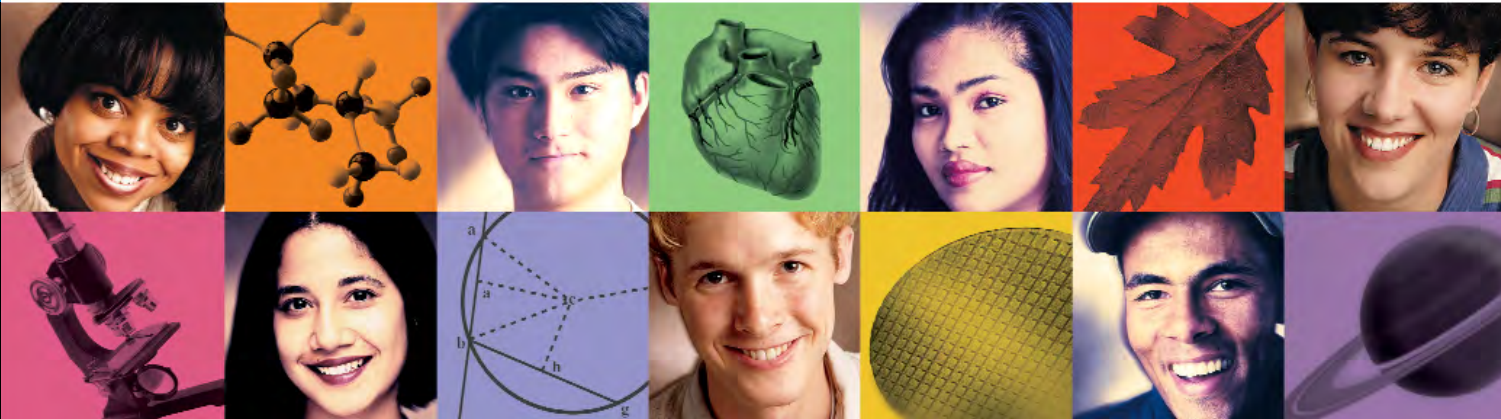


Semifinalists

Wednesday, January 16, 2008



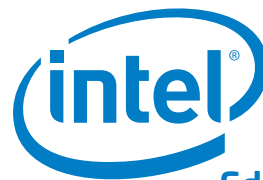
2007-2008



Finding Tomorrow's Scientists



SOCIETY FOR
SCIENCE & THE PUBLIC



Education

A Program of Society for Science & the Public Since 1942

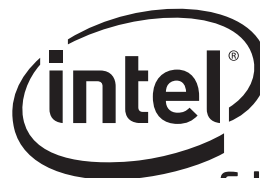


2008 Semifinalists

The Intel Science Talent Search is the country's most prestigious science scholarship competition. For more than 60 years, the Science Talent Search has recognized and rewarded the country's top young science students. Six former competitors have gone on to win the Nobel Prize.



SOCIETY FOR
SCIENCE & THE PUBLIC



Education

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.

Society for Science & the Public (SSP) is one of the nation's oldest non-profit organizations dedicated to public engagement in science and science education. Founded as Science Service in 1921, SSP is a leading advocate for the understanding and appreciation of science and the vital role it plays in human advancement. Through its acclaimed education competitions and its award-winning magazine, *Science News*, Society for Science & the Public is committed to inform, educate, and inspire.

Intel Science Talent Search Semifinalists – 2008

The Semifinalists of the 67th Science Talent Search were chosen from among 1602 entrants representing 504 high schools in 45 states, Puerto Rico, the Virgin Islands and two overseas schools. From among the Semifinalists, 40 Finalists will be selected to attend the Intel Science Talent Institute in Washington, D.C. from March 6-11, 2008. 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 in the Spring.

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. Home school awards are made by special arrangement. School awards are distributed in Spring, upon return by the principal of the completed 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.societyforscience.org/sts, is also generally accepted as documentation of the honor.

Many Intel Science Talent Search projects are the product of a research environment in which scientist mentors dedicate themselves to the intellectual development and technical training of students. SSP and the Semifinalists acknowledge with gratitude the guidance, expertise and patience of the experienced researchers who made many of these projects possible.

The 40 Intel STS Finalists will be announced January 30, 2008 and published in *Science News* magazine.

