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MONTGOMERY

**MONTGOMERY**  
**COUNTY**  
**SCIENCE FAIR**  
**2011**

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**MARCH 18, 19, 20**  
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# 2011 *Science* Sponsors

## MONTGOMERY

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| <b>Pt-Platinum (\$15,000+)</b>                        | MedImmune   |
| <b>Ti-Titanium (\$5,000-\$9,999)</b>                  | Human Genome Sciences<br>Northrop Grumman<br>United Therapeutics Corporation  |
| <b>Ag-Silver (\$1,000-\$4,999)</b>                    | Lockheed Martin Corporation<br>MRIGlobal<br>National Institute of Standards and Technology<br>Office of Dietary Supplements, National Institutes of Health<br>United States Nuclear Regulatory Commission<br>University of Maryland, Division of Research and Economic Development  |
| <b>Cu-Copper (\$500-\$999)</b>                        | Gary and Christine Cahn<br>Federation of American Societies for Experimental Biology<br>Ellen and Bill Kominers<br>Lee Development Group<br>Montgomery County Teachers Federal Credit Union<br>Gregory Neuschafer<br>Sanaria, Inc.<br>Social and Scientific Systems, Inc.<br>Technical Resources International, Inc., Anthony Lee Memorial Fund<br>Qiagen |
| <b>Fe-Iron (\$150-\$499)</b>                          | Bud Miller Associates, Inc.<br>Fitzgerald Auto Malls<br>First Call Office Products<br>GenVec, Inc.<br>Health Physics Society<br>Holland & Knight, LLP<br>Lab Products, Inc.<br>PH Rockwood, Dr. Roscoe M. Moore, Jr.  |
| <b>Friends of ScienceMONTGOMERY<br/>(Up to \$149)</b> | Kevin and Cynthia Connolly  |
| <b>In-Kind Donors</b>                                 | Honest Beverages<br>Trader Joe's Rockville  |

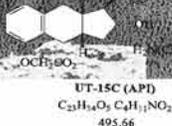
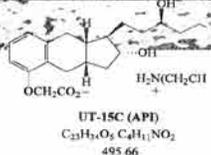
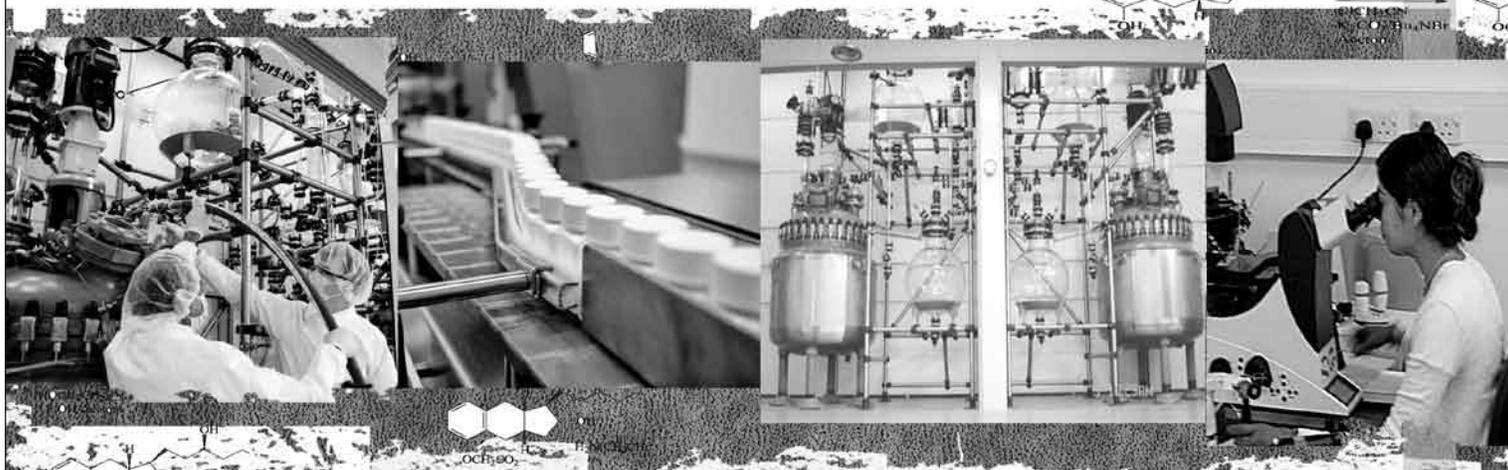
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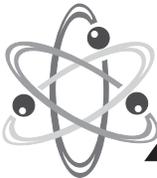
Helping people is the most satisfying aspect of our work, but it isn't the only reward.

