

**Intel ISEF 2013 Special Award Organizations Ceremony**  
May 16, 2013  
Phoenix, Arizona

Society for Science & the Public, in partnership with the Intel Foundation, announced the Special Award Organization winners of the Intel ISEF 2013. Student winners are ninth through twelfth graders who earned the right to compete at the Intel ISEF 2013 by winning a top prize at a local, regional, state or national science fair.

Acoustical Society of America

The Acoustical Society of America is the premier international scientific society in acoustics, dedicated to increasing and diffusing the knowledge of acoustics and its practical applications.

First Award of \$1,500; in addition, the student's school will be awarded \$500 and the student's mentor will be awarded \$250.

PH002     **Misbehaving Waves: The SurReal Thing**  
Myles Withay Mitchell, 18, Limavady Grammar School, Limavady, Northern Ireland

Second Award of \$500; in addition, the student's school will be awarded \$200, and the student's mentor will be awarded \$100.

EE037     **An "EXTRA" Sense: Ultrasound Glove Assisting Spatial Orientation of the Visually Impaired**  
Ivan Seleznov, 17, Specialized School No. 22, Mykolaiv, Ukraine

**Certificate of Honorable Mention**

CS044     **Finding Best Speaker Position Using New Algorithms to Determine Acoustic Properties of a Room**  
Akshat Boobna, 16, Amity International School, Saket, New Delhi, India

PH308     **"V-shaped Wave" Generated by a Moving Object: Analyses and Experiments on Capillary Gravity Waves**  
Tomohiko Sato, 17, Hiroshima Prefectural Fuchu Senior High School, Fuchu-shi, Japan  
Takahiro Yomono, 18, Hiroshima Prefectural Fuchu Senior High School, Fuchu-shi, Japan

The first place award winner's school will be awarded \$500 and the student's mentor will be awarded \$250. The second place award winner's school will be awarded \$200 and the student's mentor will be awarded \$100. Each winner will also receive a one-year ASA membership.

### ADA Foundation

As dentistry's premier philanthropic and charitable organization, the American Dental Association Foundation is a catalyst for uniting people and organizations to make a difference through better oral health. The ADA Foundation is the parent organization for the Paffenbarger Research Center in Gaithersburg, MD, hailed as one of the most productive dental research centers in the world. The ADA Foundation also provides scholarships for dental and affiliated dental students; a variety of grants related to access to care and oral health outreach, including Give Kids A Smile®; and charitable assistance.

#### First Award of \$2,000

MI040            **Determining Antimicrobial and Synergistic Properties of Select Plant Essential Oils against Clinical Isolates of Gram-positive *Staphylococcus aureus* and Gram-negative *Escherichia coli*: Phase II**  
Bryant Jo Heckart, 17, Seneca High School, Seneca, Missouri

#### Second Award of \$1,000

BI006            **The Effects of *Synsepalum dulcificum* on the Taste of Foods at Different pH Levels**  
Hope Louise Didier, 15, McIntosh High School, Peachtree City, Georgia

#### Third Award of \$500

ME007            **Genetic Analysis of Oral Periodontal Pathogens in the Development of Atherosclerotic Vascular Disease**  
Niyanthesh A. Reddy, 15, Vanguard High School, Ocala, Florida

### Agilent Technologies

As the world's premier measurement company, Agilent offers the broadest range of innovative measurement solutions in the industry. The company's four businesses — Chemical Analysis, Life Sciences, Diagnostics and Genomics, and Electronic Measurement — provide customers with products and services that make a real difference in the lives of people everywhere. At Agilent Research Laboratories, we conduct research that anticipates customer needs and produces breakthroughs that power growth.

The Agilent Teacher Award will be presented to the teacher of an Intel ISEF finalist who has best proposed how they would use the funds to support their professional development in the sciences and further their support of students in independent research.

#### Teacher Award of \$5,000

Paul K. Strode, Fairview High School, Boulder, Colorado

Li-Xia Ma, Beijing No. 101 High School of Beijing, Beijing, China

### Alcoa Foundation

Alcoa Foundation is one of the largest corporate foundations in the U.S., with assets of approximately US \$446 million. Founded 60 years ago, Alcoa Foundation has invested more than US \$550 million since 1952. In 2011, Alcoa and Alcoa

Foundation contributed \$38 million to nonprofit organizations throughout the world, focusing on environment and education. Through this work, Alcoa Foundation is building innovative partnerships, engaging its people to improve the environment and educating tomorrow's leaders.

**Power Economy Award:** Alcoa Foundation will offer awards for projects that demonstrate innovative, sustainable electric power savings or effective management.

**First Award of \$2,500**

EE034            **Third World Power: Using a Joule Thief to Extend Battery Life**  
Andrew Jerald Miller, 17, Rio Grande Enrichment Studies, Albuquerque, New Mexico

**Second Award of \$1,500**

EE305            **Technology of DC Supply in Families**  
Shuailin Lu, 16, North East Yucai School, Shenyang, China  
Peiwen Liu, 16, NorthEast Yucai School, Shenyang, China  
Yutong Liu, 16, Northeast Yucai School, Shenyang, China

**Third Award of \$1,000**

ET028            **Large Scale Renewable Energy Uninterruptable Power System (UPS)**  
Cristian Omar Rivera, 16, Colegio Radians, Inc., Cayey, Puerto Rico

**Using Metals:** Alcoa Foundation will also offer awards for projects that best demonstrate innovative, sustainable use of metals, focusing on but not limited to aluminum.

**First Award of \$2,500**

EN041            **AluGlass -- New Thermostable Material for Electrical Engineering**  
Tsimafei Malakhouski, 16, Public Educational Institution "Soligorsk Gymnasium #2," Soligorsk, Belarus

**Second Award of \$1,500**

PH045            **Let There Be Light! . . . Fully Solution-Processed Polymer Based Aluminum Substrate Photovoltaic Cells Fabricated in Ambient Air**  
Faizullah Mashriqi, 17, Francis Lewis High School, Fresh Meadows, New York

**Third Award of \$1,000**

EE321            **Ablation Resistance and Performance of Metals in Magnetoplasma-dynamic Applications**  
Michael Douglas Sherburne, 18, James W. Robinson Junior Secondary School, Fairfax, Virginia  
Andres Christian Artze, 18, James W. Robinson Junior Secondary School, Fairfax, Virginia

### American Association of Pharmaceutical Scientists

The American Association of Pharmaceutical Scientists (AAPS) is a professional scientific organization of approximately 11,000 members dedicated to the discovery, development and manufacture of pharmaceutical products and therapies through advances of science and technology. AAPS provides an international forum for the exchange of knowledge among scientists to enhance their contributions to health. We offer timely scientific programs, ongoing education, opportunities for networking, and professional development.

#### First Award of \$2,000

MI034                    **Discovery of Novel Influenza Endonuclease Inhibitors to Combat Flu Pandemic**  
Eric Shu Chen, 16, Canyon Crest Academy, San Diego, California

#### Second Award of \$1,000

MI045                    **The Road to Novel Antibiotics**  
Sarah Julia Hyslop, 17, Bishop Carroll High School, Calgary, Canada

#### Third Award of \$500

EN006                    **Enhanced Drug Delivery via PEG-crosslinked Mucin Hydrogels**  
Connor Vo Duffy, 16, Mounds View High School, Arden Hills, Minnesota

#### Fourth Award of \$250

BI007                    **Towards the Painless Painkiller: Design and Synthesis of Novel Fatty Acid Binding Protein Inhibitors for Anti-Inflammatory and Analgesic Effects**  
Raghav Tripathi, 17, Westview High School, Portland, Oregon

ME068                    **Designing a Novel Freeze-Stable Tetanus Vaccine**  
Aryo Sorayya, 18, Monte Vista High School, Danville, California

The winners will also receive a certificate, a one-year membership in the Association including three AAPS journals, reduced rates for meetings and numerous educational materials.

### American Association of Physics Teachers and the American Physical Society

AAPT is the premier global professional society established to advance the greater good through physics education. With the support of our members worldwide, AAPT is an action oriented organization designed to develop, improve, and promote best practices for physics education as part of the global need for qualified Science, Technology, Engineering, and Mathematics teachers who will inspire tomorrow's leaders and decision makers.

#### First Award of \$1,200

PH306                    **The Visible Identification of the Electric Resonance: The Research about Visualization of Resonance Using the Dual Coil**  
Dohyeon Kim, 17, Busan High School, Busan, South Korea

MyungHwan Jang, 17, Busan High School, Busan, South Korea  
Jeayoun Kim, 17, Busan High School, Busan, South Korea

### Second Award of \$800

PH059 **Time-Resolved Optical Study of the Surface States of Topological Insulator Bi<sub>2</sub>Se<sub>3</sub>**  
Connor Everett Tom, 16, John W. North High School, Riverside, California

### Third Award of \$500

PH049 **Diluted Magnetic Semiconductor (Gd Doped ZnO)**  
Ahmed Nabil Halawani, 17, Dar Althiker School, Jeddah, Saudi Arabia

### Certificate of Honorable Mention

PH032 **New Method to Measure Sphere Rolling Friction Coefficient**  
Hyeonsu Kim, 17, Chungnam Science High School, Gong-ju, South Korea

PH051 **Discovery of New Variable Star in Cassiopeia**  
Ilkham Irekovich Galiullin, 17, Grammar School 139, Kazan, Russia

PH055 **Problem Solving with Chaos**  
Dominic Yurk, 16, Robert L. Paschal High School, Fort Worth, Texas

Top award-winners receive a one-year AAPT and APS student membership, a certificate from both AAPT and APS, as well as subscriptions to AAPT's "The Physics Teacher" journal and other APS journals. Each sponsoring teacher of a student who receives an AAPT and APS award also will receive a certificate.

### American Chemical Society

Founded in 1876, the American Chemical Society is a self-governed individual membership organization that consists of members at all degree levels and in all fields of chemistry. The organization provides a broad range of opportunities for peer interaction and career development.

### First Award of \$4,000

CH032 **Nanostructured Co<sub>3</sub>O<sub>4</sub>, CoO and CoN as High Capacity and Long Life Anodes for Li-ion Batteries**  
Prithvi Gundlapalli, 17, Saint Andrew's Junior College, Singapore

### Second Award of \$3,000

CH051 **Design and Synthesis of Hydrogenated TiO<sub>2</sub>-Polyaniline Nanorods for Flexible High-Performance Supercapacitors**  
Eesha Khare, 18, Lynbrook High School, San Jose, California

### Third Award of \$2,000

- EM021      **A Sustainable and Low Cost Approach for Cleaning Metal Contaminated Water Using Pyrolyzed Banana Peels**  
Bluye B. DeMessie, 16, William Mason High School, Mason, Ohio

### Fourth Award of \$1,000

- CH303      **Preparation of a Self-Propelled Nanomotor**  
Michael Nguyen Trinh, 17, Plano East Senior High School, Plano, Texas  
Jessica Hong, 15, Clark High School, Plano, Texas

### Certificate of Honorable Mention

- CH014      **Carbon Encapsulated Iron Nanoparticles for Catalytic Conversion of Biomass Derived Syngas to Liquid Fuels**  
Wenhao Yan, 15, The Mississippi School for Mathematics and Science, Columbus, Mississippi
- CH024      **Towards Next-Generation Nanomaterials: Atomistic, First-Principles Analysis of N-Doped Reduced Graphene Oxide**  
Shyamal Buch, 17, Vista del Lago High School, Folsom, California
- CH034      **Design and Synthesis of Novel Tetraphenylporphyrin-based Metal-Organic Frameworks for Photodynamic Therapy and Drug Delivery**  
Landon Yates Carter, 16, North Carolina School of Science and Mathematics, Durham, North Carolina
- CH057      **Alternative Energy: Using Nanotechnology to Transfer Energy between Bioluminescent Firefly Proteins & Fluorescent Quantum Rods**  
Olivia Helen Sheppard, 15, Manlius Pebble Hill School, Dewitt, New York
- CH306      **Hydrogen Production Using Ultra Low-Cost Soybean-Molybdenum Catalysts**  
Shilpa Iyer, 17, Comsewogue High School, Port Jefferson Station, New York  
Shweta Iyer, 17, Comsewogue High School, Port Jefferson Station, New York
- EV020      **Simple and Cost-Effective Detection of Cadmium Using an Electrochemical Sensor Made with Gold Nanoparticles**  
Seung Hye Choi, 14, University High School, Fresno, California

All award winners and honorable mentions receive a subscription to "ChemMatters."

### American Committee for the Weizmann Institute of Science

The American Committee for the Weizmann Institute of Science, founded in 1944, develops philanthropic support for the Weizmann Institute of Science in Israel, one of the world's premier scientific research institutions. The Dr. Bessie F. Lawrence International Summer Science Institute at the Weizmann Institute provides students with a unique opportunity to participate in hands-on studies in professional academic laboratories at the forefront of scientific research.

All-expense paid four week trip and scholarship to the Bessie Lawrence International Summer Science Institute.