This list of Intel STS Semifinalists is compiled by Society for Science & the Public, based upon entry form data. If a student's city of residence differs from that of the school, it will be listed also.

ALABAMA

Mobile

Alabama School of Mathematics & Science

Zhang, Mike Weng, 17, Tuscaloosa

Iron Nickel Platinum Ternary Alloy Nanoparticles for Hyperthermia Therapy

ARIZONA

Phoenix

Brophy College Preparatory

Weigel, Andrew, 17

A Ketogenic Diet Induces Antiproliferative Effects in Glioblastoma Multiforme *in vitro*

Sierra Vista

Buena High School

Houston, Matthew Aaron, 18

Experimental Analysis of the Acoustic Cavitation Mechanism for Sonoluminescence

ARKANSAS

Little Rock

Little Rock Central High School

Ye, Anne Zijing, 17

Finding Rootless Matrices Using Jordan Normal Form

CALIFORNIA

Alhambra

Alhambra High School

Luo, Jiajun, 17

Temperature Dependence of NMR Frequency in Random Anisotropic URu₂Si₂ Powder

Arcadia

Arcadia High School

Wang, Xuanji, 17

The Synthesis of Silicon Nanoparticles for Macrophage Cellular Imaging in Atherosclerosis

Claremont

Vivian Webb School

Agarwal, Kanika, 16

Toll-like Receptor Ligands Modulate Mouse B- and T-Cell Lymphoma Survival without Affecting Proliferation and Activation

Cupertino

Monta Vista High School

Penn, Alexander Andy, 17

Advancement of Printed Circuit Boards: Manipulating Metal Adhesion of Masked Polymer Thin Films through Exposure to Supercritical Carbon Dioxide

Danville

Monte Vista High School

Li, Richard Jay, 17

A Novel Approach to Rapid Diagnosis of Cancer by FTIR Spectroscopy Combined with Ligand-Receptor Specific Binding

El Cajon

Grossmont Middle College High School

Spevack, Samuel Charles, 17

Seismic and Petrographic Analyses of the Victoria Island Structure

- El Dorado Hills** **Oak Ridge High School**
Ramesh, Vinayak, 17
A Practical Approach for Hole Detection in Wireless Sensor Networks Based on Simplicial Homology Theory
- Fremont** **Mission San Jose High School**
Chen, Rebecca Iris, 17
Disruption of TCR-pMHC Multimerization Impairs TCR Triggering
- Zhang, Aimee, 17***
Arabidopsis thaliana Aux/IAA Proteins Have Distinct Rates of Degradation
- Fullerton** **Troy High School**
Huang, Efrem Yuan-Fu, 17, Yorba Linda
Theoretical Mechanisms and Kinetics of the Oxidation of Dimethyl Sulfoxide by Hydroxyl Radical to Form Methanesulfinic Acid
- Los Angeles** **Marlborough School**
Rees, Amanda Michelle Morita, 18
Biocompatible Metal-Organic Frameworks as Potential Drug Delivery Carriers
- Milken Community High School**
Hakimi, Michael, 17
The Effects of International Terrorism on the Dow Jones Industrial Average and Respective Stock Markets
- Manhattan Beach** **Mira Costa High School**
Rosen, Emily Ann, 18
Direct Formic Acid Fuel Cells and the Electrochemical Reduction of CO₂
- Riverside** **John W. North High School**
Keremane, Sravya Ramadugu, 17
Biochemical Analysis of Mechanisms of Cold Tolerance in Citrus
- Sacramento** **Mira Loma High School**
Stauber, Zachary Jason, 17, Gold River
Non-Toxic Silicon Nanoparticles for Cellular Imaging and *in vivo* Detection of Lymphoid Cancers
- San Jose** **Lynbrook High School**
Lin, Bryan Wang, 17
Modeling and Analysis of Human Binocular Perception of Position and Velocity in the Visual Cortex
- Suen, Caroline, 17***
On Search Techniques for Root-Unitary Polynomials
- The Harker School**
Ebrahim, Senan, 17
Properties of Silk III Fibroin at the Air-Water Interface
- Roxlo, Thomas Quan-Li, 17, Saratoga***
Small Molecule Induction of the Heat Shock Response: Cytoprotective Effects and Potential Clinical Applications of Celastrol