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This is why we are a proud sponsor of ScienceMONTGOMERY.





2011  **Science** Fair Schedule  
MONTGOMERY

[www.ScienceMONTGOMERY.org](http://www.ScienceMONTGOMERY.org)

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**Friday, March 18, 2011**

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**4 PM -9 PM**      **Student Project Set Up:** Set-up display boards and go through Safety Inspection in Reckord Armory Building, University of Maryland, College Park

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**Saturday, March 19, 2011**

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**8 AM -12 Noon**      **Judges Project Preview Period** (No students present)

**12 Noon – 3:00 PM**      **Students Grades 9-12 Interviews** by Judges and Community Awards Organizations

**2:30 PM – 5:00 PM**      **Students Grades 6-8 Interviews** by Judges and Community Awards Organizations

**5:00-6:00 PM**      **Project Removal**

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**Sunday, March 20, 2011**

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**2:00-4:00 PM**      **Awards Ceremony** at Gaithersburg High School Auditorium

**4:00-5:00 PM**      Meeting with *ScienceMONTGOMERY* Senior High School International Science and Engineering Fair Winners about trip to Los Angeles, CA for ISEF, Gaithersburg High School Auditorium stage

*(Any projects not removed by 6:00 PM Saturday, March 19, will be discarded.)*

# UNIVERSITY OF MARYLAND

Office of Undergraduate Admissions



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- To learn more about the University of Maryland, please visit [www.admissions.umd.edu](http://www.admissions.umd.edu).
- Join us for **Maryland Day** on Saturday, April 30, 2011  
[www.admissions.umd.edu/visit](http://www.admissions.umd.edu/visit)

- **24 of our academic programs are ranked in the Top 10** by *U.S. News & World Report*.
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- Our **Honors College** brings together students with exceptional academic talents. They participate in exciting living and learning programs, including Digital Cultures and Creativity and Entrepreneurship and Innovation, both new last fall.
- Our students are **involved, talented and unique**: Our freshman class includes valedictorians, a philanthropist whose efforts supported orphans in Rwanda, a budding scientist who has lived on four continents, an entrepreneur who founded his own software company and a gold medalist for Acrobatic USA Gymnastics.
- The university won a record **\$545 million in research funding** in fiscal year 2010.



