Role of DNA Methylation in Epigenetic Inactivation of Betaig-h3 Gene in Lung Tumors

Centereach

Centereach High School

Zaitseva, Irina Vladimirovna, 17

Stability of Sunscreen to UV Radiation and Reduction of Photocatalytic Activity of Titanium Dioxide

Chappaqua

Horace Greeley High School

Hershman, Melissa Paige, 17

A Multi-scale Assessment of Seagrass Habitats in the Virgin Islands

Dewitt

Jamesville-Dewitt High School

Bhatia, Ankit Krishan, 17

Auditory Attention: A Computational Model of Responses of Inferior Colliculus Cells

Dix Hills

Half Hollow Hills High School East

Kambhampaty, Anusha, 17

The Effect of Mild Hypothermia on Inflammatory Cytokine Expression and Release

Korrapati, Praneet, 17

Development and Validation of a New Prostate Cancer Diagnostic Marker

Half Hollow Hills High School West

Goldstein, Rachel Hilary, 17

An Association Between Dopamine and Serotonin System Related Genetic Polymorphisms in College Students

Harrison, Brett Alexander, 17

On the Reducibility of Cyclotomic Polynomials Over Finite Fields

Nikbakht, Daniel, 17

The Effects of External Loans and Local Financial Markets on the Economic Performance of Latin American Countries

East Greenbush

Columbia High School

Mousa, Sarah Shaker, 18, Wynantskill

Implications of Nicotine's Pro-Angiogenesis Activity: The Good and the Bad

East Setauket

Ward Melville High School

Baer, Samantha Lauren, 17, Stony Brook

A Historical Correlation Between Increasing Acreage of a Flood Tide Delta and Tidal Wetland Loss Due to Long-term Anthropogenic Impacts

Dawson-Haggerty, Michael, 17, Stony Brook

A Novel Approach to the Analysis of the Effects of Strong Gravitational Lensing

East Setauket

Ward Melville High School (cont'd)

Hirsch, Jana Ariel, 17, Setauket

Seismic Signature of Ocean Surf as It Relates to Wave Energy and Coastal Erosion

Kelso, Catherine Mae, 17, Stony Brook

Unusual Structures of RNA and Damaged DNA Probed through Molecular Simulation

Ko, Albert, 17, Setauket

A Gravitational Effective Action on a Finite Triangulation

Ko, Stephen, 17, Setauket

Modifications to Jet Properties in a Strongly Interacting Quark Gluon Plasma

Lieblich, Jerrold Alexander, 17

When the Brain Doesn't Hear What the Mind Does: A Lexical Approach to McGurk Adaptation

Luryi, Alexander, 17

Inconsistencies of the Logistic Growth Law: Gause Experiment Expanded

Micheva, Nora Iordanova, 17, Centereach

Design and Development of Fluorogenic Probes for Study of Fatty-Acid-Second-Generation Taxoid Conjugate Internalization and Release

van Nieuwenhuizen, Patrick Hendrik, 17, Stony Brook

Does Smoothing Matter?

Wu, Peidi, 17

A Novel Approach to Analyzing of Polyoxomolybdate Growth Using Dynamic and Electrophoretic Light Scattering

Zhang, Harley Huiyu, 17

Role of General Relativity in Core Collapse of Spherically Symmetric Supernovae

Farmingville

Sachem High School East

Espitia, Jonathan William, 17

The Effects of Titanium Dioxide Nanoparticles and Ultraviolet Light on Normal Skin Keratinocytes

Flushing

Townsend Harris High School

Kim, Sangsoo, 17, Fresh Meadows

The Regulation of Human Melanoma Cell Susceptibility to Apoptosis through the Suppression of Dynamin-2

Sultan, Maryam Ibrahim, 17, Woodside

Detecting Novel Submicroscopic Chromosomal Abnormalities in Autism

Sze, Christie Ching-Lin, 16, Bayside

The Effect of Fibroblast Growth Factors on the Proliferation and Differentiation of Olfactory Epithelial Cells

Zheng, Anjie, 17

The Role of Barbels in the Localization and Characterization of Gustatory Stimuli in the Oriental Weatherfish, *Misgurnus anguillicaudatus*

Fresh Meadows

St. Francis Preparatory School

Boddy, Sylviane Eileen, 17, Forest Hills

Functional Connectivity with the Superior Temporal Sulcus in Individuals with Autism

Iocolano, Michelle Alana, 17, Flushing

The Effects of α -synuclein on the PLC- β_2 Pathway through the Characterization of Its Binding Affinity to 2PC:PS and 98PC:PIP₂ Membranes