**MA045 Dots and Lines: A Combinatorial Interpretation of the Homotopy Groups of Finite Topologies**  
Colin Campbell Aitken, 17, Leland High School, San Jose, California

**Alternate for trip**

**MA012 Classification of Some Fusion Categories of Rank 4**  
Hannah Kerner Larson, 18, South Eugene High School, Eugene, Oregon

Trip and scholarship is held at the Weizmann Institute of Science in Rehovot, Israel each July. A valid passport is required for travel.

American Geosciences Institute

AGI is a nonprofit federation of geoscientific and professional associations that represents geologists, geophysicists, and other earth scientists. Founded in 1948, AGI provides information services, serves as a voice of shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resilience to natural hazards, and the health of the environment.

**First Award of \$1,000**

**PH305 The Study on the Effective Chipping Shape of Handaxe by Analyzing Physical Fracture Characteristics**  
Mi Rim Choi, 15, Boyoung Girl's High School, Dongdocheon, South Korea  
Ha Young Yun, 16, Boyoung Girl's High School, Dongdocheon, South Korea  
Oh Reum Cha, 17, Boyoung Girl's High School, Dongdocheon, South Korea

**Second Award of \$750**

**EM024 Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System**  
Tayler Ann Rocha, 17, Monte Vista High School, Monte Vista, Colorado

**Third Award of \$250**

**EA302 Using Modified Natural Zeolite to Improve the Characteristics of Soil**  
Amr Faisal Jarajreh, 16, Jubilee School, Amman, Jordan  
Dana Diaaaldeen Shalabi, 17, Jubilee School, Amman, Jordan

**EV303 Predicting Earthquakes by Monitoring the Electron Content of the Ionosphere**  
Nicolas Javier Marone, 18, Ort Henri Ronson, Ashqelon, Israel  
Aviv Rabinovich, 18, Mevoot Hanegev, Kibbutz Shoval, Israel

**AGI will present their winners with a vast selection of related publications.**

American Intellectual Property Law Association

Founded in 1897, AIPLA is a national bar association constituted primarily of lawyers in private and corporate practice, in government service, and in the academic community. AIPLA represents a wide and diverse spectrum of individuals, companies and institutions involved directly or indirectly in the practice of patent, trademark, copyright, trade secret, and unfair competition law, as well as other fields of law affecting intellectual property. Our members represent both owners and users of intellectual property.

#### First Award of \$1,000

- EN003     **Using Exothermic Reactants to Improve the Efficacy of Life Jackets in Decreasing the Chances of Hypothermia**  
Danielle Theresa Mallabone, 17, St Teresa's High School, Johannesburg, South Africa
- ME016     **Programmable Multiplexed Immunosensor for Rapid Cardiac Diagnostics**  
Andy Tran, 18, Michael E. DeBakey High School for Health Professions, Houston, Texas

#### Second Award of \$250

- AS026     **Optimal Equine Balance: Application of Biophysics to Assess and Reduce Equine Injury**  
Erika Nicole Mueller, 15, Clearfield High School, Clearfield, Utah
- EN041     **AluGlass -- New Thermostable Material for Electrical Engineering**  
Tsimafei Malakhouski, 16, Public Educational Institution "Soligorsk Gymnasium #2," Soligorsk, Belarus

#### American Mathematical Society

The American Mathematical Society was founded in 1888, to further the interests of mathematical research & scholarship, as well as to serve the national/international community through its publications, meetings, advocacy and other programs. Friends and family of the late mathematician, Karl Menger, contribute to a fund in his memory, to be distributed by the AMS for annual awards at the Intel International Science and Engineering Fair.

#### First Award of \$1,000

- MA045     **Dots and Lines: A Combinatorial Interpretation of the Homotopy Groups of Finite Topologies**  
Colin Campbell Aitken, 17, Leland High School, San Jose, California

#### Second Award of \$500

- MA001     **Rational Fixed Points of Polynomial Involutions**  
Stanislav Ivanov Atanasov, 19, Model High School of Mathematics "Academician Kiril Popov," Plovdiv, Bulgaria
- MA012     **Classification of Some Fusion Categories of Rank 4**  
Hannah Kerner Larson, 18, South Eugene High School, Eugene, Oregon



### Third Award of \$250

- MA005     **Applications of Dirichlet Series**  
Asbjorn Christian Nordentoft, 19, Aurehoj Gymnasium, Gentofte, Denmark
- MA038     **A Novel Approach to the Spherical Codes Problem**  
Simanta Gautam, 17, Albemarle High School, Charlottesville, Virginia
- MA052     **Configuration Spaces of 4-bar Linkages**  
Ilya Viktorovich Kirillov, 17, Lyceum 1303, Moscow, Russia
- MA305     **Percolation Games on Cayley Graphs of Groups**  
Maksim Lvovich Bezrukov, 18, Minsk Gymnasium #41, Minsk, Belarus  
Aliaksandr Olegovich Stadolnik, 17, Minsk Gymnasium #13, Minsk, Belarus

### Certificate of Honorable Mention

- MA002     **On Weitzenboeck Derivations of Free Metabelian Associative and Lie Algebras**  
Rumen Rumenov Dangovski, 17, Sofia High School of Mathematics, Sofia, Bulgaria
- MA016     **Resolving an Open Problem Related to Figurate Numbers by Pell Equations**  
Yu-Fang Hsu, 16, National Nanke International Experimental High School, Tainan, Chinese Taipei
- MA019     **Intercalates Galore**  
Sarah Lee Shader, 17, Laramie High School, Laramie, Wyoming
- MA031     **Matching Preclusion and Conditional Matching Preclusion for Dual-Cubes**  
Akhil Nistala, 17, Novi High School, Novi, Michigan
- MA054     **A Maximum Principle and Its Applications**  
David L. Pan, 17, Canterbury School, Fort Wayne, Indiana

A booklet on Karl Menger will be given to each winner.

### American Meteorological Society

The American Meteorological Society (AMS) is the nation's leading scientific and professional society advancing the atmospheric and related sciences, technologies, applications, and services for the benefit of society. Founded in 1919, the AMS has a membership of more than 14,000 professionals, students, and weather enthusiasts including many of the world's foremost scientists from industry, academia, and government. AMS offers numerous scholarships and fellowships to support students pursuing careers in the field.

### First Award of \$2,000

- EA008     **Analysis of the Impacts of Straight-Line Winds on the Structure and Stability of a Tornadoic Vortex**  
Casey Richard Densmore, 16, Musselman High School, Inwood, West Virginia

### Second Award of \$1,000

EA001      **Subtropical Study of Mine Drilled Lakes and Their Effects on Evaporation and Evapotranspiration**  
Breanne Mattea Williams, 18, South Sumter High School, Bushnell, Florida

**Third Award of \$500**

AS014      **Effects of Meteorological Conditions on the Avian Paratympanic Organ: An Ethological Analysis**  
Zoe Pierce Buccella, 17, Home School, Barnesville, Ohio

**Certificate of Honorable Mention**

EA010      **Effects of Increased CO<sub>2</sub> and Pollution Based Particles on Glacier Ice Melt**  
Kayla Jane Thompson, 14, Bonneville High School, Washington Terrace, Utah

EA301      **The Secrets of San Lorenzo Valley's Atmosphere**  
Natalie Rose Gallagher, 15, San Lorenzo Valley High School, Felton, California  
Connor Burke Lydon, 16, San Lorenzo Valley High School, Felton, California

EA303      **Causes of Offshore Rain Bands along the Northeastern Coast of Taiwan**  
Yu-Sy Lin, 17, Taipei Municipal Chien-Kuo Senior High School, Taipei, Chinese Taipei  
I-Tzu Chen, 18, Taipei Municipal Chien-Kuo Senior High School, Taipei, Chinese Taipei

**Winners receive a certificate, an AMS Journal/Bulletin Archive DVD, and a one-year student membership to the AMS. The student membership includes a subscription to the "Bulletin of the American Meteorological Society" or "Weatherwise" magazine.**

American Physiological Society

**First Award of \$1,500**

ME018      **Somatostatin Type 3 Receptors Mediate Protective Effects Against Seizures**  
Ari Shi Gao, 18, Texas Academy of Mathematics and Science, Denton, Texas

**Second Award of \$1,000**

ME026      **Selective Oligodendrocyte Apoptosis as a Model for Multiple Sclerosis**  
Ingrid Nieves Zippe, 18, Hathaway Brown School, Shaker Heights, Ohio

**Third Award of \$500**

CB038      **What Are Mechanisms Underlying Nicotine Induced Neutrophil Apoptosis?**  
Jay Kumar, 17, duPont Manual Magnet High School, Louisville, Kentucky

**APS Exceptional Science Award for \$500**

ME032

**Pumper's Paradise: Which Fast-Acting Insulin Analog Is the Most Efficient?**

James Nathan Hilt, 15, Middleburg High School, Middleburg, Florida

**Winners will receive a certificate, a t-shirt, and a one-year subscription to APS publications.**

### American Psychological Association

The mission of the American Psychological Association is to advance the creation, communication and application of psychological knowledge to benefit society and improve people's lives. The APA is a scientific and professional organization that represents psychology in the United States. APA is the largest association of psychologists worldwide.

#### First Award of \$1,500

- BE050      **The Effect of Emoticon Stimuli on Human Facial Muscle Activation and Social Evaluation Using Electromyographic Technology: A Novel Determination**  
Abigail Claire Orlando, 18, Eastchester High School, Eastchester, New York

#### Second Award of \$1,000

- BE041      **Neural Plasticity: Novel Language Learning through Digital Technology**  
Adelina Corina Cozma, 17, Bayview Secondary School, Richmond Hill, Canada

#### Third Award of \$500

- BE032      **A Model of Medial Entorhinal Cortex Grid Cell Remapping**  
Ryan Diego Silva, 17, University High School, Tucson, Arizona
- BE042      **Improving Long-term Compliance to Life Saving Medications**  
Avinash Kumar Pandey, 15, Waterloo Collegiate Institute, Waterloo, Canada
- CB307      **Investigating the Roles of A2A and TrkB Receptor Proteins in Response to Cholesterol and Brain-derived Neurotrophic Factor in an Alzheimer's Disease Model**  
Heidi Marie Smith, 17, Loudoun County Academy of Science, Sterling, Virginia  
Jessica Leigh Joyce, 18, Loudoun County Academy of Science, Sterling, Virginia
- CB309      **Indicting Alzheimer's: Novel Methods of Preventing Glial Scarring through the Downregulation of Cerebral Vimentin and Glial Fibrillary Acidic Protein**  
Tejas Dharmaraj, 15, Chandler High School, Chandler, Arizona  
Manav Ajay Sevak, 16, Chandler High School, Chandler, Arizona
- ME113      **Developmental Gene Lis1 in the Adult Brain Is Necessary for Spatial But Not for Novelty Memory**  
Leighton Anne Braunstein, 16, The Dalton School, New York, New York

### American Society for Horticultural Science

Founded in 1903, the purposes of the American Society for Horticultural Science are to promote and encourage national and international interest in scientific research and education in horticulture in all its branches.

#### First Award of \$1,000

- PS029      **Survivorship & Reproduction of Melon Aphid, *Aphis gossypii* Glover, on Two Varieties of Cucumber, *Cucumis sativus*, Fed with Turmeric, *Curcuma longa*, Rhizome Extract**

Marcella Anne Fitisone, 18, Tafuna High School, Pago Pago, American Samoa

### Second Award of \$500

BI059 **Elucidating the Biochemical Mechanisms of Synthesis of Anthocyanins in Citrus Fruits**  
Saumya Ramadugu Keremane, 15, Martin Luther King High School, Riverside, California

### Third Award of \$250

PS030 **Can Native Bees Replace Honeybees in Commercial Apple Production?**  
Catherine Grace Schlueter, 17, Mountain View High School, Lawrenceville, Georgia

Each awardee and his/her school will receive a one-year subscription to ASHS "HortScience" and "Hort Technology" plus a mounted certificate.

### American Society for Microbiology

Founded in 1899, the American Society for Microbiology (ASM) is the largest single life science membership organization in the world. Members worldwide represent 26 disciplines of microbiological specializations plus a division for microbiology educators. The ASM awards honor the most outstanding microbiology projects.