## FOR MORE INFORMATION:

### Office of Undergraduate Admissions

Mitchell Building

College Park, MD 20742-5235

301.314.8385

1.800.422.5867

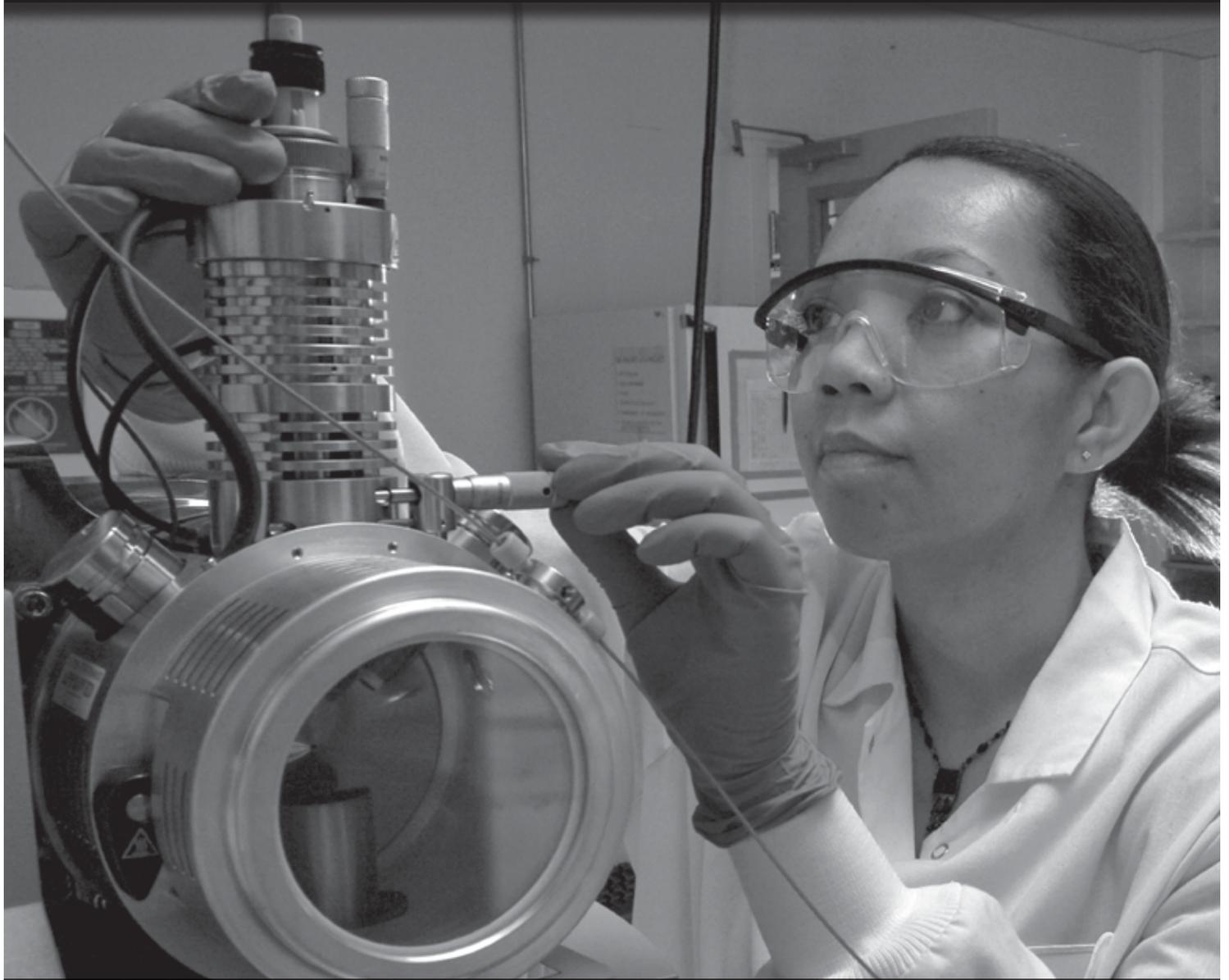
Fax: 301.314.9693

E-mail: [um-admit@umd.edu](mailto:um-admit@umd.edu)

Web: [www.admissions.umd.edu](http://www.admissions.umd.edu)

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**Science**  
MONTGOMERY

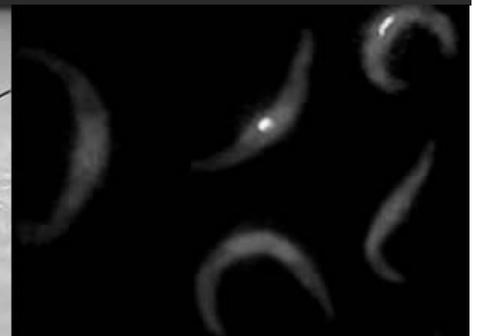
2011

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Lee Plaza  
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301.585.7000

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## SANARIA

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Sanaria is a Montgomery County-based biotechnology company dedicated exclusively to the production of a vaccine against human malaria which kills over 1 million people per year. For more information about our work, please visit [www.sanaria.com](http://www.sanaria.com).



## MONTGOMERY AREA SCIENCE FAIR ASSOCIATION

March 2011

Welcome to the 55th year of ScienceMONTGOMERY. We hope you enjoyed your journey in the pursuit of scientific understanding as you developed your science fair project.

ScienceMONTGOMERY is a 503 (c) (3), nonprofit, all volunteer organization which relies on private funding to produce the county wide fair competition each year. The fair brings together scientists, engineers, mathematicians, educators, parents, and students from throughout the county. ScienceMONTGOMERY provides a single site venue for head to head competition among more than 500 students from public, private, and home school affiliations, in grades 6 through 12. Project excellence in each of a dozen categories is rewarded with cash awards. Complementing our core of category awards are the many Community Awards sponsored by various businesses, scientific, professional, and educational organizations, plus several US Government agencies. Students are competing for \$45,000.00, when totaled, in cash, scholarships, internships, travel, banquets, bonds, books, certificates, medals, and merchandise.