Great Neck

Great Neck South High School

Chou, Alan Yen-Chen, 17

A Novel System to Study Multiple Double Strand Breaks in *Arabidopsis thaliana*

Lewkowitz-Shpuntoff, Hilana Megan, 17

Behavioral and Neuroanatomical Characterization of CIRL3-like Mutants

Schulman, John Dittler, 17

On Einstein-Kahler Supermanifolds

Tzen, Belinda Florence, 17

Neural Mechanisms Underlying Perception of 3-D Curvature from Illusory 2-D Tilts Investigated Using Selective Adaptation

John L. Miller-Great Neck North High School

Albert, Benjamin Issac, 17

Two Differing Views: The Afshar Experiment According to Quantum Mechanics and Bohm's Interpretation

Levy, Gali E., 17

CAP-Collagen: A Novel Biomedical Material for the Treatment of Fistula

Shaha, Manish Ashok, 17

Analysis of Squamous Cell Carcinoma Related Oncogene's Functional Role in E3 Ligase Ubiquitination Pathway

North Shore Hebrew Academy High School

Sandler, Chad Morgan, 17

Highways and Byways of Fund Management: Selected Demographic Characteristics as Predictors of Mutual Fund Success

Hewlett

George W. Hewlett High School

Kain, Mandy Lauren, 17

The Honest Truth About Academic Dishonesty: The Link Between Attribution Theory and Cheating Among High School Students

Luo, Jean Qijian, 17

Who Is Altruistic? An Examination of the Determinants of Altruism Among Adolescents

Natow, Sarah Gail, 18, Woodmere

Read(ing) White and Blue: The Prevalence of Scotopic Sensitivity Syndrome (SSS)

Highland

Highland High School

Kelley, David Bruce, 18

Quantum Tunneling Effect of Electron Bubbles at the Liquid-Vapor Interface in Liquid Neon and Its Application to a Time Projection Chamber Neutrino Detector

- Irvington** **Irvington High School**
Frimer, Danielle Nasia, 17
Measurement of the 2D:4D Ratio of the Fetal Hand Using 3-Dimensional Ultrasound: Screening for Autism
- Jericho** **Jericho High School**
Lee, Samuel, 17
Introducing Stat 3-C into Non-tumorigenic Prostate Epithelial Cells
- Rosenblum, Alexis Meredith, 17, Brookville*
The Effect of Variation in Instrument Pitch on Gender Associations Among 2nd Graders: An Empirical Analysis
- Kings Park** **Kings Park High School**
Bookbinder, Brittany Jane, 17, Fort Salonga
Temporal Organization of Spontaneous Blinking and Its Modulation by Sensory Input
- Jara, Gabriela, 16*
Design and Synthesis of a Biotin Ligand in Anti-Cancer Drug Conjugates Comprised of Fluorescent Probes and SB-T-1214
- Richards, Amy Elizabeth, 17, Northport*
Metalloproteinase Inhibitors, Catechins from Green Tea, Block Anthrax Lethal Factor *in vitro*
- Lawrence** **Rambam Mesivta**
Holzer, Rafael Simcha, 16
Modifying Surfaces of Polycarbonate to Achieve Enhanced Properties
- Levittown** **General Douglas MacArthur High School**
Sullivan, Christine Elizabeth, 17, Wantagh
Some Children Left Behind: The Troubling Effect of Middle School Reform on the Body Image Concerns of Sixth Grade Girls
- Locust Valley** **Locust Valley High School**
Willie, Nicholas Joseph, 17, Bayville
Effects of Epistatic Interactions on Association Scans
- Lynbrook** **Lynbrook High School**
Chusid, Amanda Beth, 17, East Rockaway
Is There an Association Between Sociability in Mice and Mutations in Serotonin Transporter Gene (Slc6a4)?
- Manhasset** **Manhasset High School**
Ryu, Marisol, 18
Construction of Beneficial PGPR *Pseudomonas aureofaciens* Strains Resistant to Arsenic for the Phytoremediation of Metal Contaminated Soils
- Massapequa** **Massapequa High School**
Park, Paul Jaewook, 17, Massapequa Park
Friction Limited Landslide Model: An Analysis of Historic Landslides in the Central Idaho Batholith
- Merrick** **Sanford H. Calhoun High School**
Russo, Brittany Nicole, 17
Seeing through the Ears

New York

The Dalton School

Seiler, Brad Alex, 17

Adapting Two Mathematical Methods of Analyzing Genetic Sequences to Analyze Spike Trains

Hunter College High School

Malz, Aliza Ilana, 17, Staten Island

Detecting Dark Matter with a Novel Simulation of Gravitational Lensing

Siu, Sophia Yirk-Sze, 17

Is Estrogen Chondroprotective or Chondrodestructive?