- San Jose** **The Harker School (cont'd)**
Wang, Frank Yi-Fei, 18, Santa Clara
 The Effect of Oxygenated Fuels on Pollution Formation in Diesel Engine Emissions
- Walnut** **Walnut High School**
Lee, Christopher Kelvin, 17, West Covina
 Characterizing and Enhancing the Mechanical Strength of Cesium Hydrogen Sulfate as a Fuel Cell Electrolyte
- Walnut Creek** **Northgate High School**
Almasi, Susann Melinda, 17, Clayton
 Development of a Monte Carlo User Code for the Calculation of Glandular Dose and Estimation of Relative Risk Associated with Mammography
- Westlake Village** **Westlake High School**
Shao, Philip, 17, Thousand Oaks
 A Time-Offset Correlation Study of Global Temperature Anomaly, Solar Activity, World Population, and Carbon Dioxide Concentrations

COLORADO

- Boulder** **Fairview High School**
Bergman, Atticus John, 18
 That Flocking Convection
- Colorado Springs** **Kruse Home School**
Kruse, Cameron, 18
 The Dirt on Baseball: Standardizing the Baseball Mudding Process

CONNECTICUT

- Greenwich** **Greenwich High School**
Hansel, George James, 17, Old Greenwich
 Quantification of Photosynthetic Biomass: An Autofluorescence and Laser Scattering Approach
- New Canaan** **New Canaan High School**
Belopolski, Ilya Boris, 17
 The Effect of Short-Chain Fatty Acids on Gene Expression in *Entamoeba histolytica*
- Sandy Hook** **Newtown High School**
Horvath, Dayton Thomas, 17, Newtown
 Design, Construction, and Testing of a Novel, Rapid, Inexpensive Coliform Detection System
- Westport** **Staples High School**
Shenoy, Andrew Frederick, 17
 Acceleration of Angiogenesis through Novel Protein Delivery Systems
- Weiner, Zachary Isaac, 17*
 A Detect-and-Verify Framework for Specific Face Detection

FLORIDA

Fort Pierce

Lincoln Park Academy

Norvell, Leighton Marie, 18

Can *Microcystis aeruginosa*, *Anabaena flos-aquae* and *Aphanizomenon flos-aquae* Be Biologically Controlled by Isolating Viruses from the Environment?

Ft. Lauderdale

Fort Lauderdale High School

Sparling, Kimberly May, 17, Fort Lauderdale

Drugs from the Sea: Purification of Conopeptides from the Venom of *Conus virgo*

Lecanto

Lecanto High School

Shah, Sonia Vikram, 17

The Role of Akt/PKB in the Regulation of Cholinergic Gene Expression by NGF

Melbourne

Melbourne Central Catholic High School

Batista, Michael Anthony, 17

Modeling the Behavior of a Quantum Well Utilizing the P-N Junction

Merritt Island

Edgewood Senior High School

Sotherlund, Emily Anne, 16

The Feasibility of Sustaining Artificial Surf Reefs in an Ever-Changing Ocean Environment

Miami

Dr. Michael M. Krop High School

Lossos, Chen, 17

AZT-Interferon Alpha Induced Gene Expression Changes Correlate with Clinical Response of HTLV-1 ATL Patients

Miami Palmetto Senior High School

Jiao, Yunxin, 17

Contrast Enhancement with Biocompatible Scattering Medium in Optical Coherence Tomography for Corneal and Contact Lens Cross Sectional Imaging

Li, Alexander, 17, Palmetto Bay

Effects of Supporting Electrolytes on the Electrochemical Behavior of Metallocene-Functionalized Dendrimers and Related Electroactive Compounds

Miami Beach

Rabbi Alexander S. Gross Hebrew Academy

Sussman, Mollie Ann, 18, Bay Harbor Islands

Human Twin Hand Scent: A Means of Identification Chemical Analysis Using SPME GC/MS

Orlando

Lake Highland Preparatory School

Raghavan, Avanthi, 17

Characterization of Novel Protein Trafficking Pathways in *Plasmodium falciparum*

Vero Beach

Saint Edward's School

Pechter, Diana Michelle, 18

Isolating Biologically Active Compounds from the Porifera *Hexactinellida* to Aid in Pancreatic Cancer Therapies