### First Award of \$2,500

MI039 **Site-directed Mutagenesis of the Metal-reducing Bacterium *S. oneidensis* MR-1: A Novel Strategy for Genetic Engineering in Recalcitrant Microorganisms**  
David Masao Zimmerman, 18, Brentwood School, Los Angeles, California

### Second Award of \$1,750

MI016 **Engineering a Novel Fusion Protein Therapy for Meningococcal Infection**  
Rahi Dilip Punjabi, 16, Advanced Math and Science Academy Charter School, Marlborough, Massachusetts

### Third Award of \$1,000

MI021 **Morphogenesis of and Chromosome Segregation in *Escherichia coli* Branching Mutants**  
Kaitavjeet Chowdhary, 17, Glastonbury High School, Glastonbury, Connecticut

### Fourth Award of \$750

MI034 **Discovery of Novel Influenza Endonuclease Inhibitors to Combat Flu Pandemic**  
Eric Shu Chen, 16, Canyon Crest Academy, San Diego, California

## Fifth Award of \$400

- MI008 **Investigating the Role of Heme Pocket Residues in a Globin Coupled Sensor**  
William Huang Jin, 17, Gwinnett School of Mathematics, Science, and Technology,  
Lawrenceville, Georgia
- MI013 **Research Program on the Effect and Preliminary Mechanism of Earthworms (*Eisenia foetida*)-washed Solution on Prevention of Rose *Botrytis cinerea***  
Yicen Yan, 17, Beijing No. 101 High School, Beijing, China
- MI020 **Evolutionary and Ligand-binding Dynamics of ClfB and IsdA in Staphylococcal Species**  
Amy Xu, 16, Jericho High School, Jericho, New York
- MI030 **A Novel Pentameric Model of the T4 Bacteriophage Genome Packaging Motor and a Means of Disrupting Its Mechanism**  
Raghu Vamsi Dhara, 17, Mission San Jose High School, Fremont, California
- MI054 **Bridging the Gap between *in vitro* and *in vivo***  
Kevin James Cyr, 18, Clear Lake High School, Houston, Texas
- MI305 **Deletion of Endonuclease G Disrupts Mitochondrial Homeostasis and Leads to Reduced Virulence in the Human Protozoan Parasite *Leishmania mexicana***  
Katie Anne Barufka, 18, Langley High School, McLean, Virginia  
Neil Shivraj Davey, 17, Montgomery Blair High School, Silver Spring, Maryland

All finalists in the Microbiology Category receive a student membership to AMS which includes a one-year subscription to "Microbe," ASM's monthly news magazine, and access to the members only web resources.

## American Statistical Association

The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy. Our members serve in industry, government, and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare.

## First Award of \$1,500

- CS008 **A New Stochastic Optimization Algorithm with Adaptive Penalty and Its Markov Chain Analysis**  
Uttara Chakraborty, 17, Chakraborty Homeschool, Chesterfield, Missouri

## Second Award of \$500

- MA048 **Identification of Biomarkers for the Early Detection of Lung Cancer Using a Novel Statistical Test**  
Shreya Mathur, 16, Oxford High School, Oxford, Mississippi

### Third Award of \$250

- ME067      **Breast Cancer Prognosis through Gene Expression Profiling and Tumor Morphology**  
Andrew Cheng Jin, 16, The Harker School, San Jose, California

### Certificate of Honorable Mention

- BE003      **Applying Matrix Theory to Model Global Social Dynamics**  
Heeyoon Kim, 18, Rockdale Magnet School for Science and Technology, Conyers, Georgia
- MA053      **Analysis of Novel Clustering Algorithms for Gene Expression Patterns**  
Shashwat Kishore, 16, Unionville High School, Kennett Square, Pennsylvania
- MI033      **Autism and Gut Microbiome: Is There a Link?**  
Kamran Jamil, 16, The Bishop's School, La Jolla, California
- PS038      **The Threshold of CO<sub>2</sub> Fertilization Effect on the Growth of *Triticum aestivum***  
Jessica Chen Xu, 15, High Technology High School, Lincroft, New Jersey
- PS044      **Reprocessing Components of Milk from Foliar Application to Augment Protein Synthesis in *Triticum aestivum***  
Jordan Ray Cadle, 18, Paoli Junior/Senior High School, Paoli, Indiana

All American Statistical Association finalists receive one-year subscriptions of "Significance" and "Chance." Their schools will also receive a one-year school membership in the American Statistical Association.

### American Veterinary Medical Association

### First Award of \$1,000 and a plaque

- AS026      **Optimal Equine Balance: Application of Biophysics to Assess and Reduce Equine Injury**  
Erika Nicole Mueller, 15, Clearfield High School, Clearfield, Utah
- AS029      **Olfactory Discrimination Between Regular and Deuterated Compounds in European Honeybees (*Apis mellifera*)**  
Eric Samuel Epstein, 17, Tucson High Magnet School, Tucson, Arizona
- AS036      **Jellyfish Phototaxis: Developing an Infrared Net for Application in Marine Systems for the Prevention of Jellyfish Fouling and Beach Infestations**  
Connor William Burton, 18, Camdenton R-III High School, Camdenton, Missouri
- BI040      **Using Zebrafish as a Model to Identify the Causes of Mechanosensory Hair Cell Death and Hearing Loss in Humans**  
Meghal Sheth, 15, Camas High School, Camas, Washington

BI045 **Histological Evidence of Toll-Like Receptor Nine Amelioration of Amyloid Pathology in a TgSwDI Mouse Model**  
Charlotte Sophia Herber, 16, Fox Lane High School, Bedford, New York

All winners will also receive a plaque.

Arizona State University

Arizona State University is pleased to offer a comprehensive scholarship combining a monetary award and an environment focusing on knowledge, learning and research. The New American University Provost Scholarship is renewable for four years, in addition to a one-time \$2,500 award to conduct research, sponsored by the Office of Knowledge Enterprise Development. Individuals and teams will be considered for these awards.

**New American University Provost Scholarship**

AS013 **The Chemical Ecology of the Diaprepes Root Weevil: Olfactory Responses to Conspecific and Plant Odors**  
Evan Cliff MacKay, 16, Vero Beach High School, Vero Beach, Florida

AS026 **Optimal Equine Balance: Application of Biophysics to Assess and Reduce Equine Injury**  
Erika Nicole Mueller, 15, Clearfield High School, Clearfield, Utah

BE019 **The At-Risk Maturing Brain: Effects of Stress Paradigms on Mood, Memory and Cognition in Adolescents and the Role of the Prefrontal Cortex**  
Zarin Ibnat Rahman, 16, Brookings High School, Brookings, South Dakota

BI010 **Immobilization of Enzymes via Concentric Nafion/Cellulase Electrospun Fibers for Bioethanol Production**  
Alicia Danielle D'Souza, 15, Clark High School, Plano, Texas

BI011 **Analysis of Fel d 1 Allergen Transcripts in *Felis catus* Saliva using Reverse Transcription Quantitative Polymerase Chain Reaction (RT-qPCR)**  
Savannah Joy Tobin, 18, West Salem High School, Salem, Oregon

BI042 **Targeting Survivin as a Potential Cancer Therapeutic**  
Kelsey Mackenzie Barter, 17, University High School, Tucson, Arizona

CB024 **Modification of Human Mesenchymal Cells' Stem Capacity: The Relation between Beta-catenin Quantity and Cell Proliferation and Specialization - Phase II**  
Laura Rudella Tonidandel, 16, Colegio Dante Alighieri, Sao Paulo, Brasil

CB058 **Optimization of the *Xenopus laevis* Oocyte Expression System**  
Aakash Jain, 17, Brophy College Preparatory, Phoenix, Arizona

CB309 **Indicting Alzheimer's: Novel Methods of Preventing Glial Scarring through the Downregulation of Cerebral Vimentin and Glial Fibrillary Acidic Protein**  
Tejas Dharmaraj, 15, Chandler High School, Chandler, Arizona  
Manav Ajay Sevak, 16, Chandler High School, Chandler, Arizona

CH011 **Comparative Analysis of Different Accelerants that Can Increase the Specific Impulse Generated by Solid Rocket Propellants**



Benjamin Michael Langer, 16, Herzlia High School, Cape Town, South Africa

CH042 **The Effects of Operating Conditions on Gas Transport Mechanisms through SAPO-34 Zeolite Membranes**

Michael Zhu Chen, 16, Fairview High School, Boulder, Colorado

CS047 **IlluminaMed: Developing New Artificial Intelligence Techniques for the Use In a Biomedical Image Analysis Toolkit**

Yousuf Mounir Soliman, 16, Canyon Crest Academy, San Diego, California

EE025 **Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications**

Matthew Garrett Hileman, 15, The Classical Academy College Pathways, Colorado Springs, Colorado

EE077 **A Microprocessor Controlled Device with Cloud Connected Sensors for Improving Cardiovascular Health and Workout Efficacy**

Alisha Saxena, 16, Interlake Senior High School, Bellevue, Washington

EM031 **Natural Fungicides, an Alternative for Agriculture**

Adrian Alberto Contreras Gonzalez, 15, Instituto America, Culiacan, Mexico

EN015 **The Fabrication and Characterization of Top and Bottom Gated Carbon Nanotube Field Effect Transistors using Printed Electronics**

Harsha Sudarsan Uppili, 16, Oregon Episcopal School, Portland, Oregon

EN049 **Advances in the Bottom-Up Assembly of Multicellular Architectures: From Neuroengineering to Biodefense**

Samantha Marie Marquez, 17, Maggie L. Walker Governor's School, Richmond, Virginia

ET032 **Algae to Oil via Photoautotrophic Cultivation and Osmotic Sonication**

Evie Sobczak, 16, Shorecrest Preparatory School, St. Petersburg, Florida

EV001 **Fluorescent Quantum Dots as a Solid-Phase Detection Medium for Heavy-Metal Contaminates in Drinking Water**

Rikhav Shah, 15, Lake Highland Preparatory School, Orlando, Florida

MA061 **Determining Combinatorial Sums Using Roots of Unity**

Liang Zhou, 16, John W. North High School, Riverside, California

MA302 **Simulation of Protein Folding using Monte Carlo Methods in a Triangular Lattice**

Niranjan Balachandar, 16, Shepton High School, Plano, Texas

Nirali Kunjan Thakor, 15, Shepton High School, Plano, Texas

ME009 **Hemodynamic Interactions in Arterial Networks with Atherosclerosis**

Aprotim Cory Bhowmik, 16, Parkview High School, Lilburn, Georgia

ME059 **Advancing Precision Medicine: MicroRNA Prognostic Signatures and Prediction Models for Distant Metastasis-Free Survival in Breast Cancer**

Natalie Ng, 17, Monta Vista High School, Cupertino, California

MI020 **Evolutionary and Ligand-binding Dynamics of ClfB and IsdA in Staphylococcal Species**

Amy Xu, 16, Jericho High School, Jericho, New York

PH022 **The Development of a Long Life Solid State Dye Laser**  
Joseph Patrick Lee, 16, Saint Peter's Academy, New Market, Alabama

PS301 **The Acclimation of *Spartina alterniflora* to Various Saline Concentrations: A Continuation**  
Grace Marie Ragland, 17, Saint Joseph's Academy, Baton Rouge, Louisiana  
Anna Claire Maxwell, 16, Saint Joseph's Academy, Baton Rouge, Louisiana

Students will have until the penultimate semester before graduation from high school to notify Arizona State University of their intention to accept the award. Students must accept the entire award package in order to receive both the Provost Award as well as the Research Award. Residents = \$8,000; Nonresidents = \$12,000; International Students = \$12,000. All renewable for four years.

Ashtavadhani Vidwan Ambati Subbaraya Chetty Foundation

AVASC is an educational and medical service foundation dedicated to recognizing academic talent and providing services to the needy. AVASC will award projects that display outstanding creativity, ingenuity, and have the potential to alleviate the human condition or mark a substantive advancement in the scientific field.

First Award of \$1,000 U.S. savings bond

BI007 **Towards the Painless Painkiller: Design and Synthesis of Novel Fatty Acid Binding Protein Inhibitors for Anti-Inflammatory and Analgesic Effects**  
Raghav Tripathi, 17, Westview High School, Portland, Oregon

EN022 **An Advanced Biomimetic Hand Using Additive Manufacturing**  
Holly Catherine Erickson, 17, Los Alamos High School, Los Alamos, New Mexico

Second Award of \$500 U.S. savings bond

CB015 **Removal of c-IAP2 E3 Activity Alters Regulatory T-Cell Function and Differentiation**  
Neelanjan Lakshman, 18, Eleanor Roosevelt High School, Greenbelt, Maryland

CB021 **Hyperglycemia and HIV: A Correlation— Hyperglycemia Increases HIV Entry in T Cells via ROS Generation**  
Aakash Viren Jhaveri, 16, The Wheatley School, Old Westbury, New York

CB026 **Investigating MicroRNA-mediated Regulation of Class Specific Dendrite Morphogenesis**  
Suhas Gondi, 17, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia

CH022 **An Inexpensive and Ultra-Compact Raman Spectrometer for Real World Applications**  
Jack Thomas Andraka, 16, North County High School, Glen Burnie, Maryland

EE029 **Ridge Cutting Machine**  
Pubudu Dinesh Anuruddha Chithrananda Kapuge Kapurubandage, 19, Mihinthale Central College, Anuradhapura, Sri Lanka

EV023 **The Toxin in Rice- Arsenic in Our Food**  
Anuush Krishna Vejalla, 14, Detroit Country Day Upper School, Beverly Hills, Michigan

ME016 **Programmable Multiplexed Immunosensor for Rapid Cardiac Diagnostics**

Andy Tran, 18, Michael E. DeBakey High School for Health Professions, Houston, Texas

**PH044 Qubit Rotator: A Nanowire Device for Rotation and Readout of Flying Electron Spin Qubits at Room Temperature for Quantum Computing**

Saumil Bandyopadhyay, 18, Maggie L. Walker Governor's School for Government and International Studies, Richmond, Virginia

**Equivalent awards available for non-U.S. winners.**

Association for Computing Machinery

ACM is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources, and address the field's challenges. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

**First Award of \$1,000**

**CS054 Using Artificial Intelligence to Create a Low Cost Self-driving Car**

Ionut Alexandru Budisteanu, 19, Liceul Tehnologic Oltschim, Ramnicu Valcea, Romania

**Second Award of \$500**

**CS305 Fish-eye Like Spot Magnifier with Low Cognitive Load for Image Browsing**

Szu-Jung Wu, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei

Shiang-Wen Huang, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei

**Third Award of \$300**

**CS029 Versatile Visual Programming Software for Beginners**

Hyunjun Kim, 16, Sunduck High School, Seoul, South Korea

**Fourth Award of \$200**

**CS040 Pardus: A Statistical Approach to Reduce Perceived Latency in Network Filesystems**

Dhaivat Nitin Pandya, 15, Appleton North High School, Appleton, Wisconsin

**CS057 MEye: An Affordable Eye-Tracking System**

Ayush Saraswat, 17, Little Rock Central High School, Little Rock, Arkansas

**All winners will receive complimentary ACM student memberships for the duration of their undergraduate education. The ACM's Student Portal Package also includes ACM's Digital Library.**

Astronomical Society of the Pacific and the American Astronomical Society

**The Astronomical Society of the Pacific is a scientific and educational organization with international**

membership. The American Astronomical Society is the premier American society of professional astronomers.