Stuyvesant High School

Baron, Jake Daniel, 17

The Limits of Counting

Chen, Xiaotian, 18, Jamaica Estates

Inhibition of HMGB1, an Important Mediator of Lethal Sepsis, by Green Tea

Cheung, Byron Joseph, 17, Fresh Meadows

Peptides Derived from the HIV-1 gp41 C-terminal Heptad Repeat Region Inhibiting HIV Fusion through Different Mechanisms

Lai, Christine Flora, 17, Bayside

Fluorescence and Imaging Properties in Dye-doped Crystals of Tartaric Acid

Li, Longyin, 17, Rego Park

Down-regulation of Annexin 2 Gene Expression by siRNA Attenuates Plasmin Generation and Invasiveness of Lewis Lung Carcinoma Cells *in vitro*

Shah, Zharna, 17

Human Cartilage Glycoprotein-39 (YKL-40) as a Serum Test for Early Detection and Prognosis of Endometrial Cancer

Teng, Steve, 17, Rego Park

Reefing Down Sealevel Change: A New Application to Coupled U/Th ESR Dating

Weinberg, Kerry Rachel, 17

Early Retinal Patterning Requires Downregulation of Sox B1 Genes in the Chick

North Massapequa

Plainedge High School

Fiscina, Amanda Dorothy, 17

An Advanced Start to Advanced Placement: Does Increased Instructional Time Contribute to Inequality in the AP Program?

Northport

Northport High School

Lazer, Evan Scott, 17

A Study of the Effectiveness of Quantitative Ultrasound for Assessing Bone Health

Meyerowitz, Eric Allan, 17

Probing the Confirmation and Dynamics of Allatostatin Neuropeptides: A Structural Model for Functional Differences

Old Westbury

The Wheatley School

Chiang, Yuting Patrick, 18, Roslyn Heights

Investigating the Role of Nup98/96 in *Drosophila* Spermatogenesis

Ossining

Ossining High School

Delano, Margaret Kathleen, 17, Briarcliff Manor

An Investigation of the Neural Correlates of Cognitive Control and Conflict in the Stroop and Simon Tasks

Joselow, Sarah Batya, 17

The Impact of Individual Religious Commitment on Academic Achievement, Hope and Quality of Life in Adolescents

Li, Yang, 18

Establishing Communication Between Components of DNA-based Multifunctional Molecular Devices

Pelham

Pelham Memorial High School

Clain, David Patrick, 17

Discovery of a Critical Interaction Between the Fragile X Protein and G-Quartet Target RNA

Port Jefferson Station

Comsewogue High School

Lund, Gavin, 17

A DSP Implementation of Particle Filtering for Single-target Tracking by Wireless Sensors

Port Washington

Paul D. Schreiber High School

Golub, David Robert, 18

Finding and Orienting the Normals to a Cloud of Points

Grogan, Gillian Marie, 17

Spin Filtering of Europium Sulfide as a Thin Film Tunnel Junction Barrier

Gross, Andrew Raynor, 17

Chemical Analysis Using the Femtosecond Pulse-shaped Laser Induced Breakdown Spectroscopy Technique

Havasy, Christopher Stephen, 17

The Effect of Various Zoo Habitats Upon the Stereotypical Pacing of *Felis lynx canadensis*

Schickler, Carmiel Effron, 17

Creating a Conflict Alert System: Leadership Change, Violence and the Cycle of Relative Power

Silvergleid, Sarah Louise, 17

Quantifying the Effects of Demyelination in Multiple Sclerosis/Optic Neuritis Using Psychophysical Tests

Sorg, Emily Mary, 17

Characterizing Mouse CD99L2 Adhesion

Werle, Nicholas Roger, 17

Template-Free Synthesis of Nanocrystalline ZSM-5

Riverdale

Horace Mann School

Rapoport, Sarah Kate, 17, New York

How the Brain and Body Learn Right from Left: Revealing Embryonic Symmetry-Breaking Mechanisms through *in vitro* and Mathematical Models