Vero Beach High School

Fichtelman, James Edward, 18

Histopathologic Investigation of Carcinogenesis in Planarians Secondary to Ultraviolet C, B, and A Exposure

West Palm Beach

A.W. Dreyfoos, Jr. High School of the Arts

Moustafa, Zaki Daniel, 17

Resilience/Survivalship of a Fringing Coral Reef under Extreme Environmental Conditions:
A Four-Year Study

GEORGIA

Athens

Cedar Shoals High School

Dong, Yihe, 17

Maternal Effects of Dietary Restriction in Fruit Flies

Clarke Central High School

Stunzi, Joseph Robert, 17

Enzymatic Hydrogen Production: Expression of the Hydrogenases from the Hyperthermophile
Pyrococcus furiosus

Atlanta

North Springs High School

Velamuri, Sriram, 17, Duluth

A Neuronal Conductance Switch from Bursting to Silence

College Park

Woodward Academy

Cohen, Joshua David, 17, Atlanta

Investigations of the Dechlorination of a Purine Nucleoside Analog by Adenosine Deaminase

Marietta

Lassiter High School

Hipsman, Nathaniel Edward, 18

Analysis of Entanglement-enhanced Quantum Time Standards

Wheeler High School

Mohler, Shannon, 17

Factors that Contribute to the Increased Sensitivity of Naive T Cells to Fludarabine

HAWAII

Mililani

Mililani High School

Mocz, Philip, 18

Dissecting the Nearby Universe: Monothetic Divisive Analysis Based on Voronoi Tessellations
Reveals New Star Associations

ILLINOIS

Aurora

Illinois Mathematics & Science Academy

Cai, Steven Benson, 17, Naperville

On the Structure of a 30-nm Field Effect Transistor Under Uniaxial Stress

Fang, Zexi, 18, Naperville

Hydrogen Sensing with Palladium Nanobead Arrays Based on Porous Anodic
Aluminum (AAO) Substrates

Nayak, Jagannath, 17, Elmhurst

Synthesis of Magnetic Nanostructures with Increased Magnetic Susceptibility and Saturation
Magnetization through Shape Anisotropy for Improved Application as Agents for Cancer
Detection and Therapy

Aurora

Illinois Mathematics & Science Academy (cont'd)

Zhao, Emily, 16, Grosse Pointe Park, MI

Correlation Mapping: An Alternative fMRI Analysis of the Neural Response to Visual Stimuli

Naperville

Neuqua Valley High School

Zhao, Yuan, 17

Notes on Extension of Schrödinger Equation to Non-Hermitian Quantum Dynamics and Boltzmann Statistics

INDIANA

Carmel

Carmel High School

Zou, Tan, 18

A Geometric Evaluation of the Distribution of Free Flight Lengths for the Three-dimensional Periodic Lorentz Gas

South Bend

John Adams High School

O'Rourke, Joseph Ghilarducci, 17

Investigating the Effects of Various Methanol Management Techniques on the Performance of the Direct Methanol Fuel Cell

Terre Haute

Terre Haute South Vigo High School

Kopparty, Swara Satya, 16

The Nature of Bonding in Metal-Carbonyl Complexes

IOWA

Iowa City

West High School

Zeng, Xiaomeng, 18

Crowding-out or Crowding-in? The Relationship between Government and Private Funding for Public Libraries

KANSAS

Olathe

Olathe East High School

Dorri, Ameen, 17, Overland Park

A Novel Biotechnology to Solve Perchlorate and Nitrate Pollution Problems in Water

Prairie Village

Shawnee Mission East High School

Sarma, Nandini, 17, Overland Park

Cellular Translation Factors Are Required for the Virion Host Shutoff (Vhs) Function of Herpes Simplex Virus: Use of siRNA-induced Depletion of Cellular Factors to Test Involvement in Vhs Activity

KENTUCKY

Louisville

duPont Manual Magnet High School

Uhlenhuth, Max Evan, 17

Visual Searches of Natural Scenes

LOUISIANA

Baton Rouge

Baton Rouge Magnet High School

Jindal, Granton Adarsh, 17

The Dependence of Friction on Size and Areal Density of Particles between Tractional Surfaces