Generous sponsors fund ScienceMONTGOMERY. MedImmune has, for the seventh consecutive year, served as our premier sponsor. We also are particularly appreciative of the support of Human Genome Sciences, Northrop Grumman and United Therapeutics Corporation, as well as generous returning sponsors Lockheed Martin, National Institute of Standards and Technology, the Office of Dietary Supplements of the National Institutes of Health, and the U.S. Nuclear Regulatory Commission. Every year, we are indebted to the more than 200 volunteer judges, representing area business and professional organizations, who painstakingly evaluate projects but more importantly encourage students' further pursuit of scientific understanding.

An affiliate of the Intel International Science and Engineering Fair (ISEF), ScienceMONTGOMERY strictly adheres to the ISEF rules and guidelines to ensure the safety of our competing students. This year's top high school winners will be awarded a fully funded travel scholarship to present their project at the International Science and Engineering Fair, 2011 in Los Angeles, CA.

The all-volunteer ScienceMONTGOMERY Board of Directors wishes to thank each of the organizations and individuals you see in this program, for making this 55th Montgomery Area Fair possible. My personal thanks goes out to each of the Board members who have contributed significant talent, time, and resources, late at night, after work, on weekends, in good weather and bad.

ScienceMONTGOMERY congratulates the students who prepared their projects for the 2011 Fair. We also wish to recognize and thank the parents, teachers and mentors who have supported and encouraged these young minds.

Gregory F. Neuschafer, Fair Director 2011  
*President, Montgomery Area Science Fair Association*



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**OFFICE OF THE COUNTY EXECUTIVE**  
ROCKVILLE, MARYLAND 20850

Isiah Leggett  
*County Executive*

March 2011

Captain Gregory Neuschafer  
Fair Director  
ScienceMONTGOMERY  
Montgomery Area Science Association  
8613 Fenway Drive  
Bethesda, MD 20817

Dear Captain Neuschafer:

Montgomery County supports and applauds *ScienceMONTGOMERY*, and your ongoing efforts to encourage interest in science throughout the County. Programs like yours help nurture and expand Montgomery County's longstanding national and international prominence in the life sciences and technology fields. The countywide Science Fair annually attracts over 500 Montgomery County public and private school students and we are very proud to support your mission to advance and celebrate performance in science education throughout our community.

Now more than ever, Montgomery County is doing all we can to ensure a strong, vibrant economy and healthy, sustainable communities today for future generations. Maintaining one of the nation's highest performing K-12 public school systems is essential to these goals, and the talented and dedicated students being recognized this year illustrate our success in this area.

I commend the important contributions you and *ScienceMONTGOMERY* make within the community, and applaud those businesses that, during these difficult economic times, pledged their support to recognize and honor the talents and achievement of our youth.

Sincerely,



Isiah Leggett  
County Executive

**MONTGOMERY AREA SCIENCE FAIR ASSOCIATION**

55<sup>th</sup> Montgomery Area Science Fair – 2011  
Reckord Armory, University of Maryland College Park

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**Officers and Board, Montgomery Area Science Fair Association**

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**President:** Greg Neuschafer,  
*Office of Naval Research*

**Vice President:** Dr. Kevin Connolly  
*PharmAthene*

**Secretary:** Yavuz Anahtar, RA  
*Parent, NOA Architects*

**Treasurer:** Gary Cahn  
*National Strategies, Retired*

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**Board Members**

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**Nuray Anahtar, AIA**  
*Parent, NOA Architects*

**James M. Douglas, NBCT**  
*Parent, Science Resource Teacher, Sherwood High School*

**Dr. Milton Axley**  
*MedImmune*

**Brett M. Huhman, M.S., P.E.**  
*U.S. Naval Research Laboratory*

**Dr. Kate Baldwin**  
*Howard University, Retired*

**Dr. Laura Lee Johnson**  
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**Luis Betancourt, EIT**  
*U.S. Nuclear Regulatory Commission*

**William Kominers, Esquire**  
*Parent; Partner, Holland & Knight, LLP*

**Dr. David W. Bonnell**  
*NIST, Retired*

**Anne Merrell**  
*Teacher, Bethesda-Chevy Chase High School*

**Ellen Dickstein Kominers, J.D.**  
*Parent, Bethesda, MD*

Persons interested in joining the **ScienceMONTGOMERY** Board should contact [FairDirector@sciencemontgomery.org](mailto:FairDirector@sciencemontgomery.org)



# AWARDS PROGRAM

2:00 P.M.