Rochester

Brighton High School

Weiss, Lauren Michelle, 18

Categorization and Analysis of Defects in Cryogenic Laser Fusion Targets

- Rockville Centre** **South Side High School**
Hughes, Alexander, 18
The Effects of Erroneous Negative and Positive Feedback on Self-efficacy and Performance Under Social Cognitive Theory
- Roslyn Heights** **Roslyn High School**
Babazadeh, Alexander Omid, 17, Roslyn
Cytokine Mediated Proliferation and Differentiation of Adult Stem Cells into Functional Vasculature
- Forrest, Andrew Lawrence, 17***
To Vote or Not to Vote? An Exploration of the Factors Contributing to the Political Efficacy and Intent to Vote of High School Students
- Hofer, Michael Elliot, 17, Roslyn Harbor***
The Effect of Framing and Describing Task Difficulty on Expectations and Performance
- Meyers, Paulene Beth, 17, Roslyn***
A Study to Remember: The Effect of Deeper Processing and Rehearsal on Recall of Vocabulary
- Rye** **Rye Country Day School**
Nwakeze, Chiamaka, 17, New Rochelle
Interactions Between KCC2, MeCP2, and Gene Methylation
- Smithtown** **Smithtown High School West**
Chandran, Anand, 17, Nesconset
Gene Profiling of Medulloblastomas: Molecular Windows into the Development of Pediatric Brain Tumors
- Kiridly, Daniel Nuri, 17, Nesconset***
Spectral Dynamics of Inspiratory Motor Discharge During Augmented Breaths in C56BL/6 Mice *in vivo*
- Suffern** **Suffern High School**
Krishnan, Sheela, 17
Isolation and Characterization of a Potential Probiotic Cocktail for the Control of American Foulbrood in Domestic Honeybees
- Lefkowitz, Emily Gail, 17***
Living with Impairment: Behavioral, Emotional, and Social Adjustment of Neurotypical Siblings of Children with Autism
- Syosset** **Syosset High School**
Chang, Faith Kan, 17
Tumor Suppressor Gene DBC2 Plays an Important Role in Protein Transport
- Choi, Diane Jeehea, 17***
Measuring Passive Love: *Amae* and Japanese Uniqueness
- Uniondale** **Uniondale High School**
Bustos, Miguel Angel, 18
Rescuing Our Natural Waters: Fighting Eutrophication Globally through the Electrical Attraction of Phosphate and Nitrate

- Webster** **Webster Schroeder High School**
Fan, Frank Yongzhen, 17
Investigation of the Effect of a Plastic Ring on the Uniformity of Ice Layers in Cryogenic Inertial Confinement Targets
- West Hempstead** **West Hempstead High School**
McAvoy, Elisabeth Lavery, 17
Electrochemical Management of *Bryum argentium* and the Subsequent Environmental Implications
- West Sayville** **Sayville High School**
Capurso, Daniel John, 17, Sayville
Phenotypic Plasticity and Competitive Interactions of Two Pine Barrens Plant Species
- Hahn, Daniel, 18, Sayville**
A Comparison of Sensitization Responses in 1-Day- and 3-Day-Old *Drosophila melanogaster* to 3-Octanol and 4-Methylcyclohexanol
- Westbury** **Walter Tresper Clarke High School**
Dorfman, Cara Elyse, 17
Mirror, Mirror . . .Who Is the Fairest of Them All? Structural Equation Models Examining Sociocultural Effects on Internalization, Social Comparison, and Body Image
- Goehring, Anton Chervonny, 18**
Alternative Forms of Reactive Propulsion: Evaluation of a Pulsating Combustion System through Numerical Simulation
- White Plains** **White Plains High School**
Markel, Arianna, 17
Effects of Amyloid- β on Hippocampal Neuronal Survival and Synaptic Plasticity
- Yonkers** **Charles E. Gorton High School**
de Leon, Orlando Grajo, 17
Synthesis and Characterization of Co-facial Zn-Porphyrin Cyclic Dimer with *bis*-Fullerene Adducts
- Yorktown Heights** **Yorktown High School**
Charoen, Kristie Mercedes, 17
The Multiple Myeloma SET Domain (MMSET) Protein Represses Transcription via Its Histone Methyltransferase Enzymatic Activity and the Recruitment of Co-repressor Species
- Elhosseiny, Rhamey Abdelmonem, 17**
The Effects of Hyaluronan Fragments on the Proliferation of Stro-1 Positive Mesenchymal Stem Cells for Potential Clinical Application
- Pian, Rachel Elizabeth, 17**
"Don't Drink That!" Environmental Sensitivity of Coliform and Enterococcus Bacteria

NORTH CAROLINA

- Durham** **The North Carolina School of Science & Mathematics**
Morris, Quinn Alexander, 16, Troy
Bacterial Fuel Cells: Utilizing *E. coli* Metabolism to Produce Energy

Durham

The North Carolina School of Science & Mathematics (cont'd)

Tran-Phu, Toan, 17, Cary

Analyses of the Chandra LETGS X-ray Spectra of the Afterglows of Gamma Ray Bursts 020405 and 041006

Winston-Salem

Career Center High School

Shaw, Carrie, 17

Essential Oils Exhibit Preferential Cytotoxic and Apoptotic Effects in Glioblastoma Cells *in vitro*

OHIO

Cincinnati

Princeton High School

Joshi, Aditya Narendra, 17

Analytical Investigation of an Optical Logic Device

Dayton

Dayton Christian High School

Moore, John Pease, 18, Bellbrook

Low Reynolds Number Aerodynamics: Development and Optimization of a Micro Air Vehicle