Shreveport

Caddo Parish Magnet High School

Jain, Niharika Sanjay, 17

Genetic Polymorphisms Impact Warfarin Therapy: A Clinical Pharmacogenomics Model

Mijalis, Alexander James, 17

The Caveolin-1 Regulation of Endothelial Cell Activation and Its Implications in IBD

MARYLAND

Baltimore

Carver Center for Arts & Technology

Biondo, Gabriella Nicole, 17, Parkton

Snail Gene Controls the Migration of the Border Cells in the *Drosophila* Ovary

Bethesda

Walt Whitman High School

Aqil, Anushka, 17

Assessing the Effect of COMT Polymorphisms and Haplotypes on Cognitive Performance in Healthy Controls

Kominers, Paul Myer, 17

Chip-Firing Analysis of Stabilization Behaviors, Hitting Times, and Candy-Passing Games

Rockville

Richard Montgomery High School

Lu, Benjamin Brice, 17, Potomac

From the G-protein Gq to AP-1-Dependent Gene Expression: Mapping a Novel Signaling Pathway for Cancer Growth

Silver Spring

Montgomery Blair High School

Kung, Andrew, 18, Rockville

Temporal, Compositional, and Compressional Behavior of H₂-O₂ Compound Formed by X-ray Excitation of H₂O at High Pressure

Lee, Benjamin Yuhua, 17

Optimizing Dynamical Decoupling in the Central Spin Decoherence Problem

Peng, Timothy, 16

A Geochemically Plausible Prebiotic Pathway to Uracil Synthesis under Hydrothermal Conditionals

Salwan, Jasleen Kaur, 17, Potomac

Determining Markers of Tumorigenicity in Differentiating NTera2 Cells

Wasserman, Louis Eric, 17, Derwood

A Monotone Characterization of P

MASSACHUSETTS

Andover **Phillips Academy**
Feldman, Zachary Michael, 17, Boston
The Gamma Domain of SpoIIIE Is Necessary for Chromosome Translocation During Sporulation in *Bacillus subtilis*

Concord **Middlesex School**
Huggins, Jonathan Hunter, 18, Arlington
Performance Boosting Methods for Named Entity Recognition in Financial News

Dover **Dover-Sherborn High School**
Raman, Anugraha Mahalakshmi, 16, Sherborn
Computation Protein Function: *In silico* Allergenome and Vaccinome Epitope Identification

Falmouth **Falmouth Academy**
Pickart, Matthew Forrest, 18
Effects of Petroleum Hydrocarbons on Salt Marsh Sediments

Holden **Wachusett Regional High School**
Valcourt, James Ryan, 18, Sterling
Suspended Animation: Elucidating the Anoxia Response Pathway

Lexington **Lexington High School**
Chen, Sway Peng, 17
Electrochemical Reactions on Metals under AC Electric Currents

Colucci, Lina Avancini, 17
Getting to the Pointe: Development of Innovative Pointe Shoes

Shaw, Daniel Leonard, 18
Synthesis of Novel Triazole-based Antimalarial Small Molecules

Peabody **Bishop Fenwick High School**
Duca, Alicia Stetson, 17, Wenham
The Development of an Ethological Model Based on the Male Guinea Pig Courtship Vocalization

Waltham **Waltham High School**
Appasani, Raghu Kiran, 18
Targeting Brain Tumor Stem Cells by Silencing Stem Cell Marker Gene CD133

MICHIGAN

Ann Arbor **Washtenaw Technical Middle College**
Chvykov, Pavel Vladimirovich, 17, Ypsilanti
Development of a Novel Ultra-Fast Laser Pulse Contrast Improving System

Beverly Hills **Detroit Country Day School**
Arul, Hari Senthil, 17, West Bloomfield
Synthesis and Replenishment of Silver Nanoparticle-enabled Membranes for Biofouling Mitigation

Mikkilineni, Shravani, 17, Bloomfield Hills
Continued Fractions and Orbits of a Linear Fractional Transformation

Morley **Morley Stanwood High School**
Lyons, Ana Marie, 17, Stanwood
The Effects of Imidacloprid Soil-Drenching on Terrestrial Tardigrada of the Great Smoky Mountains National Park, Tennessee: Bio-Monitoring Insecticide Persistence