Sunday, March 20, 2011

Gaithersburg High School Auditorium

|   |   |
|---|---|
| <b>Opening of Awards Program and Welcome to ScienceMONTGOMERY</b> | Greg Neuschafer, <i>Fair Director and President, Montgomery Area Science Fair Association</i>   |
| <b>Congratulations to Student Scientists:</b>                     | Gail Folena-Wasserman, Ph.D., <i>Senior Vice President, Research and Development, MedImmune</i>   |
| <b>Remarks:</b>   | Scott Kominers ( <i>ScienceMONTGOMERY 2005, Harvard A.B. '09/A.M.'10, co-author, Success with Science: The Winner's Guide to High School Research</i> ) |
| <b>Presentation of Community Awards:</b>                          | ScienceMONTGOMERY Board Members<br>Community Award Organizations Presenters   |
| <b>Presentation of Category Awards:</b>                           | ScienceMONTGOMERY Board Members   |

**Behavioral and Social Sciences Category Awards** Presented in Honor of Dr. Pepper Buckley

**Biochemistry Category Awards** Sponsored by Human Genome Sciences

**Biology Category Awards** Sponsored by Unither

**Engineering Awards Category Awards** Sponsored by Northrop Grumman

**Medicine and Health Category Awards** Sponsored by MedImmune

**Physics Category Awards** Presented in Honor of Dr. Jay Buckley

**Presentation of ISEF Awards:** Milton Axley, Ph.D., Gail Folena-Wasserman, Ph.D.

**Thank you and Adjournment**

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## Special Fair Responsibilities:

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**Venue and Food:** Greg Neuschafer, James Douglas

**Website Oversight and T-shirts:** Gary Cahn

**Category Awards:** Kevin Connolly, Chair; Kate Baldwin, Stephanie Douglas

**Community Awards and Program:** Ellen Kominers, Luis Betancourt, *Co-Chairs*; Re-I Chin, Taylor Douglas, Jacob Hurwitz, Paul Kominers, Jennifer Wang

**Display and Safety Committee:** Brett M. Huhman, David W. Bonnell, *Co-Chairs*

**Fund Raising:** Greg Neuschafer, Gary Cahn, William Kominers

**Scientific Review Committee:** Laura Lee Johnson, *Chair*

Milton Axley, Kate Baldwin, Luis Betancourt, David Bonnell, Gary Cahn, Kevin Connolly, James Douglas, Taylor Douglas, Deborah Poher-Haase, Brett Huhman, Ellen Kominers, Adam Lowy, Cathryne Manner, Stephen Mason, Anne Merrell, Greg Neuschafer, Patricia Porter-Gill, Kenny Rosenberg