North Canton

Hoover High School

Liu, Amy Wei-ming, 17

Applications of Electrospun Chitosan/Poly(DL-Lactic-co-Glycolic) Acid to Tissue Engineering

Pepper Pike

Orange High School

Litt, Daniel Abraham, 17

On Products of Catalan Numbers and a Fully Combinatorial Proof of the Chan-Robbins-Yuen Theorem

Shaker Heights

Hathaway Brown School

Tjoe, Benita, 17, Gates Mills

The Detection of C-Reactive Protein Using an Electrochemical Biosensor

OKLAHOMA

Miami

Miami High School

Fenska, Kristen Elaine, 17

Reversing Toxicity: The Effects of Selected Chelators on the Ability of Cellular Models to Recover from Lead Exposure

OREGON

Portland

Jesuit High School

Vardhana, Anarghya A., 17, Beaverton

Jacobi Symbols for Mersenne Numbers

Oregon Episcopal School

Hope, Elyse Autumn, 18

Creating a Novel Program for Determining the Three-Dimensional Movement Rates of Sunspots and Active Solar Magnetic Regions

Rhines, Allison Shelton, 17

Analysis of Brain Tissue Sections for Proteins Targeted by the Genotoxicant Methylazoxymethanol (MAM)

Portland

Oregon Episcopal School (cont'd)

Zenisek, Sergio-Francis Mellejor, 17, West Linn

The Recombination of RNA by *Azoarcus* Ribozyme in a Compartmentalized System:
An Origin-of-Life Study

PENNSYLVANIA

Allentown

Parkland High School

Velinger, Ameya, 17, Orefield

A Novel, High-Performance Algorithm for Correcting Motion-blurred Images

Harrisburg

Bishop McDevitt High School

Blaisse, Michael Robert, 18

The Effect of Zero-Valent Metals on Contaminated Groundwater

Hazleton

Hazleton Area High School

Monks, Maria Jean, 17

Endomorphisms of the Binary Shift Map, Discrete Derivatives and Applications

Pittsburgh

Mount Lebanon High School

Mi, Michael Yang, 17

TAT TAR RNA Binding Domain Inhibits HIV Production via a Genetically Generated Viral Model

Yardley

Independence Home Schoolers

Lang, Daniel Owen, 17

Design of E-ZPass[®] Compatible Tire Inspection System

SOUTH CAROLINA

Spartanburg

Spartanburg High School

Strickland, Stephen Lee, 17

An Exploration into Inter-Polar Magnetic Forces

TENNESSEE

Nashville

Martin Luther King, Jr. Magnet School

Feng, Xue, 17

The Effect of *Foxm1b* Inactivation on the Growth of Pancreatic β Cells

TEXAS

Austin

Westwood High School

Wu, Sarah Jiayi, 17

Extension of Lifespan by the Mitochondrial Uncoupling Agent Carbonyl
Cyanide m-chlorophenylhydrazone (CCCP) in the Nematode Species, *C. elegans*