Novi **Detroit Catholic Central High School**
Nguyen, Harrison Phu, 16, Northville
Combating Muscle Atrophy: A Novel Study of Myofibril Turnover in *Sternopygus macrurus*

Troy **Troy High School**
Hu, Philip Zhangfan, 17
Connectivity of Unidirectional Hyper-stars

MINNESOTA

New Prague **New Prague High School**
Trettel, Stephen Jerome, 17, Jordan
Propellantless Propulsion: Theoretical and Experimental Evidence for EHD Flow in Asymmetrical Capacitors

Plymouth **Wayzata High School**
Hu, Melody Yin, 16
The Effect of Hyperoxia on Neurovascular Coupling

Winona **Winona Senior High School**
Klages-Mundt, Ariaah Aram, 18
Solving the Hydrogen Storage Problem: $\text{Ca}(\text{NH}_3)_8\text{Cl}_2$ as a High Density, Carbon-Neutral Hydrogen Carrier

MISSOURI

Chesterfield **Parkway Central High School**
Levary, David Andrew, 17
A Novel Approach to Protein Engineering Using Multivalent Cell Surface Interactions

Liu, Andrew Zhangyanchu, 18
Effect of RNA Interference of Isoflavone Biosynthesis Enzymes on Pathogen and UV-induced Isoflavone Levels in Soybean Cotyledons

Columbia **David H. Hickman High School**
Mitrea, Adrian, 17
The Six-Point Circle Theorem

Jefferson City **Jefferson City High School**
Mirts, Evan Neal, 17
Scanning Ion Conductance Microscopy of Light-induced Volume and Surface Area Changes in Chloroplasts *in vitro*

MONTANA

Missoula **Hellgate High School**
Stroethoff, Morielle Mathanja, 17
Surface Compositions of Kuiper Belt Objects Obtained through Spectrum Matching

NEBRASKA

Lincoln

Lincoln East High School

Churchill, Alexander Lee, 18

Restrictions and Generalizations on Comma-Free Codes

Omaha

Brownell-Talbot School

Rao, Keshav, 17

Identification of CXCR2 and Cadherin 3 as Molecules Involved in Lung-Specific Homing of Melanoma Cells by Using Computational Biology Methods

NEW HAMPSHIRE

Derry

Pinkerton Academy

Bochkov, Ivan Dmitrievich, 17

Constraining the Mass of the Black Hole in the X-ray Binary LMC X-1

NEW JERSEY

Bayonne

Bayonne High School

Delgado, Eric Nelson, 17

Engineering a Novel Gram-negative Effective Efflux Pump Inhibitor

Bridgewater

Bridgewater-Raritan High School

Jain, Abhinav, 17

Method for the Rapid On-site Detoxification of Chemical Warfare Agents

Fort Lee

Fort Lee High School

Galicki, Sarah Elyse, 18

The Ideal Portion Size: Application of a Computer-based Program to Assess Actual Consumption in Children Aged Four to Six

Hackensack

Academy for the Advancement of Science & Technology

Lisica, Steven Konstantin, 17, Oakland

Adaptive Resistance of *E. coli* to Triclosan and Antibiotic Cross-Resistance

Savitskaya, Judith Ginda, 17, Fair Lawn

Time Course of Cognitive Control in the Color-Word Stroop Task

Holmdel

Holmdel High School

Singhal, Ashutosh, 17

Potential Connectivity Analysis of Granule and Tufted Cells from the Rat Olfactory Bulb

Lincroft

High Technology High School

Gayen, Sujoy Kumar, 17, Marlboro

Altered Resting-state Brain Connectivity in Autistic Patients

Shum, Andrew Jonathan, 17, Marlboro

Time-Correlation Functions and Rare Events in Deeply Supercooled Glass-Forming Liquids