#### Priscilla and Bart Bok First Award of \$1,000

PH040     **Photometric Evidence of Changes in Pulsation Characteristics of Hot Subdwarf B Stars**  
Arjun Raghavan, 17, Chapel Hill High School, Chapel Hill, North Carolina

#### Priscilla and Bart Bok Second Award of \$500

PH004     **X-ray Measurements of Tycho Supernova Remnant's Dynamics**  
Michaela Brchnelova, 16, Gymnazium Hubeneho 23, Bratislava, Slovakia

The awarded funds are intended to be used by the recipients to further their education and research efforts. Up to \$1,000 in travel is also provided for each recipient to attend the winter meeting of the AAS following the receipt of the award.

#### ASU Rob and Melani Walton Sustainability Solutions Initiatives

The Rob and Melani Walton Sustainability Solutions Initiatives are the result of a \$27.5 million investment in Arizona State University's Global Institute of Sustainability by the Walton Family Foundation. Within the Walton Sustainability Solutions Initiatives, diverse teams of faculty, students, entrepreneurs, researchers, and innovators collaborate to deliver sustainability solutions, accelerate global impact, and inspire future leaders through eight distinct initiatives.

#### First Award of \$7,500

ME072     **Mustard Oil as an Apicomplexan-targeting Drug Therapy for *Plasmodium falciparum***  
Jessie Leanne Preston MacAlpine, 17, Huron Park Secondary School, Woodstock, Canada

#### Second Award of \$2,500

EM021     **A Sustainable and Low Cost Approach for Cleaning Metal Contaminated Water Using Pyrolyzed Banana Peels**  
Bluye B. DeMessie, 16, William Mason High School, Mason, Ohio

#### China Association for Science and Technology (CAST)

China Association for Science and Technology (CAST) is the largest organization of scientists and technologists in China. One of its missions is to promote public understanding of science. Having developed science education programs, CAST supports youth and adolescents in becoming citizens with high scientific literacy. CAST awards are given to the projects that best reflect the originality and innovation of the students' work in all scientific disciplines.

#### Award of \$3,000

AS013     **The Chemical Ecology of the Diaprepes Root Weevil: Olfactory Responses to Conspecific and Plant Odors**

Evan Cliff MacKay, 16, Vero Beach High School, Vero Beach, Florida

**CS003 Battle for Speed: Ternary against Binary**

Alexander Mikhailovich Makarychev, 17, Lyceum #3, Sarov, Russia

**EV031 Home-Based Rapid Arsenic Water Test Using Nanotechnology**

Thabit Farrukh Pulak, 17, Richardson High School, Richardson, Texas

**EV303 Predicting Earthquakes by Monitoring the Electron Content of the Ionosphere**

Nicolas Javier Marone, 18, Ort Henri Ronson, Ashqelon, Israel

Aviv Rabinovich, 18, Mevoot Hanegev, Kibbutz Shoval, Israel

**ME059 Advancing Precision Medicine: MicroRNA Prognostic Signatures and Prediction Models for Distant Metastasis-Free Survival in Breast Cancer**

Natalie Ng, 17, Monta Vista High School, Cupertino, California

Each winner will also receive a certificate. Award will be shared by team members.

Coalition for Plasma Science (CPS)

The Coalition for Plasma Science is a group of institutions, organizations, and companies joining forces to increase awareness and understanding of plasma science and its many applications and benefits for society.

**First Award of \$1,500**

**PH311 Investigation of Anisotropic Neutron Radiation from a Farnsworth IEC Fusion Reactor**

Jake Jordan Hecla, 18, Aviation High School, Des Moines, Washington

Raymond Aung Maung, 17, Kentwood Senior High School, Covington, Washington

Rian Naveen Chandra, 18, Capital High School, Olympia, Washington

Consortium for Ocean Leadership

A Washington, DC based nonprofit organization that represents 102 of the leading public and private ocean research educational institutions, aquaria and industry; working to advance research, education and sound ocean policy. The Organization also manages ocean research and education programs in scientific ocean drilling, ocean observing, ocean exploration and ocean partnerships. Awards will be given to the best projects in ocean sciences, in the areas of oil spill related science, marine geosciences, and overall ocean exploration and conservation.

Award of \$ 1,000 for ocean science projects, with an emphasis on marine geosciences.

**BE302 Having Fun Learning about Coral**

Jovita Nathania, 18, Tarsisius 1 High School, Jakarta, Indonesia

Rosinta Handinata, 18, Tarsisius 1 High School, Jakarta, Indonesia

Maria Christina Yolenta Lestari, 18, Tarsisius 1 High School, Jakarta, Indonesia

Award of \$2,000 for best overall project in ocean science and exploration.

EV012 **Prospective Study of Logarithmic Spirals and Hurricanes**  
Neil Ferdinand Nathan, 15, Caddo Parish Magnet High School, Shreveport, Louisiana

**Award of \$2,000 for ocean science projects, with an emphasis on marine geosciences.**

AS036 **Jellyfish Phototaxis: Developing an Infrared Net for Application in Marine Systems for the Prevention of Jellyfish Fouling and Beach Infestations**  
Connor William Burton, 18, Camdenton R-III High School, Camdenton, Missouri

EM001 **The Effect of Fire on the Community Structure of Macro-Invertebrates in a Compartmentalized Wetlands Ecosystem: Will Wetlands Restoration Efforts Reduce the Anthropogenic Intensification of Environmental Damage from Natural Disturbances?**  
Jamie Rachel Odzer, 16, Dr. Michael M. Krop Senior High School, Miami, Florida

**Award of \$3,000 for the best project in oil spill related science, with a preference for projects focusing on the ocean or coasts.**

CH311 **Oceans Are More Significant than Petroleum**  
Abdullah Koca, 17, Private Merve Buyukkoyuncu Science High School, Konya, Turkey  
Omer Faruk Altun, 17, Private Merve Buyukkoyuncu Science High School, Konya, Turkey

### Drexel University

Drexel University will award eight full scholarships to those students whose projects match Drexel's curriculum. Drexel is recognized for its focus on experiential learning through co-operative education, its commitment to cutting-edge academic technology and its growing enterprise of use-inspired research. Drexel Co-op enables students to balance classroom theory with practical, hands-on experience.

### **Full tuition scholarship**

BI029 **The Effects of Zinc Toxicity on Zn Concentrations, Growth, and Photosynthesis of *Brassica oleracea***  
Leah Ruth Samuels, 16, Benjamin Franklin High School, New Orleans, Louisiana

EM002 **Determining the Reliability of the Dead Quagga Mussel (*Dreissena bugensis*) Population as a Predictor for the Community Structure of Live Quagga Mussel Population in Lake Michigan**  
Clarise Evelyn White, 17, Divine Savior Holy Angels High School, Milwaukee, Wisconsin

EM006 **Riparian Area Multiple Indicator Monitoring**  
Sarah Elizabeth Stalcup, 16, Delta High School, Delta, Colorado

EM024 **Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System**  
Tayler Ann Rocha, 17, Monte Vista High School, Monte Vista, Colorado

EM056 **Endocrine Disrupter Remediation in Fresh Water: Exploration of Mycoremediation Capabilities of Fungi**  
Rachel Louise Rossi, 17, Durango High School, Durango, Colorado

EV019 **Investigation of Estrogenic Endocrine Disruptors**

Nickolas Aubrey Hines, 17, Christ the King Cathedral School, Lubbock, Texas

EV021 **The Effects of Acid Precipitation on *Lemna minor* and Local Invertebrates**  
Lydia Ann Marie Heald, 17, Van Buren Community School District, Keosauqua, Iowa

EV039 **The Effect of Lemnaceae on Nitrate Levels in the Shell Creek Watershed**  
Brooke Elizabeth Pieke, 17, Newman Grove High School, Newman Grove, Nebraska

Scholarships are renewable for up to five years pending maintenance of a 3.0 GPA and full-time status. Each scholarship is valued at \$150,000. Scholarships will go into effect upon admission to the University.

#### Endocrine Society

The Endocrine Society is the world's oldest, largest, and most active organization devoted to research on hormones and the clinical practice of endocrinology. The Society works to foster a greater understanding of endocrinology amongst the general public and practitioners of complementary medical disciplines and to promote the interests of all endocrinologists at the national scientific research and health policy levels of government.

#### **First Award of \$500**

EV016 **Got Male? Does Triclosan Cause Endocrine Disrupting Effects in *Daphnia magna*?**  
Anna Elizabeth Sappington, 16, South River High School, Edgewater, Maryland

#### **Second Award of \$250**

AS042 **Influence of the Number of Estrous Cycles of Heifers Before Exposure to Breeding on Pregnancy Rate and Breed Back Rate in *Bos taurus***  
Jaclyn Nicole Ketchum, 16, Carter County High School, Ekalaka, Montana

ME064 **Identifying Biomarkers that Predict the Onset of Gestational Diabetes Mellitus**  
Alexis Joy Harroun, 18, Bellarmine Preparatory School, Tacoma, Washington

#### **Certificate of Honorable Mention**

AS017 **The Effects of Ethinyl Estradiol on Larval Foraging Behavior and Pupation Site Preferences in *Drosophila melanogaster***  
Hannah Claire Pagels, 16, Grove High School, Grove, Oklahoma

BI037 **The Effect of Soy Isoflavones on Human Drug Metabolizing Enzymes**  
Priyadarshani Sarkar, 16, Henrico High School, Henrico, Virginia

CB059 **Analysis of Changes Regarding Insulin Signaling in Response to High Fat Diet and Aging**  
Trevor James Krolak, 18, Paul Laurence Dunbar High School, Lexington, Kentucky

ME069 **Investigating the Role of Extracellular Calcium on the Proliferation and Insulin Secretion of Pancreatic Beta Cells in Insulin Dependent Diabetes Mellitus**  
Rohan Anand Savor, 16, Monte Vista High School, Danville, California

All winners will receive a certificate, a book on the endocrine system and a t-shirt.

European Organization for Nuclear Research-CERN

Intel ISEF finalists may apply to be considered for an opportunity to travel to tour CERN, the European Organization for Nuclear Research, the world's leading laboratory for particle physics in Geneva, Switzerland. A total of 12 students will win this wonderful opportunity to visit CERN in June. Finalists with projects in these categories are eligible and must apply to be considered: Physics and Astronomy, Computer Science, Electrical and Mechanical Engineering, Mathematical Sciences, and Materials and Bioengineering. This award is made possible by cooperative grants from Intel and the CERN IT Department, which collaborates with Intel in the framework of CERN Openlab. Students must be available for travel to Switzerland and France on the established dates of June 23 - June 28. Valid Passport required for travel.