Carrollton

Creekview High School

Hsu, Emily Jane, 17

Math1/nGFP: A Novel Tool for Neurogenesis

Conroe

Academy of Science & Technology at Oak Ridge High School

Turner, Elizabeth English, 17, The Woodlands

Asteroid Occultations: A Method to Determine the Size and Shape of Asteroids

Corpus Christi	<p><u>Mary Carroll High School</u> <i>Mott, Katrina Ashley, 18</i> An Investigative Study of a Halophytic Community Adjacent to Oso Bay, Corpus Christi, Texas</p>
Denton	<p><u>Texas Academy of Mathematics & Science</u> <i>Fan, Ted, 17, Houston</i> Assessment of Genetic Diversity by PCR Amplification of Conserved STR Loci</p> <p><i>Gawlik, Evan Scott, 17, Pinehurst, North Carolina</i> A Computational Study on New Krypton- and Argon-Bonded Molecules</p>
Fort Worth	<p><u>Dunbar High School</u> <i>Parikh, Neil Rohit, 16, Grand Prairie</i> Chaos in a Two-Dimensional Bi-Gravitational Well: A Computer Simulation</p> <p><u>Southwest High School</u> <i>Karmakar, Anisha, 17, Benbrook</i> The Stability of Satellites Orbiting Around Irregularly Shaped Asteroids</p>
Houston	<p><u>Clearlake High School</u> <i>Lonakadi, Vikas, 16</i> Recombinant Human C4 Protein Expression in <i>Escherichia coli</i> Cells</p> <p><u>Saint John's School</u> <i>Banerjee, Soham, 17</i> The Use of Imines in Creating Important Organic Substances</p> <p><i>Maitra, Amrapali, 17</i> Novel Organometallic Polymers Based upon N-Heterocyclic Carbenes</p>
Lubbock	<p><u>Lubbock High School</u> <i>Wang, Xiaoxi, 18</i> Powering a Cardiac Pacemaker Using a Piezoelectric Circumvascular Generator</p>
O'Donnell	<p><u>O'Donnell High School</u> <i>Brewer, Rebecca Carole, 18</i> Gel Encapsulation</p>
Plano	<p><u>Plano East Senior High School</u> <i>Nanney, Jeffrey Delaney, 17</i> Discrete Dynamical Systems in Directed Graphs</p> <p><u>Plano West Senior High School</u> <i>Li, Enhao, 17</i> An Eye-Friendly Flat Field-Sequential-Color Video Display</p>
San Antonio	<p><u>Northside Health Careers High School</u> <i>Burrows, Russell Thomas, 17</i> The Buzz on Bees: Effects of Alcohol and Nicotine on the Behavioral and Neurological Response of the <i>Apis mellifera</i></p>
Sugar Land	<p><u>William P. Clements High School</u> <i>Chakrabarti, Gaurab, 17</i> A Radiation Biodosimeter from Cell Membrane and Endothelial Cell Degradation Products</p>

Sugar Land

William P. Clements High School (cont'd)

Ho, Allyson Peishan, 17

The Effects of Polymer Blending on Gas Permeability

UTAH

American Fork

American Fork High School

Babb, Shannon Lisa, 17, Highland

Troubled Waters: A Six-Month Longitudinal Study of the Spanish Fork River Drainage System

Provo

Provo High School

Larson, Richard Winston, 17, Springville

Developing a Standard for Bird Identification Based on the Morphological Differences in Feather Microstructure

VERMONT

Essex Junction

Essex High School

Rousseau, Ian Michael, 18, South Hero

The Supercritical Brayton Cycle for Space Exploration

VIRGINIA

Alexandria

Thomas Jefferson High School for Science & Technology

Marrone, Lisa Madeleine, 17, Centreville

A Novel Function of Lactate Transporter MCT1 in Gastric Restitution

Sawant, Abhinay Vilas, 17

Development of an Expandable Bioinformatics Program on the Java Platform

Seid, Charlotte Allen, 17, Clifton

Effects of Macroalgae on Cannibalism in Juvenile Blue Crabs, *Callinectes sapidus* Rathbun

Solomon, Justin Moore, 18, Oakton

Three-Dimensional Face Recognition from Video: Facial Surface Reconstruction and Analysis Using Tensor Algebra and Differential Geometry

Wang, Zixuan, 18, Fairfax

Survivin Knockdown in Drug-resistant Cancer

Yan, Winston Xia, 17

Sensitivity of 1/f Noise to Chemical Constituents: A Study of Pentacene and Its Derivative in Thin-film Transistors

Yang, Elizabeth Jiwon, 17, Annandale

Effect of Chronic Haloperidol Exposure on the $\alpha 7$ Subunit of Nicotinic Acetylcholine Receptors in the Pedunculopontine Nucleus

Vienna

James Madison High School

Schwank, Benjamin Albert, 18

Development of Comprehensive Software for the Rapid Identification and Analysis of Bacterial DNA and Amino Acid Sequences

WASHINGTON

Shoreline

Shorewood High School

Mork, Anna Jolene, 17

Comparative Autofluorescence of a Unicellular to a Multicellular Plant: *Acetabularia acetabulum* vs. *Arabidopsis thaliana*

WISCONSIN

Appleton

Appleton High School East

Wage, Nicholas Michael, 17

Character Sums and Ramsey Properties of Generalized Paley Graphs

Milwaukee

University School of Milwaukee

Pizer, Michael James, 17, Kohler

Dynamics of Polyampholytes in Solution

U.S. VIRGIN ISLANDS

Kingshill

Saint Croix Country Day School

Rusev, Peter Borislavov, 17, Christiansted

Shrinking the Wavefunction

GERMANY

Starnberg

Munich International School

Ternus, Christian, 17, Munich

Limits of Diffuse Luminosity Fluctuations in the Hubble Space Telescope Advanced Camera for Surveys Ultra Deep Field Survey Data