Livingston

Livingston High School

Liu, Wen, 17

Effects of Mood on Working Memory

Millburn**Millburn High School*****Koven, Barnett Samuel, 17, Short Hills***

Engineered Anaerobic Digestion (AD) Utilizing a Thermophilic Media

Ramani, Vijay, 17, Short Hills

Hydroxyapatite-coated Nanotube Thin Films for Bone Tissue

Parsippany**Parsippany High School*****Ye, Ben Bin, 17***

Novel Fuel Contamination Sensor Based on Fabry-Perot Interferometry

Princeton**Princeton High School*****Witten, Rafael Lawrence, 17***

On the Stability of Three-body Systems

Ridgewood**Ridgewood High School*****Buirkle, Emily Nicole, 17***An Analysis of *Pinus rigida* Susceptibility to Recent Southern Pine Beetle Infestation in the Cape May Region of New Jersey**NEW MEXICO****Los Alamos****Los Alamos High School*****Dozier, Benjamin Edward, 18***

Descriptive Complexity of Random Bit Strings

NEW YORK**Armonk****Byram Hills High School*****Batheja, Nandita Omprakash, 17***

Nonconscious Goal Pursuit through Environmental Lyric Priming

Blum, Jeremy Evan, 17

Using Force Sensors to Effectively Control a Below-Elbow Intelligent Prosthetic Device

Gardner, Kristen Scholes, 17, BedfordNutrient Limitation and Autotoxicity in the Red Tide Dinoflagellate *Alexandrium fundyense***Bellmore****John F. Kennedy High School*****Breen, Cameron Logan, 17, Merrick***

The Ability to Discriminate Differences in Fat Content as a Predictor of Obesity in African-American Adults

Klebanoff, Matthew Jordan, 18The Effects of Cytoskeletal Disrupting Agents on Cotton (*Gossypium hirsutum*, cultivar MAXXA GTO) Fiber Quality**Wellington C. Mepham High School*****Degani, Isaac, 17***

The Discrimination of Radio Signals Reflected by Atmospheric Ionization and Airborne Bodies

Leibowitz, Mitchell Louis, 17, N. Bellmore

Genetic Relationships to Chill Diminished Volatiles within the Lipoxygenase Pathway in Tomato Fruit

- Bergen** **Byron-Bergen High School**
Long, Emmaline Anne, 17
 Census and Split Plot Analysis of *Cypripedium candidum* in the Bergen Swamp, Bergen, New York
- Briarcliff Manor** **Briarcliff High School**
Nowara, Azure Elizabeth, 17, Garrison
 The Neural Correlation of the Executive Attention System in Long-term Practitioners of Focused Meditation
- Bronx** **Bronx High School of Science**
Bishop, William Franklin, 17
 A Systems Biology Approach to Identify a Transcriptional Network for Breast Cancer Metastasis
- Maluto, Jan Michael Rionda, 17, Jamaica**
 Methylation Differentially Regulates Microprocessor Efficacy in Head and Neck Cancer
- Plaza, Melanie Ann, 17, Maspeth**
 The Effects of Allelic Differences of Candidate Genes on the Penetrance of DYT1 Dystonia
- Serganov, Artem, 17, New York**
 The Crystallization of Riboswitches: Potential Targets for Antibiotics
- Singal, Vineet, 17**
 Ambient Exposure to Particulate Matter 2.5 and Ozone Is Associated with Progression of Liver Disease and Cirrhosis in Patients with Hepatitis C Virus (HCV) Infection
- Fordham Preparatory School**
Stevens, Michael Anthony, 17, Larchmont
 Variations in Composition of Cached *Quercus rubra* Seeds as Related to Torpor in *Tamias striatus*
- The Fieldston School**
Loffredo, Benjamin Michael, 17, New York
 From Offense to Defense: Direct and Carry-Over Justification of Global and Local Systems in Response to System Threats
- Burnt Hills** **Burnt Hills-Ballston Lake High School**
Wolf, Matthew William, 18, Ballston Lake
 A Comprehensive Study on CO₂: Measurements from Lakes, Howe Caverns, and CO₂ Sequestration Utilizing Oak Wood Ash
- Cedarhurst** **Lawrence High School**
Alpert, Matthew Nathaniel, 17, North Woodmere
 Electron Transport through Self-Assembled Gold Alkanethiol Monolayers: The Observation of Coulomb Blockade at Room Temperature
- Kastriner, Jared Craig, 18, North Woodmere**
 Seeing Red: Can Ink Color Undermine the Impact of Teacher Encouragement on Student Papers in Middle and High School?
- Chappaqua** **Horace Greeley High School**
Katz, Johanna Tovah, 17
 The Role of the PI3K/Akt/mTOR Signaling Pathways in Glioblastoma Multiforme Growth, Migration and Drug Resistance