All-expense paid trip to tour CERN

- |       |  |
|-------|--|
| CS002 | <b>Building and Programming of a 3D-Scanner</b><br>Fabian David Tschopp, 18, Kantonsschule Limmattal, Urdorf, Switzerland  |
| CS017 | <b>Breaking the Silence</b><br>Elisabeth Anne Ashmore, 17, Plano East Senior High School, Plano, Texas   |
| CS040 | <b>Pardus: A Statistical Approach to Reduce Perceived Latency in Network Filesystems</b><br>Dhaivat Nitin Pandya, 15, Appleton North High School, Appleton, Wisconsin                              |
| CS047 | <b>IlluminaMed: Developing New Artificial Intelligence Techniques for the Use In a Biomedical Image Analysis Toolkit</b><br>Yousuf Mounir Soliman, 16, Canyon Crest Academy, San Diego, California |
| CS054 | <b>Using Artificial Intelligence to Create a Low Cost Self-driving Car</b><br>Ionut Alexandru Budisteanu, 19, Liceul Tehnologic Oltchim, Ramnicu Valcea, Romania                                   |
| EE046 | <b>Germitron: Robotic Assessment of Seed Vitality</b><br>Ema Linnea Parker, 15, West High School, Salt Lake City, Utah   |
| EE064 | <b>A Novel Modular Repulsive Type Hybrid Magnetic Bearing for FES Systems</b><br>Zeyu Liu, 17, Sir Winston Churchill High School, Calgary, Canada  |
| ET044 | <b>Novel Materials for Organic Solar Cells</b><br>Valerie Youngmi Sarge, 15, Paul Laurence Dunbar High School, Lexington, Kentucky   |
| MA032 | <b>A Novel Mathematical Model of Cellular Apoptosis under the Influence of Hsp70</b><br>Ashwin Pavan Ramachandran, 17, Randolph School, Huntsville, Alabama  |
| MA045 | <b>Dots and Lines: A Combinatorial Interpretation of the Homotopy Groups of Finite Topologies</b><br>Colin Campbell Aitken, 17, Leland High School, San Jose, California                           |
| PH012 | <b>Superconductivity Emerging from Diamagnetism and Non-Fermi Liquid Behavior in a New Class of Chalcogenides</b><br>Vincent Shian Cao, 17, Paul Laurence Dunbar High School, Lexington, Kentucky  |
| PH048 | <b>Creating PEAS: Portable Elemental Analysis System — Developing and Implementing a Novel Cold</b>  |



## **Cathode Source**

Jennifer Ann Csele, 17, Notre Dame College School, Welland, Canada

## Florida Institute of Technology

Florida Institute of Technology, located on Florida's Space Coast near Kennedy Space Center, offers full undergraduate and graduate programs in engineering, science, psychology, business and aeronautics.

### **Full Tuition Presidential Scholarship**

- ET032     **Algae to Oil via Photoautotrophic Cultivation and Osmotic Sonication**  
Evie Sobczak, 16, Shorecrest Preparatory School, St. Petersburg, Florida
- EV031     **Home-Based Rapid Arsenic Water Test Using Nanotechnology**  
Thabit Farrukh Pulak, 17, Richardson High School, Richardson, Texas
- MA011     **Efficient Characteristic 3 Galois Field Operations for Elliptic Curve Cryptographic Applications**  
Vinay Sridhar Iyengar, 17, Oregon Episcopal School, Portland, Oregon

Florida Tech is offering tuition scholarships of \$60,000 each, to be distributed over four years.

## Fondazione Bruno Kessler

The Bruno Kessler Foundation (FBK) is a leading research center in Trento, Italy. WebValley is the FBK Summer School program for interdisciplinary scientific research. A team of enthusiastic and motivated high school students and FBK researchers accepts a project challenge, this year on a web interface connecting Network Science and 3D bioimaging. FBK's Board of Directors will award 3 Intel ISEF finalists full fellowships, including travel to Italy, to be part of the WebValley team in July 2013.

### **Award to Travel to Trento, Italy to participate in summer school "Web Valley"**

- CS057     **MEye: An Affordable Eye-Tracking System**  
Ayush Saraswat, 17, Little Rock Central High School, Little Rock, Arkansas
- EN026     **Prediction of Tyrosine Sulfation in Viral GPCRs; Subversion of Host Response by Viruses**  
Nikhil Venkata Raghav Kotha, 16, Mira Loma High School, Sacramento, California
- EN047     **PLGA Nanoparticles Encapsulating Anti-vascular Small Molecules for the Treatment of Breast Cancer**  
Evan C. Smith, 16, Baltimore Polytechnic Institute, Baltimore, Maryland
- MA011     **Efficient Characteristic 3 Galois Field Operations for Elliptic Curve Cryptographic Applications**  
Vinay Sridhar Iyengar, 17, Oregon Episcopal School, Portland, Oregon

Finalists must meet eligibility requirements for travel, and return documentation promptly to be considered. A valid passport is required for travel and visit to Italy.

## Go Daddy

In addition to offering domain names, website builders and hosting, Go Daddy believes it has a responsibility to make a difference in the community. As part of that philosophy, Go Daddy contributes to nonprofit organizations that focus on causes meaningful to customers, employees and our community. Go Daddy will be presenting the following awards, each worth \$1,500: the Web Innovator Award, the Mobile Application Award, the Open Source Award, the Data Award and the Forward Thinker Award.

#### **\$1,500 Web Innovator Award**

CS051                    **Online Integrated Development Environment with Real-Time Input/Output**  
Blaise Bryan Koch, 18, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas

#### **\$1,500 Mobile Application Award**

CS014                    **LAT (Location Aware Thermostat): Designing an Intelligent, Energy-Saving Thermostat**  
Jarrod Darren Dunne, 15, Franklin Academy High School, Wake Forest, North Carolina

#### **\$1,500 Open Source Award**

CS040                    **Pardus: A Statistical Approach to Reduce Perceived Latency in Network Filesystems**  
Dhaivat Nitin Pandya, 15, Appleton North High School, Appleton, Wisconsin

#### **\$1,500 Forward Thinker Award**

CS067                    **A Telemedicine Tool for Monitoring Parkinson's: Using Microsoft Kinect to Engineer the Parkinson's ProtoTracker**  
Darius Witold Bieganski, 17, Breck School, Golden Valley, Minnesota

#### **\$1,500 Data Award**

CS031                    **Cloud4Cancer Tackles Genetic Expression Profiles to Diagnose Leukemia**  
Brittany Michelle Wenger, 18, The Out-of-Door Academy, Sarasota, Florida

## Google

Education lies at the very core of Google's mission to organize the world's information and make it universally accessible and useful. We believe in the power of the web to help people discover, connect, and learn. That's why we support collaborative learning in communities around the world, and why we invest heavily in education programs, initiatives, and partnerships through our products and tools.

For the project that addresses a large and seemingly-impossible problem, finding an elegant solution with broad impact; Google Thinking Big Award

PH048      **Creating PEAS: Portable Elemental Analysis System - Developing and Implementing a Novel Cold Cathode Source**  
Jennifer Ann Csele, 17, Notre Dame College School, Welland, Canada

For the project that applies computer science to further inquiry in a in a field other than computer science; Google CS Connect Award

CS031      **Cloud4Cancer Tackles Genetic Expression Profiles to Diagnose Leukemia**  
Brittany Michelle Wenger, 18, The Out-of-Door Academy, Sarasota, Florida

For the project that makes outstanding contributions to the field of computer science; Google CS Innovation Award.

CS047      **IlluminaMed: Developing New Artificial Intelligence Techniques for the Use In a Biomedical Image Analysis Toolkit**  
Yousuf Mounir Soliman, 16, Canyon Crest Academy, San Diego, California

## IEEE Foundation

The IEEE Foundation Presidents' Scholarship Award of \$10,000

EE004    **Development of a New Communication Method and Mechanism for Deaf-Blind People**  
Isaac Christopher Portocarrero-Mora, 18, Colegio Vocacional Monsenor Sanabria, San Jose, Costa Rica

The winner also receives a plaque, framed certificate and free membership to the IEEE for the duration of the scholarship.

## IEEE Computer Society

The IEEE Computer Society is the world's leading computing membership organization and the trusted information and career-development source for a global workforce of technology leaders including: professors, researchers, software engineers, IT professionals, employers, and students. The unmatched source for technology information, inspiration, and collaboration, the IEEE Computer Society is the source that computing professionals trust to provide high-quality, state-of-the-art information.

First Award of \$1,000

CS012 **A Topographic Pressure Equalization Approach to Facility Assignment with Capacity Constraints for Disaster and Emergency Response**  
Apurv Hirsh Shekhar, 16, The Blake School, Minneapolis, Minnesota

#### Second Award of \$500

CS031 **Cloud4Cancer Tackles Genetic Expression Profiles to Diagnose Leukemia**  
Brittany Michelle Wenger, 18, The Out-of-Door Academy, Sarasota, Florida

#### Third Award of \$350

CS053 **Mobile Vision: An Efficient Algorithm and Its Applications**  
Fan Zhang, 18, Lisgar Collegiate Institute, Ottawa, Canada

#### Team First Award of \$500 for each Team Member

CS307 **A Heuristic Method for Determining Distance-Optimal Supercomputer Interconnection Networks**  
Kevin Li Huang, 16, Jericho High School, Jericho, New York  
Mustafa Abid Ansari, 16, Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York

#### Team Second Award of \$400 for each Team Member

CS305 **Fish-eye Like Spot Magnifier with Low Cognitive Load for Image Browsing**  
Szu-Jung Wu, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei  
Shiang-Wen Huang, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei

Winners will receive a framed certificate, and a one-year free subscription to the CS magazine of their choice. A winners group photo will also be published in an issue of "Computer" magazine.

#### International Council on Systems Engineering - INCOSE

The International Council on Systems Engineering (INCOSE) is a not-for-profit membership organization founded to develop and disseminate the interdisciplinary principles and practices that enable the realization of successful systems. INCOSE will award the best interdisciplinary project that can produce technologically appropriate solutions that meet societal needs.

#### First Award of \$1,500

EE091 **Biometric Electromechanical Firearm Safety**  
Kai Thorin Kloefer, 16, Fairview High School, Boulder, Colorado

#### Certificate of Honorable Mention

EE019 **Web-Enabled Programmable Water Heater Controller**  
David Prilutsky, 16, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey

- EE056 **Turbopulse: A Resilient Hybrid Pulsating Turbine Jet Engine**  
David Andrew Zarrin, 18, Saratoga High School, Saratoga, California
- EE085 **Man Overboard!**  
Samuel Wheelhouse, 19, Nottingham High School, Nottingham, United Kingdom
- EE090 **Continuous Real-Time Monitoring, Detection, Alert of Transient Cardiac Abnormalities Utilizing Electrocardiograph Circuit and Android-Based Analysis with Communication Through Wireless Networks**  
Andrew Wei Chen, 15, Beaverton High School, Beaverton, Oregon
- EN022 **An Advanced Biomimetic Hand Using Additive Manufacturing**  
Holly Catherine Erickson, 17, Los Alamos High School, Los Alamos, New Mexico
- EN025 **Investigation of Potential Assistive Methodologies for Complete Quadriplegics**  
Yaya Chenyue Lu, 17, The Friends' School, Clemes, Hobart, Australia
- EN038 **Evaluation of Polyvinyl-Alcohol Polymers as an Effective Shielding Mechanism Against Ionizing Radiation Induced Degradation in COTS Microcontroller Devices**  
Christopher Louis Panuski, 18, North Carolina School of Science and Mathematics, Durham, North Carolina
- EN044 **H.E.R.E. Human Endangerment Recognition Equipment: A Possible Method to Reduce Fatalities Caused by Children Being Left Inside of Vehicles**  
Kelly Maria Shelts, 16, Bartlesville High School, Bartlesville, Oklahoma
- EN055 **Rapid Production of Environmentally Sustainable Material from Local Waste and Mushroom Mycelia**  
Divya Gourish Sirdeshpande, 17, Hempfield High School, Landisville, Pennsylvania

#### K. Soumyanath Memorial Award

This award is presented by the family of Krishnamurthy Soumyanath (1957 - 2010), for the best project in Computer Engineering. K. Soumyanath was an Intel Fellow and Chief Architect, Integrated Platform Research at Intel Labs, USA, leading research and development in circuits and architectures for next-generation transceiver devices. Energetic and adventurous, he inspired others to participate fully in all facets of life. A sum of \$3,000 goes to the winning project and \$1,000 to their school.

#### **1st Award of \$3,000**

- EE064 **A Novel Modular Repulsive Type Hybrid Magnetic Bearing for FES Systems**  
Zeyu Liu, 17, Sir Winston Churchill High School, Calgary, Canada

#### K. T. Li Foundation Special Award

Established in 1956, the National Taiwan Science Education Center (NTSEC) is the only national center for science education in the country. The Center's permanent exhibition area displays rich content related to Life Sciences, Physics, Chemistry, Mathematics and the Earth Sciences, and the NTSEC also hosts the most up-to-

date science exhibitions in collaboration with other international and domestic museums.

Trip to attend the Taiwan International Science Fair.

EM008 **Antimicrobial and Heavy Metal Sequestration Capacities of Graphene Polymer Nanocomposite Films**  
Manvitha Venkatasai Katta, 17, Michael E. DeBaakey High School for Health Professions, Houston, Texas

EV008 **Development and Optimization of a Novel VOC Biofilter to Remediate Indoor Air Pollution (IAP) Sustainably PLUS an Analysis of Its Impact on Human Lung Health after Integration**  
Naomi Chetan Shah, 17, Sunset High School, Portland, Oregon

Valid passport required for travel.