Albert, Benjamin.....	16	Edley, Daniel.....	11	Joselow, Sarah.....	19
Alm, Alexander.....	8	Elhosseiny, Rhamey.....	21	Joshi, Aditya.....	22
Anand, Pria.....	8	Esiobu, Nkemka.....	5	Kain, Mandy.....	16
Babazadeh, Alexander.....	20	Espitia, Jonathan.....	15	Kambhampaty, Anusha.....	14
Babb, Shannon.....	25	Fan, Frank.....	21	Karmakar, Anisha.....	24
Baer, Samantha.....	14	Fan, Ted.....	24	Kashin, Konstantin.....	9
Baker, Elizabeth.....	3	Feng, Xue.....	23	Katz, Michael.....	12
Banerjee, Soham.....	24	Fenska, Kristen.....	22	Kelley, David.....	16
Baron, Jake.....	18	Fischell, Erin.....	11	Kelso, Catherine.....	15
Benecke, James.....	11	Fiscina, Amanda.....	18	Kim, Geon.....	10
Bhatia, Ankit.....	14	Forrest, Andrew.....	20	Kim, Sangsoo.....	15
Bhat, Kiran.....	8	Freeman, Casey.....	10	Kiridly, Daniel.....	20
Bick, Alexander.....	11	Frimer, Danielle.....	17	Ko, Albert.....	15
Blaisse, Michael.....	23	Gambo, Robert.....	12	Ko, Stephen.....	15
Boddy, Sylviane.....	16	Gao, Jason.....	3	Korrapati, Praneet.....	14
Boiko, Julie.....	4	Gardner, Allison.....	12	Krishnan, Sheela.....	20
Bookbinder, Brittany.....	17	Gawlik, Evan.....	24	Kumar, Monika.....	8
Brenner, Nicole.....	13	Gianelli, Gabrielle.....	6	Lai, Christine.....	18
Brewer, Rebecca.....	24	Glatt, Daniel.....	12	Lam, Nicole.....	13
Briggs, Clair.....	8	Glissmann, Robert.....	5	Lang, Daniel.....	23
Brown, Kate.....	4	Goehring, Anton.....	21	Larson, Richard.....	25
Burrows, Russell.....	24	Goldstein, Matthew.....	12	Laviolette, Jessica.....	10
Bustos, Miguel.....	20	Goldstein, Rachel.....	14	Lazer, Evan.....	18
Candrea, Jason.....	13	Golub, David.....	19	Leavitt, Joshua.....	13
Capurso, Daniel.....	21	Gordon, Andrew.....	6	Lee, Katharine.....	13
Chakrabarti, Gaurab.....	24	Greeno, Remy.....	4	Lee, Samuel.....	17
Chandran, Anand.....	20	Grejtak, Timothy.....	5	Lefkowitz, Emily.....	20
Chang, Faith.....	20	Griffiths, Patricia.....	4	Levy, Gali.....	16
Chang, ZeNan.....	5	Grogan, Gillian.....	19	Lewkowitz-Shpuntoff, H.....	16
Charoen, Kristie.....	21	Gross, Andrew.....	19	Lieblich, Jerrold.....	15
Cheng, Debbie.....	9	Guardo, Chiara.....	13	Li, Enhao.....	24
Chen, Jason.....	7	Hahn, Daniel.....	21	Li, Kerry.....	13
Chen, Katherine.....	9	Haines, Lindsay.....	6	Li, Longyin.....	18
Chen, Lu.....	8	Harrison, Brett.....	14	Li, Yang.....	19
Chen, William.....	7	Havasy, Christopher.....	19	Lin, Janine.....	11
Chen, Xiaotian.....	18	Hershman, Melissa.....	14	Litt, Daniel.....	22
Chernyak, Alexander.....	10	Hill, Jamison.....	7	Liu, Amy.....	22
Cheung, Byron.....	18	Hill, Owen.....	8	Liu, Gordon.....	10
Chi, Albert.....	4	Hirsch, Jana.....	15	Lonakadi, Vikas.....	24
Chiang, Yuting.....	18	Ho, Allyson.....	25	Lowry, Kate.....	8
Choi, Diane.....	20	Hofer, Michael.....	20	Lund, Gavin.....	19
Chou, Alan.....	16	Holzer, Rafael.....	17	Luo, Jean.....	16
Chowdhury, Shwetadwip.....	9	Hope, Elyse.....	22	Luryi, Alexander.....	15
Chun, Yeona.....	7	Howard, Gregory.....	9	Maatta, Sara.....	7
Chung, Irving.....	9	Hsieh, Timothy.....	4	Maitra, Amrapali.....	24
Chusid, Amanda.....	17	Hsu, Emily.....	23	Malone, Sean.....	11
Clain, David.....	19	Hughes, Alexander.....	20	Malz, Aliza.....	18
Cui, Yi.....	13	Hu, Jun.....	9	Mao, Angelo.....	3
Dankin, Denis.....	13	Hurwich, Jordan.....	7	Markel, Arianna.....	21
Davis, Myers.....	8	Huynh-Le, Minh-Phuong.....	9	Marks, Harrison.....	12
Dawson-Haggerty, M.....	14	Iocolano, Michelle.....	16	Marrone, Lisa.....	25
Delano, Margaret.....	19	Irivinti, Soumya.....	11	Martini, Jr., Karl.....	9
de Leon, Orlando.....	21	Jairam, Vikram.....	4	McAvoy, Elisabeth.....	21
Dorfman, Cara.....	21	Jara, Gabriela.....	17	McCollum, Frederick.....	3
Dweck, Issac.....	13	Jee, Justin.....	3	Mehrotra, Mahncy.....	4
Dyer, Charles.....	8	Jiang, Andy.....	9	Melamed, Elina.....	13