Dix Hills

Half Hollow Hills High School East

Choi, Jung Hee, 18

Perceptions of Attractiveness as Influenced by Personal Space

Schlingbaum, Joanna Lauryn, 17, Melville

Use of Phospholipid Bilayers to Immobilize and Examine Model Radicals

Silver, Daniel Keith, 17

Study of Consecutive Spin Rotations in the Resonance EDM Method

Half Hollow Hills High School West

Beller, Bryan, 17

The Bio-Barcode Assay for the Detection of *Salmonella enterica*

Lisann, Lauren Rose, 17

RNAi Against Dyslexia Genes Disrupts Neuronal Migration

Zhu, Dana, 17

Protein Identification and Quantification via Tandem Mass Spectrometry: Novel Techniques

Dobbs Ferry

Dobbs Ferry High School

Tsamis, Niki Alexandra, 17

The Evolution of RHOBTB: Why Was the Dysfunctional RAS Domain Retained during the Molecular Evolution of RHOBTB?

East Meadow

East Meadow High School

Barsky, Andrew Ross, 17

The Use of Video Modeling in Teaching Social Skills to Children with Autism

East Setauket

Ward Melville High School

Anderson, Steven Kim, 17, Setauket

Voice Separation: A Practical Solution to the Cocktail Party Problem

Cooper, Eric Robert, 17

Solvation Energetics of Electron Transfer Reactions in Face-to-Face Porphyrin-Quinone Dyads

Freiss, Mary Martha, 18, Stony Brook

Path Analysis of Brain Addiction Network

Gartner, Michael Dominic, 17

Observation of a Sonic Boom in the Quark Gluon Plasma (QGP) Formed in Au+Au Collisions at Relativistic Heavy Ion Collider

Gudjonson, Herman, 17

Reduced Taste in *Drosophila melanogaster* Mutated for an Obesity Syndrome Protein

Guo, Jin, 17, Stony Brook

Silrolimus Blunts CD40/CD154 Mediated IL-8 and MCP-1 Stimulation and ICAM-1 Production via the SAPK/JNK MAPK, NF- κ B and p70 S6 Kinase Signaling Pathways in Human Proximal Tubule Cells

Kao, Teresa Yi, 17

Characterization of Diffraction Enhanced Imaging Contrast in Breast Cancer

East Setauket

Ward Melville High School (cont'd)

Li, Hefei, 17

Magneto-Optical Imaging for Enhanced Authentication and Data Retrieval in Magnetic Stripe Cards

Li, Yang, 18, Setauket

Enhancement of Winter Mid-latitude Precipitation over North America by Upper Level Waves Propagating from the Pacific Ocean

Mar, Krista, 17, Stony Brook

Synthesis of a Molecular Nanostructure for Applications in Single-Electronics

Moss, Hillary Caroline, 17, Port Jefferson Station

Hemophilia B and Glycosylation Sites on Human Clotting Factor IX: How Do Mutations on Factor IX Interact with the Body and Affect Glycosylation?

Polyakov, Anne Yuri, 17

SQIF Setup for Measurement of Extremely Low Absolute Magnetic Field

Ray-Mazumder, Kalyan, 17

Do Perceptual Learning and Selective Adaptation Occur without Conscious Awareness?

Fairport

Fairport High School

Manfred, Katherine Marya, 17

Polar Direct-Drive Simulations for a Laser-Driven HYLIFE-II Fusion Reactor

Fresh Meadows

Francis Lewis High School

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Min, Elizabeth Kyunghi, 17, Little Neck

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West Sayville

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Li, Eric Chen, 17, Hope Mills

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- Eads** **Briarcrest Christian School**
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Fan, Ao, 16, AnnandaleThe Role of Iron Responsive Element and Hap1 Binding Sites in *Candida albicans* Heme Oxygenase Regulation***Gilbert, Sappho Zoe, 18, McLean***

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Keyser, Samantha Grace, 17, Fairfax Station

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Bellevue

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The National Association of Secondary School Principals has listed this program on the National Advisory List of Contests and Activities for 2007-2008.



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