King Abdul-Aziz & his Companions Foundation for Giftedness and Creativity

The Kingdom of Saudi Arabia seeks to build a sustainable future by encouraging youth to search for creative means that pave the way toward developing technologies for renewable energy, thereby maintaining a sustainable future of energy. To achieve this goal, King Abdul-Aziz & His Companions Foundation for Giftedness and Creativity "MAWHIBA" will award a Special Prize on Renewable Energy at Intel ISEF 2013. MAWHIBA is a national cultural foundation established to help develop a comprehensive environment of creativity in Saudi Arabia to enable gifted citizens from all areas to properly use their talents for prosperity of their country.

First Award of \$3,000

ET048 **Effect of Conversion of the Sunlight into Electricity of the *Kyllinga brevifolia***  
Andrea Marie Albaladejo Quiles, 14, Brigida Alvarez Rodriguez, Vega Baja, Puerto Rico

Second Award of \$2,500

EE008 **Vertical Axis Wind Turbine Farm Configuration Efficiency Based on Schools of Fish in Nature**  
Yenny Dieguez, 15, Jose Marti MAST 6-12 Academy, Hialeah, Florida

Third Award of \$2,000

ET058 **The Improved Efficiency and Enhanced Lifetime of a Solar Cell Based on Modified Photosynthetic Pigments**  
Nathan Sai Kondamuri, 18, Munster High School, Munster, Indiana

Fourth Award of \$1,500

ET044 **Novel Materials for Organic Solar Cells**  
Valerie Youngmi Sarge, 15, Paul Laurence Dunbar High School, Lexington, Kentucky

Fifth Award of \$1,000

ET042     **The Creation of a Feasible Wave-Powered Piezoelectric Generator**  
Dylan Alexander Globerman, 18, Colquitt County High School, Moultrie, Georgia

Mu Alpha Theta, National High School and Two-Year College Mathematics Honor Society

Mu Alpha Theta was formed more than 50 years ago to develop strong scholarship in Mathematics and promote the understanding and enjoyment of the subject. The Mu Alpha Theta Award is given to the most challenging, thorough, and creative investigation of a problem involving mathematics accessible to high school students. Components of the investigation may include, but are not limited to, mathematical proof, mathematical modeling, statistical analysis, visualization, simulation, and approximation.

**First Award of \$3,000**

MA011     **Efficient Characteristic 3 Galois Field Operations for Elliptic Curve Cryptographic Applications**  
Vinay Sridhar Iyengar, 17, Oregon Episcopal School, Portland, Oregon

**Second Award of \$2,000**

MA012     **Classification of Some Fusion Categories of Rank 4**  
Hannah Kerner Larson, 18, South Eugene High School, Eugene, Oregon

**Third Award of \$1,000**

MA057     **Superadditivity and Subadditivity in Fair Division**  
Rishi Suvir Mirchandani, 16, Fox Chapel Area High School, Pittsburgh, Pennsylvania

**Winners will receive a certificate and information about joining Mu Alpha Theta.**

National Aeronautics and Space Administration

The National Aeronautics and Space Administration (NASA) is the United States government agency responsible for the nation's civilian space program and for aeronautics and aerospace research. Founded in 1958 by President Dwight D. Eisenhower, NASA's mission is to pioneer the future in space exploration, scientific discovery and aeronautics research, answering basic questions like: What's out there in space? How do we get there? What will we find?

**Grand award of \$5,000**

PH038     **Analysis of Jovian Decametric Emission using the Long Wavelength Array Station 1**  
Jinhie Lee Skarda, 18, Montgomery Blair High School, Silver Spring, Maryland

**Second Award of \$2,000**

CH022     **An Inexpensive and Ultra-Compact Raman Spectrometer for Real World Applications**

Jack Thomas Andraka, 16, North County High School, Glen Burnie, Maryland

- EN317 **Efficient Algae-Based Life Support for Long Duration Spaceflight**  
Alexander Raymond Crisara, 18, L.C. Anderson High School, Austin, Texas  
Alexander Jahan Rabii, 16, L.C. Anderson High School, Austin, Texas
- ME016 **Programmable Multiplexed Immunosensor for Rapid Cardiac Diagnostics**  
Andy Tran, 18, Michael E. DeBakey High School for Health Professions, Houston, Texas

### Third Award of \$1000

- CB005 ***In vitro* Macromolecular Crowding Affects Cellular Behavior**  
Karan Rajesh Naik, 16, Centerville High School, Centerville, Ohio
- CH024 **Towards Next-Generation Nanomaterials: Atomistic, First-Principles Analysis of N-Doped Reduced Graphene Oxide**  
Shyamal Buch, 17, Vista del Lago High School, Folsom, California
- CH042 **The Effects of Operating Conditions on Gas Transport Mechanisms through SAPO-34 Zeolite Membranes**  
Michael Zhu Chen, 16, Fairview High School, Boulder, Colorado
- CH061 **Folding and Unfolding of Serum Albumin Proteins with Two-Photon Fluorescence Spectroscopy**  
Gagan Ajay Gupta, 17, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan
- CS307 **A Heuristic Method for Determining Distance-Optimal Supercomputer Interconnection Networks**  
Kevin Li Huang, 16, Jericho High School, Jericho, New York  
Mustafa Abid Ansari, 16, Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York
- EE060 **Apparatus and Analysis Techniques for Miniature Pulsed Plasma Sources**  
Adam Joseph Bowman, 17, Montgomery Bell Academy, Nashville, Tennessee
- EM022 **A Model-Based Approach to Predicting Species' Responses to Climate Change by Characterizing Community Dynamics**  
Emily Elizabeth Baczyk, 17, Choate Rosemary Hall, Wallingford, Connecticut
- MA302 **Simulation of Protein Folding using Monte Carlo Methods in a Triangular Lattice**  
Niranjan Balachandar, 16, Shepton High School, Plano, Texas  
Nirali Kunjan Thakor, 15, Shepton High School, Plano, Texas
- PH056 **N-Body Simulation of Saturn's Ring Structure**  
Coleman J. Kendrick, 14, Los Alamos High School, Los Alamos, New Mexico
- PS007 **Circadian and Photomorphogenic Response in *Arabidopsis thaliana***  
Savannah Elizabeth Est, 17, Emil E. Holt Senior High School, Wentzville, Missouri



Since 1929, the National Anti-Vivisection Society has promoted greater compassion, respect and justice for animals. NAVS educational and advocacy programs advance better, more humane science; support the development of alternatives to the use of animals in research, testing and education; and effect changes which help to end the unnecessary suffering of animals.

#### First Award of \$5,000

BI011      **Analysis of Fel d 1 Allergen Transcripts in *Felis catus* Saliva using Reverse Transcription Quantitative Polymerase Chain Reaction (RT-qPCR)**  
Savannah Joy Tobin, 18, West Salem High School, Salem, Oregon

#### Second Award of \$2,000

EN049      **Advances in the Bottom-Up Assembly of Multicellular Architectures: From Neuroengineering to Biodefense**  
Samantha Marie Marquez, 17, Maggie L. Walker Governor's School, Richmond, Virginia

#### Third Award of \$1,000

BI042      **Targeting Survivin as a Potential Cancer Therapeutic**  
Kelsey Mackenzie Barter, 17, University High School, Tucson, Arizona

For more information on the specific guidelines for this award, visit the National Anti-Vivisection Society's website.

National Institute on Drug Abuse, National Institutes of Health & the Friends of NIDA

Part of the Intel International Science and Engineering Fair (Intel ISEF), the world's largest science competition for high school students, the Addiction Science Award is given by the National Institute on Drug Abuse (NIDA) to three exemplary projects on the topic of addiction science.

#### First Award of \$2,500

BE019      **The At-Risk Maturing Brain: Effects of Stress Paradigms on Mood, Memory and Cognition in Adolescents and the Role of the Prefrontal Cortex**  
Zarin Ibnat Rahman, 16, Brookings High School, Brookings, South Dakota

#### Second Award of \$1,500

CB305      **The Effect of Ethanol on Beta Cell Development in Zebrafish**  
Emory Morris Payne, 17, Bancroft School, Worcester, Massachusetts  
Zohaib Majaz Moonis, 17, Bancroft School, Worcester, Massachusetts

#### Third Award of \$1,000

- ME057 **Determining the Behavioral and Physiological Effects of Pentedrone-Based "Bath Salts" on *Drosophila melanogaster***  
Alaina Nicole Sonksen, 17, Camdenton High School, Camdenton, Missouri

#### Honorable Mention

- CS046 **Properties of Twitter Network Communications Among Teenagers**  
Gili Rusak, 16, Shaker High School, Latham, New York

The Addiction Science Award is sponsored by the National Institute on Drug Abuse, National Institutes of Health and Friends of NIDA .

#### National Oceanic and Atmospheric Administration - NOAA

A fully paid summer internship at a NOAA research lab, plus a \$500 monetary award.

- EM052 **The Replacement of Fishmeal with Formulated Sustainable Meals and Its Effect on the Growth of *Litopenaeus vannamei***  
Olivia Kaye Joslin, 17, Hilton Head Island High School, Hilton Head Island, South Carolina

#### Award of \$500

- AS038 **Effects of Environmental Stressors on the Filtration Rates of the Blue Mussel *Mytilus edulis***  
Meagan Elizabeth Currie, 16, Greely High School, Cumberland, Maine

Winners also receive a NOAA ALL Hazards Weather Radio and a certificate signed by the Under Secretary of Commerce for Oceans and Atmosphere. The First Prize Winner also receives an engraved plaque.

#### Oregon Institute of Technology

Founded in Klamath Falls in 1947, Oregon Institute of Technology (Oregon Tech) is one of seven universities in the Oregon University System, and the only public institute of technology in the Pacific Northwest. Oregon Tech provides degree programs in engineering, health technologies, management, communication, and applied sciences that prepare students to be effective participants in their professional, public, and international communities. The university takes an applied approach to teaching which blends theory and hands-on learning.

#### Award scholarship of \$5,000

- CS015 **Artificial Neural Networks for Simulated Control Systems**  
Sarah Christine Walker, 17, Gresham Union High School, Gresham, Oregon
- EM041 **The Novel Implementation of Biochar Cathodes in Microbial Fuel Cells (Phase I)**  
Meghana Vijay Rao, 17, Jesuit High School, Portland, Oregon

#### Patent and Trademark Office Society

The PTOS is a membership-based organization for Patent and Trademark professionals and other interested individuals. From its inception in 1917, the Society has been dedicated to the improvement and appreciation of the United States Patent and Trademark Systems through promoting the systems' growth and well-being, as well as promoting the social and intellectual welfare of the Society members.

**Grand Award of \$500, an American flag and a framed copy of the first patent granted in the United States of America**

ME099     **Dictyostelium Discoideum- Novel Diagnostic Tool for Lung Cancer using VOCs**  
Anishaa Sivakumar, 14, Franklin Regional Senior High School, Murrysville, Pennsylvania

**First Award of \$250**

BI025     **A Novel Function of TsTXK-beta Neurotoxin in the *Tityus serrulatus* Scorpion Venom**  
Nayrob Pereira, 17, Escola Estadual Alberto Torres, Sao Paulo, Brasil

CB053     **A Potential Treatment for Cirrhosis: Retinol-Palmitic Acid Treatments and Knockdown of the miR-23b Cluster Reverts Cirrhotic Hepatic Stellate Cells to the Quiescent State**  
Daniel Jeremy Fulop, 17, John Jay High School, Cross River, New York

CH051     **Design and Synthesis of Hydrogenated TiO<sub>2</sub>-Polyaniline Nanorods for Flexible High-Performance Supercapacitors**  
Eesha Khare, 18, Lynbrook High School, San Jose, California

CS022     **The BodyMusic Composition Platform: Augmenting Conventional Music Production with Natural Body Articulation**  
Douglas Adam Smith, 17, Massachusetts Academy of Mathematics and Science, Worcester, Massachusetts

EE008     **Vertical Axis Wind Turbine Farm Configuration Efficiency Based on Schools of Fish in Nature**  
Yenny Dieguez, 15, Jose Marti MAST 6-12 Academy, Hialeah, Florida

EN025     **Investigation of Potential Assistive Methodologies for Complete Quadriplegics**  
Yaya Chenyue Lu, 17, The Friends' School, Clemes, Hobart, Australia

ET034     **Repurposed Materials Solar Air Heater with Mirror Addition**  
Jamelee Rose Buenemann, 16, Washington High School, Washington, Missouri

MI049     **Significantly Increasing the Concentration of Cellulosic Ethanol using *Cedecea davisae***  
Abigail Lyn Walling, 16, Iowa City West High School, Iowa City, Iowa

PH045     **Let There Be Light! . . . Fully Solution-Processed Polymer Based- Aluminum Substrate Photovoltaic Cells Fabricated in Ambient Air**  
Faizullah Mashriqi, 17, Francis Lewis High School, Fresh Meadows, New York

**Second Award of \$150**

BI029     **The Effects of Zinc Toxicity on Zn Concentrations, Growth, and Photosynthesis of *Brassica oleracea***  
Leah Ruth Samuels, 16, Benjamin Franklin High School, New Orleans, Louisiana