Menco, Audrey	14	Schurle, Alan	7	Wu, Sarah	23
Meyerowitz, Eric	18	Schwank, Benjamin	25	Xing, Jeffrey	8
Meyers, Paulene	20	Schwob, Anneke	9	Xu, Alexander	10
Micheva, Nora	15	Scott, Kimberly	10	Xu, Chenxu	5
Miller, Thais	3	Seid, Charlotte	25	Yan, Winston	25
Mi, Michael	23	Seidman, Joshua	12	Yang, Elizabeth	25
Mohammed, Yahya	6	Seiler, Brad	18	Ye, Guangxiang	4
Moller, Lucas	6	Sellon, Jonathan	5	Ying, Wendy	10
Monks, Maria	23	Shaha, Manish	16	Yurkiewicz, Ilana	14
Moore, John	22	Shah, Meelap	10	Zaitseva, Irina	14
Mork, Anna	26	Shah, Zharna	18	Zenisek, Sergio-Francis	23
Morris, Quinn	21	Shaket, Lev	6	Zhang, Elizabeth	3
Mott, Katrina	24	Shaw, Carrie	22	Zhang, Harley	15
Mousa, Sarah	14	Sidman, Adam	5	Zhang, Letian	7
Muralidhar, Vinayak	3	Silvergleid, Sarah	19	Zhang, Yuan	9
Naegeli, Kaleb	7	Siu, Sophia	18	Zhang, Zihao	6
Nanney, Jeffrey	24	Solomon, Adam	12	Zhao, Luyi	11
Natow, Sarah	16	Solomon, Justin	25	Zheng, Anjie	15
Nguyen-McCarty, M.	12	Sorg, Emily	19	Zhou, John	10
Nguyen, Anthony	3	Sridhar, Ananth	5	Zverovich, Olga	13
Nikbakht, Daniel	14	Steinman, Jonathan	4		
Nwakeze, Chiamaka	20	Strickland, Stephen	23		
Olson, Patrick	11	Sullivan, Christine	17		
Pan, Bohao	10	Sultan, Maryam	15		
Pandit, Caaminee	7	Sun, Yi	5		
Parikh, Neil	24	Sussman, Melissa	14		
Park, Paul	17	Sze, Christie	15		
Pendri, Kiran	5	Taylor, Jennifer	3		
Pian, Rachel	21	Tell, Shoshana	6		
Pizer, Michael	26	Teng, Steve	18		
Pozin, Konstantin	13	Ternus, Christian	26		
Ranjan, Sukrit	7	Tjoe, Benita	22		
Ranade, Raj	5	Tran-Phu, Toan	22		
Rapoport, Sarah	19	Trusheim, Matthew	10		
Regitsky, Drew	6	Turner, Elizabeth	23		
Reilly, Christine	14	Tzen, Belinda	16		
Rengarajan, Sophie	4	Ulberg, Scott	12		
Rhines, Allison	22	van Nieuwenhuizen, P.	15		
Richards, Amy	17	Vardhana, Anarghya	22		
Richelson, Caleb	12	Velingker, Ameya	23		
Robel, Alexander	6	Vellone, Joseph	12		
Roberson, Sara	12	Viscardi, Michael	4		
Rosenblum, Alexis	17	Vishnevetsky, Michael	13		
Rousseau, Ian	25	Vitale, Rebecca	8		
Rusev, Peter	26	Wage, Nicholas	26		
Russo, Brittany	17	Wang, John	3		
Ryu, Marisol	17	Wang, Xiaoxi	24		
Sahi, Sauhard	11	Wang, Xin	7		
Saigal, Amrita	9	Wang, Zixuan	25		
Sandler, Chad	16	Weinberg, Kerry	18		
Sattin, Benjamin	6	Weiss, Lauren	19		
Sawant, Abhinay	25	Werle, Nicholas	19		
Schickler, Carmiel	19	Williams, Genevieve	4		
Schindel, Rebecca	12	Willie, Nicholas	17		
Schonwald, Carter	13	Wu, Jing	4		
Schulman, John	16	Wu, Peidi	15		