- CB011     **Synthetic Biology Approach for Development of a Monosodium Glutamate Detector**  
Jodie Leigh Tinker, 16, Covenant Christian Academy, Huntsville, Alabama
- CH030     **Preparation of Surfactants Mixture from Cashew Nut Shell Liquid and Castor Oil to Combat the Dengue Mosquito Larvae**  
Gabriel Tiago Galdino, 17, Escola Estadual Jose Maria Hugo Rodrigues, Campo Grande, Brasil
- CS020     **Interactive 3D CAPTCHA**  
Jiahui Lu, 18, Shanghai High School, Shanghai, China
- EE088     **Fine Motor Skills Using Neural Activated Biomechanical Prosthesis**  
Easton J. LaChappelle, 17, Mancos High School, Mancos, Colorado
- EN002     **Design of an Optimized Distiller for Production of Ethanol from Banana Waste**  
Cristhian Andres Nunez-Vanegas, 17, Centro Educativo Maria Inmaculada, Limon, Costa Rica
- ET032     **Algae to Oil via Photoautotrophic Cultivation and Osmotic Sonication**  
Evie Sobczak, 16, Shorecrest Preparatory School, St. Petersburg, Florida
- ME049     **Can Pomegranate Prevent Human Pancreatic and Colon Adenocarcinoma?**  
Deena S. Mousa, 13, Emma Willard School, Troy, New York
- MI038     **The Power of Moringa Flowers**  
Aliyah Alexa Allick, 13, The Good Hope School, Frederiksted, Virgin Islands
- PH008     **New and Improved Insights into the Microcosm: Multimodal Light Microscopy with Bright, Darkfield and Phase Contrast, Part 2: Axial Phase-Darkfield Contrast (APDC), Variable Phase-Brightfield Contrast (VPBC) and Universal Variable Bright-Darkfield Contrast (UVBDC)**  
Timm Piper, 17, Martin-von-Cochem-Gymnasium, Cochem, Germany

Psi Chi, The International Honor Society in Psychology

Psi Chi was founded in 1929, for the purposes of encouraging, stimulating, and maintaining excellence in scholarship and advancing the science of psychology. Membership is open to graduate and undergraduate students who are making the study of psychology one of their major interests, and who meet the minimum qualifications.

**First Award of \$1,000**

- BE003     **Applying Matrix Theory to Model Global Social Dynamics**  
Heeyoon Kim, 18, Rockdale Magnet School for Science and Technology, Conyers, Georgia

**Second Award of \$350**

- BE050     **The Effect of Emoticon Stimuli on Human Facial Muscle Activation and Social Evaluation using Electromyographic Technology: A Novel Determination**  
Abigail Claire Orlando, 18, Eastchester High School, Eastchester, New York

### Third Award of \$150

**BE307 Improving the Cognitive Abilities of Secondary Students in the Kingdom of Saudi Arabia Through Reading Specific Text Colors**

Othman Abdullah Alodan, 17, Deffi High School, Al-Jubail, Saudi Arabia

Abdulmalik Mohammed Aloufi, 17, Deffi High School, Al-Jubail, Saudi Arabia

All winners will receive a Psi Chi Certificate of Recognition.

### Ricoh Americas Corporation

Ricoh Americas Corporation is a leading provider of document solutions whose integrated hardware and software products help businesses share information efficiently. Ricoh has a long-standing environmental mission and commitment to sustainability, bringing corporate, social and environmental responsibilities into balance.

### Ricoh Sustainable Development Award of \$12,500

**EM032 Making Drinkable Water from Thin Air: The Optimization of a Hydrophobic Surface to Efficiently Harvest Fog Providing a Sustainable Secondary Water Source**

Michael Fernandez Vermeland, 18, Loudoun County Academy of Science, Sterling, Virginia

**ET313 The Passive Acquisition of a Viable Source of Bio-Electricity from Wastewater with Applications for Hydrogen Generation: Phase II**

Jed Donald Grow, 17, Clearfield High School, Clearfield, Utah

Andrew Quinn Ross, 18, Clearfield High School, Clearfield, Utah

### Sheikh Zayed Institute at Childrens National Medical Center

The Sheikh Zayed Institute for Pediatric Surgical Innovation at Children's National Medical Center in Washington, DC is pursuing the goal of making pediatric surgery more precise, less invasive, and pain-free. By combining research and clinical work in the areas of imaging, bioengineering, pain medicine, immunology and personalized medicine, our physicians and scientists are developing knowledge, tools and procedures that will benefit children globally.

### First Award \$2,500

**ME088 Colorimetric Detection of *Plasmodium falciparum* via Aptasensor Technology**

Junyi (Sarah) Wu, 16, Assumption College School, Brantford, Canada

### Second Award of \$1,500

**ME068 Designing a Novel Freeze-Stable Tetanus Vaccine**

Aryo Sorayya, 18, Monte Vista High School, Danville, California

### Third Award of \$500

#### EE006 **Interpreter Glove for Deaf People**

Luciano Gini Thoma, 18, Instituto Tecnológico Superior Paysandu, Paysandu, Uruguay

#### Sigma Xi, The Scientific Research Society

Founded in 1886, Sigma Xi is the international honor society of research scientists and engineers, with a distinguished history of service to science and society. This multi-disciplinary society includes members who were elected based on their research achievements or potential, and historically, more than 200 members have won the Nobel Prize. The Society is pleased to offer awards for the best demonstration of interdisciplinary research.

### First Life Science Award of \$ 2,000

#### EV301 **A Novel Model for Inflammatory Bowel Disease: Using U937 and COLO320DM Cell Lines, to Propose a Pathway by which Environmental Toxin, 4-Nonylphenol, May Promote an Inflammatory Response**

Albert Kim, 17, Manhasset Secondary School, Manhasset, New York

Byeong Ho Jung, 15, Herricks High School, New Hyde Park, New York

### Second Life Science Award of \$1,000

#### ME304 **The Effects of Riluzole and Superoxide Dismutase on ALS *C. elegans* Model Strain AM725**

Karalyn Nicole Pappas, 16, Manhasset High School, Manhasset, New York

Stephanie Ying, 16, Manhasset High School, Manhasset, New York

### First Physical Science Award of \$1,500

#### EN305 **The Rate of Lead (II) Hydroxide Deposition in a Concrete Water Holding Tank: An Investigation of Water Distribution Systems in Third World Countries**

Shujat Ali Khan, 17, East Meadow High School, East Meadow, New York

Shamoon Syed Rizvi, 17, East Meadow High School, East Meadow, New York

#### MA302 **Simulation of Protein Folding using Monte Carlo Methods in a Triangular Lattice**

Niranjan Balachandar, 16, Shepton High School, Plano, Texas

Nirali Kunjan Thakor, 15, Shepton High School, Plano, Texas

### Honorable Mention

#### EM304 **The Effect of Single-Walled Carbon Nanotubes on Regeneration and Activity of *Dugesia dorotocephala*, Growth of *Chlorella vulgaris*, and Embryonic Development of *Lytechinus variegatus***

Archie Chakming Kong, 16, Manhasset Secondary School, Manhasset, New York

Randy Tung, 16, Manhasset Secondary School, Manhasset, New York

Arthur Wang, 16, Manhasset High School, Manhasset, New York

- EV303 Predicting Earthquakes by Monitoring the Electron Content of the Ionosphere**  
Nicolas Javier Marone, 18, Ort Henri Ronson, Ashqelon, Israel  
Aviv Rabinovich, 18, Mevoot Hanegev, Kibbutz Shoval, Israel
- ME311 Pancreatic Adenocarcinoma: An Analysis of Drug Therapy Options**  
Anvita Gupta, 15, BASIS Scottsdale, Scottsdale, Arizona  
Sejal Aggarwal, 16, BASIS Scottsdale, Scottsdale, Arizona
- PH312 The Effects of Temperature on the Index of Refraction of Water**  
Charlyn Castro Manuyag, 17, Waipahu High School, Waipahu, Hawaii  
Fely Marie Gregorio Magaoay, 18, Waipahu High School, Waipahu, Hawaii

Society for Experimental Mechanics, Inc.

The Society for Experimental Mechanics is composed of international members from academia, government, and industry who are committed to interdisciplinary application, research and development, education, and active promotion of experimental methods to: (a) increase the knowledge of physical phenomena; (b) further the understanding of the behavior of materials, structures and systems; and (c) provide the necessary physical basis and verification for analytical and computational approaches to the development of engineering solutions.

**First Award of \$2,500**

- EE076 Self-diagnosing Smart Bolts to Save Your Life**  
Vladislav Sevostianov, 15, Las Cruces High School, Las Cruces, New Mexico

**Second Award of \$1,500**

- EN054 The Study of the Effectiveness of Novel Optimization of Digital Image Correlation to Obtain Accurate Full-field Displacement Measurements**  
Alma Amad Alhussaini, 17, Dhahran Schools, Khobar, Saudi Arabia

**Third Award of \$1,000**

- EN056 Piezoelectric Energy Harvesting from Human Breath for Biomedical Applications**  
Rohan Palanki, 16, W.P. Davidson High School, Mobile, Alabama

Society of Experimental Test Pilots

Founded in 1955, the Society of Experimental Test Pilots is an international organization of flight test pilots and astronauts promoting air safety and education in the design and flight test of aerospace vehicles. SETP's membership extends across 30 countries worldwide, comprised of over 2,400 active and retired test pilots representing all types of aerospace vehicles, military and civilian.

### **First Award of \$1,000**

EE056      **Turbopulse: A Resilient Hybrid Pulsating Turbine Jet Engine**  
David Andrew Zarrin, 18, Saratoga High School, Saratoga, California

### **Second Award of \$500**

ET035      **Configuring a Biplane Airfoil for Practical Application and Sonic Boom Reduction in Subsonic to Supersonic Flow through Performance Optimization**  
Sumukh S. Bharadwaj, 17, Capital High School, Olympia, Washington

### **Third Award of \$300**

EE008      **Vertical Axis Wind Turbine Farm Configuration Efficiency Based on Schools of Fish in Nature**  
Yenny Dieguez, 15, Jose Marti MAST 6-12 Academy, Hialeah, Florida

### **Certificate of Honorable Mention**

EE034      **Third World Power: Using a Joule Thief to Extend Battery Life**  
Andrew Jerald Miller, 17, Rio Grande Enrichment Studies, Albuquerque, New Mexico

ET006      **Rotor Tip Components for Residential Wind Turbines**  
Daniel James Dorminy, 18, Sola Fide Home School, McDonough, Georgia

ET312      **Designing, Prototyping, and Testing Agricultural Drones**  
Eric Gene Chang, 15, Christiansburg High School, Christiansburg, Virginia  
Jordan Taylor Kuhn, 16, Christiansburg High School, Christiansburg, Virginia

**All honorees receive a certificate of recognition, book and guest invitation to the annual Symposium.**

### Society of Exploration Geophysicists

The Society of Exploration Geophysicists is a not-for-profit organization that promotes the science of applied geophysics and the education of geophysicists. SEG, founded in 1930, fosters the expert and ethical practice of geophysics in the exploration and development of natural resources, in characterizing the near surface, and in mitigating earth hazards. The Society, which has more than 33,000 members in 138 countries, fulfills its mission through its publications, conferences, forums, Web sites, and educational opportunities.

**Distinguished Achievement Award of \$2,000 and a trip to the SEG International Exposition and Annual Meeting.**

PH043      **Geometric Bore Variations and Their Harmonic Nuances in Musical Instruments**  
Harrison Robert Pershing, 15, Greely High School, Cumberland, Maine

### **Award of Merit of \$1,000**



PH002 **Misbehaving Waves: The SurReal Thing**  
Myles Withay Mitchell, 18, Limavady Grammar School, Limavady, Northern Ireland

**Team Award of \$1,000**

PH308 **"V-shaped Wave" Generated by a Moving Object: Analyses and Experiments on Capillary Gravity Waves**  
Tomohiko Sato, 17, Hiroshima Prefectural Fuchu Senior High School, Fuchu-shi, Japan  
Takahiro Yomono, 18, Hiroshima Prefectural Fuchu Senior High School, Fuchu-shi, Japan

**Award of Merit of \$500**

PH016 **Electromagnetic Induction Sensor**  
Harshit Singh, 17, InTech Collegiate High School, North Logan, Utah

**Team award of \$1,500 to be divided equally among team members.**

CS316 **Modeling of Acoustic Waves with Lattice Boltzmann Method**  
Sergey Dukanov, 17, Lyceum of Information Technologies No.1533, Moscow, Russia  
Arkadiy Prigojin, 18, Lyceum of Information Technologies No.1533, Moscow, Russia

**Certificate of Honorable Mention**

EA011 **Surviving Seismically-Induced Liquefaction: Dynamic Centrifugal Modeling of a Novel Hybrid Floating Foundation System**  
Alex L. Chang, 16, University High School, Irvine, California

PH020 **The Effect of Molar Mass of a Gas on the Speed of a Sound Wave**  
Graham Lewis Gabrielson, 18, Saint Paul Harding Senior High School, Saint Paul, Minnesota

PH021 **Using Holographic Interferometry for Measuring Magnetic Field Strength**  
Ethan Michael Salisbury, 16, Centerville High School, Centerville, Ohio

PH057 **Making a Matching Layer for Acoustic Sensors**  
Justin P. Skycak, 16, Marian High School, Mishawaka, Indiana

PH312 **The Effects of Temperature on the Index of Refraction of Water**  
Charlyn Castro Manuyag, 17, Waipahu High School, Waipahu, Hawaii  
Fely Marie Gregorio Magaoay, 18, Waipahu High School, Waipahu, Hawaii

**SPIE-The International Society for Optics and Photonics**

**SPIE, the international society for optics and photonics, was founded in 1955 to advance light-based technologies. Serving more than 225,600 constituents from approximately 150 countries, the Society advanced**

emerging technologies through interdisciplinary information exchange, continuing education, publications, patent precedent, and career and professional growth. In 2011, the Society provided more than \$2.5 million in support of scholarships, grants, and other education programs around the world. This ambitious effort reflects the Society's commitment to education and to the next generation of optical scientists and engineers.

#### First Award of \$2,500

CS032            **3D Scanner**  
London Reeve Bolsius, 15, Round Rock High School, Round Rock, Texas

#### Second Award of \$1,500

EN065            **Assembly of Magnetic Particles and Magnetic Holes into 1D, 2D, and 3D Photonic Crystals**  
Michael Leonard Janner, 17, Redlands East Valley High School, Redlands, California

#### Third Award of \$1,000

PH008            **New and Improved Insights into the Microcosm: Multimodal Light Microscopy with Bright, Darkfield and Phase Contrast, Part 2: Axial Phase-Darkfield Contrast (APDC), Variable Phase-Brightfield Contrast (VPBC) and Universal Variable Bright-Darkfield Contrast (UVBDC)**  
Timm Piper, 17, Martin-von-Cochem-Gymnasium, Cochem, Germany

#### Honorable Mention

CS305            **Fish-eye Like Spot Magnifier with Low Cognitive Load for Image Browsing**  
Szu-Jung Wu, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei  
Shiang-Wen Huang, 18, National Hsinchu Girls' Senior High School, Hsinchu City, Chinese Taipei

ET048            **Effect of Conversion of the Sunlight into Electricity of the *Kyllinga brevifolia***  
Andrea Marie Albaladejo Quiles, 14, Brigida Alvarez Rodriguez, Vega Baja, Puerto Rico

EV001            **Fluorescent Quantum Dots as a Solid-Phase Detection Medium for Heavy-Metal Contaminates in Drinking Water**  
Rikhav Shah, 15, Lake Highland Preparatory School, Orlando, Florida

#### United Airlines Foundation

For more than 60 years, the United Airlines Foundation has served as the charitable wing of United Airlines, Inc. The Foundation's International Program grants support science, technology, engineering and math (STEM) education initiatives. In addition, we support community service grants for arts and culture, health and environmental initiatives.

#### First Place Award of \$7,500

EE007            **Modification in Aeroplane Wheels to Reduce Wear on the Tyre**  
Phillipe Robert Josef Renee Lothaller, 17, Rondebosch Boys' High School, Cape Town, South Africa

## Second Award of \$5,000

- EM015 **BIO-OIL: The Use of Specially Made Catalyst**  
Nur Liyana Johari, 17, Tuanku Syed Putra Secondary Science School, Kangar, Malaysia

## Third Award of \$2,500

- ET316 **DRT - Drag Reduction Technology**  
Herbert Gerhardtter, 19, HTBLA Eisenstadt, Eisenstadt, Austria  
David Josef Zefferer, 20, HTBLA Eisenstadt, Eisenstadt, Austria

## United States Environmental Protection Agency

### Alternate trip winner

- EE012 **Powering the World: The Design and Development of a Green Energy Technology**  
Marcus James Langevin, 18, Lincoln Senior High School, Thief River Falls, Minnesota

### EPA Patrick Hurd Sustainability Award

- EE311 **Total Solar Strategy for the Tohono O'Odham Nation**  
Jacquel Caron Rivers, 16, Baboquivari High School, Sells, Arizona  
Arne Joi Saguni Nipales, 17, Baboquivari High School, Sells, Arizona

## United Technologies Corporation

United Technologies Corp. is a diversified company that provides a broad range of high-technology products and services to the global aerospace and commercial building systems industries.

Each winning project will receive \$3,000 in shares of UTC common stock.

- CH024 **Towards Next-Generation Nanomaterials: Atomistic, First-Principles Analysis of N-Doped Reduced Graphene Oxide**  
Shyamal Buch, 17, Vista del Lago High School, Folsom, California
- CS014 **LAT (Location Aware Thermostat): Designing an Intelligent, Energy-Saving Thermostat**  
Jarrod Darren Dunne, 15, Franklin Academy High School, Wake Forest, North Carolina
- CS024 **Improving Algorithms for the Optimal Allocation of Security Resources**  
Arjun Milind Tambe, 15, Palos Verdes Peninsula High School, Rolling Hills Estates, California
- EE008 **Vertical Axis Wind Turbine Farm Configuration Efficiency Based on Schools of Fish in Nature**  
Yenny Dieguez, 15, Jose Marti MAST 6-12 Academy, Hialeah, Florida

- EE077 **A Microprocessor Controlled Device with Cloud Connected Sensors for Improving Cardiovascular Health and Workout Efficacy**  
Alisha Saxena, 16, Interlake Senior High School, Bellevue, Washington
- EN317 **Efficient Algae-Based Life Support for Long Duration Spaceflight**  
Alexander Raymond Crisara, 18, L.C. Anderson High School, Austin, Texas  
Alexander Jahan Rabii, 16, L.C. Anderson High School, Austin, Texas
- ET306 **URINE: Metabolic Waste or Energy Source?**  
Adebola Florish Duro-Aina, 14, Doregos Private Academy, Lagos, Nigeria  
Oluwatoyin Eunice Faleke, 15, Doregos Private Academy, Lagos, Nigeria  
Zainab Eniola Bello, 15, Doregos Private Academy, Lagos, Nigeria
- MA012 **Classification of Some Fusion Categories of Rank 4**  
Hannah Kerner Larson, 18, South Eugene High School, Eugene, Oregon
- PH003 **Farnsworth Fusor**  
Michal Racko, 18, Jozef Lettrich Secondary Grammar School, Martin, Slovakia

Each winner will also receive a plaque, backpack, and the UTC Annual Report. Common stock award to be divided among team members.

University of the Sciences in Philadelphia

University of the Sciences awards five \$15,000 scholarships to students whose research and academic interests align with the USciences mission. Scholarships become effective upon enrollment in the incoming class of Fall 2014. At USciences, we are building on a life sciences legacy started almost two centuries ago as Philadelphia College of Pharmacy. From treating, researching, and studying diseases and cures on a molecular level to the medicines that improve lives worldwide, USciences is about moving life forward.

Tuition Scholarship of \$15,000 per year for four years.

- BI048 **CancAARS: A Novel Therapeutic Target for Melanoma Tumorigenesis**  
Robert Mohamed Bacchus, Jr., 16, Lincoln Park Academy, Fort Pierce, Florida
- CB038 **What Are Mechanisms Underlying Nicotine Induced Neutrophil Apoptosis?**  
Jay Kumar, 17, duPont Manual Magnet High School, Louisville, Kentucky
- EM039 **Sustaining Ecological Biodiversity with Highly Specific RNA Interference (RNAi)**  
Neha Kambam Reddy, 16, Lincoln Park Academy, Fort Pierce, Florida
- ME009 **Hemodynamic Interactions in Arterial Networks with Atherosclerosis**  
Aprotim Cory Bhowmik, 16, Parkview High School, Lilburn, Georgia
- ME106 **Preventing the Growth of *Aeromonas sobria* with Ciprofloxacin, Bacitracin, and Over-the-Counter Antiseptics**  
Julia Carol Nahman, 17, Hilton Head Preparatory School, Hilton Head Island, South Carolina

Scholarships are to be allocated toward tuition only and become effective upon enrollment in any undergraduate

or first-professional program offered at University of the Sciences. Each scholarship is renewable for up to four years provided the recipient is enrolled as a full time undergraduate or first-professional student in good academic standing with the University.

#### West Virginia University

West Virginia University will be awarding 25 Academic Excellence or Presidential Scholarships (depending on residency) to students whose research and academic aptitude align with WVU's institutional goals and research interests. Classified as a Research University (High Research Activity) by the Carnegie Foundation for the Advancement of Teaching, West Virginia University offers 184 undergraduate and graduate degree programs in 14 academic colleges.

#### Renewable Tuition Scholarship Awards

- AS014     **Effects of Meteorological Conditions on the Avian Paratympanic Organ: An Ethological Analysis**  
Zoe Pierce Buccella, 17, Home School, Barnesville, Ohio
- BE018     **The Analysis of the Stroop Effect & Shapes Test on the Different Stages of Brain Development**  
Hana Kim Ulman, 16, Hedgesville High School, Hedgesville, West Virginia
- BI034     **Kastle-Meyer Test: Crime Scene Cleanup**  
Kassie Jean Henry, 16, Southeastern High School, Augusta, Illinois
- BI054     **Screening of Novel Drugs for the Treatment of Alzheimer's Disease**  
Annika Mulaney, 15, International Baccalaureate School at Bartow High School, Bartow, Florida
- CH047     **Fingerprints: Can They Handle the Heat?**  
Martina Marie Hukel, 16, Governor French Academy, Belleville, Illinois
- CH304     **The Effect of Catalysts on the Electrolysis of Water**  
Jordan Michael Hallow, 17, Musselman High School, Inwood, West Virginia  
David-Michael Andrew Buckman, 18, Musselman High School, Inwood, West Virginia
- EA004     **A Two-Dimensional Investigation of Hydraulic Fracturing Principles**  
Jacob Floyd Nichols, 17, Brush High School, Brush, Colorado
- EE006     **Interpreter Glove for Deaf People**  
Luciano Gini Thoma, 18, Instituto Tecnológico Superior Paysandu, Paysandu, Uruguay
- EE080     **Rocket Motor Test System 7000**  
Ryan Russell Maurer, 18, Frazier High School, Perryopolis, Pennsylvania
- EE088     **Fine Motor Skills Using Neural Activated Biomechanical Prosthesis**  
Easton J. LaChappelle, 17, Mancos High School, Mancos, Colorado
- EE313     **Counter IED Communication Using Near Field Magnetic Induction**  
Hayden Douglas Dobyons, 18, Pleasant Grove High School, Pleasant Grove, Utah  
Brennan Kevin Burnett, 18, Pleasant Grove High School, Pleasant Grove, Utah
- EM050     **No Mo Mine: MgSO<sub>4</sub>, Mo and Plant Remediation of Mine Residual Contamination**  
Hayden Allan Randall, 14, Taos High School, Taos, New Mexico

- EM315 **Filamentous Fungi Cultivation on "Moonshine" Distillate Residues and Thin Stillage to Produce Reusable Water and a High-Value Fish Food Co-Product**  
John Edward Hale, 17, Morristown Hamblen High School East, Morristown, Tennessee  
Sydney Veronica Burchell, 16, Morristown Hamblen High School East, Morristown, Tennessee
- EN004 **Optimizing Electrical Current Output of Microbial Fuel Cells through Bacterial Mutagenesis and the Fabrication of Nanofiber-based Electrodes**  
Danielle Hua Jacobson, 16, Camps Bay High School, Cape Town, South Africa
- EN316 **Nano-texture Based Transparent Superhydrophobic Coating for Anti-Icing Applications and for the Welfare of the Military and Aeronautics Industry**  
Dana Abulez, 16, Little Rock Central High School, Little Rock, Arkansas  
Devyani Shekhawat, 15, Little Rock Central High School, Little Rock, Arkansas
- EV032 **Oxidative Attack and Elimination of Bisphenol A by Manganese Dioxide**  
Peter Scott Welcker III, 16, Parkersburg South High School, Parkersburg, West Virginia
- PH022 **The Development of a Long Life Solid State Dye Laser**  
Joseph Patrick Lee, 16, Saint Peter's Academy, New Market, Alabama
- PH048 **Creating PEAS: Portable Elemental Analysis System - Developing and Implementing a Novel Cold Cathode Source**  
Jennifer Ann Csele, 17, Notre Dame College School, Welland, Canada
- PH307 **A Quantum Mechanical Model for the Molecular Dynamics Simulation of Protein Folding Behavior**  
Prithvi Potharaju, 15, Ardrey Kell High School, Charlotte, North Carolina  
Justin Yang, 15, Ardrey Kell High School, Charlotte, North Carolina

These awards are dependent on the student meeting the requirements of 1.) high school GPA (weighted or unweighted) of at least 3.8 and 2.) ACT score of 30 or SAT score of 1340 or higher.

Wolfram Research, Inc.

Founded by Stephen Wolfram in 1987, Wolfram Research is one of the world's most respected software companies -- as well as a powerhouse of scientific and technical innovation. As pioneers in computational science and the computational paradigm, we have pursued a long-term vision to develop the science, technology, and tools to make computation an ever-more-potent force in today's and tomorrow's world.

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