**ISEF Delegation Adults-in-Charge:** Brett Huhman and Heather Huhman



## Community Organizations Presenting Awards

|   |   |
|---|---|
| Aerospace Corporation   | Intel   |
| American Industrial Hygiene Society   | I-SWEEEP  |
| American Institute of Aeronautics and Astronautics (AIAA)                                   | MIT Club of Washington D.C.   |
| American Meteorological Society—D.C. Chapter  | MedImmune   |
| American Nuclear Society, Washington, D.C. Section  | MRIGlobal   |
| American Psychological Association  | Mu Alpha Theta  |
| American Society of Mechanical Engineers  | National Capital Astronomers  |
| American Society of Naval Engineers/Society of<br>Naval Architects and Marine Engineers     | National Society of Professional Engineers                                      |
| ASM Materials Education Foundation—D.C. Chapter   | National Space Club   |
| Association for Women Geoscientists   | National Oceanographic and Atmospheric Administration<br>(NOAA)                 |
| Association of Practicing Psychologists of Montgomery<br>and Prince George's Counties, Inc. | Office of Naval Research  |
| Biophysical Society   | Optical Society of America—National Capital Section                             |
| Broadcom MASTERS Competition  | Ricoh Americas Corporation  |
| Central Intelligence Agency   | Rotary Club of Rockville  |
| Clean Air Partners  | Sigma Xi—FDA Chapter  |
| Discovery Education Young Scientist Challenge   | Sigma Xi—NIST Chapter   |
| Energy and Air Quality Advisory Committee<br>of Montgomery County                           | Society for In Vitro Biology  |
| Federal Water Quality Association   | Stockholm Junior Water Prize  |
| Friends of Agricultural Research—Beltsville, Inc.   | Surfrider Foundation—D.C. Chapter   |
| GENIUS Olympiad—SUNY Oswego   | United States Air Force   |
| Geological Society of Washington  | United States Army  |
| Graduate Women in Science   | United States Metric Association  |
| IEEE--Institute of Electrical and Electronics Engineers, Inc.<br>—Washington Section        | United States Nuclear Regulatory Commission                                     |
| IEEE Phototonics  | United States Public Health Service--Commissioned Officers<br>Association, D.C. |
| Institute of Food Technologists<br>—D.C. Section  | Washington Statistical Society  |
|   | West Montgomery County Citizens Association                                     |
|   | Yale Science and Engineering Association, Inc.                                  |

Congratulations to the Scientists of the  
55<sup>th</sup> Annual Montgomery County Science Fair!

**Holland & Knight**



## ScienceMONTGOMERY Update

### Congratulations to our 2010 ScienceMONTGOMERY Grand (ISEF) Prize Winners:

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|  |                     |
|--|---------------------|
| <b>Samirkumar Devalaraja</b> (Wooton HS)                             | Medicine and Health |
| <b>Jacob Hurwitz</b> (Blair HS)                                      | Mathematics         |
| <b>Rachael Lee</b> (Whitman HS)                                      | Biochemistry        |
| <b>Nivetita Ravi</b> (Clarksburg HS)                                 | Chemistry           |
| <b>Jennifer Wang</b> (Blair HS), <b>Grace Young</b> (Potomac School) | Physics             |

### Our Graduating Finalists were Recognized with These Awards at ISEF 2010 (San Jose):

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**Samirkumar Devalaraja:** Grand Awards: Third (Medicine and Health); AVASC-Ashtavadhani Vidwan Ambati Subbaraya Chetty Foundation; Endocrine Society Second Award

**Jacob Hurwitz:** Grand Awards: Fourth (Mathematical Sciences); American Mathematical Society Karl Menger Prize (Third Award); Illinois Institute of Technology

**Rachael Lee:** Endocrine Society Honorable Mention

**Jennifer Wang and Grace Young:** Grand Awards: Third (Team); United States Army; European Organization for Nuclear Research-CERN

### Kudos to These Prior Participants in ScienceMONTGOMERY For Their Wonderful Accomplishments Since Last Year's Fair:

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**I-SWEEEP Award Winners:** Allison Hockman, Jessica Wire (Honorable Mention: Environment); Daniel Liss (Bronze: Engineering)

**Luce Foundation Clare Booth Luce Award (for Support of Women in Science):** Stephanie Douglas

**Moody's Mega Math Challenge Summa Cum Laude:** Andrew das Sarma, Jacob Hurwitz, Scott Yu

**Davidson Institute Honorable Mention (Science):** Daniel Liss

**Siemens Competition in Math, Science, and Technology:** National Semi-Finalists: Andrew das Sarma, Shilpa Kannan

**Intel Science Talent Search Semi-Finalists:** Kuo-Kai Chin, Andrew das Sarma, Pranav Gokhale, Ajay Kannan, Sharon Ong

*ScienceMONTGOMERY winners,  
Rachael Lee, Samir Devalaraja,  
and Jacob Hurwitz at ISEF 2010  
in San Jose.*





# Office of Dietary Supplements

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## National Institutes of Health

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*The NIH Office of Dietary Supplements  
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and advancement among young scientists by supporting  
ScienceMONTGOMERY 2011.*

*- ODS Staff*



Office of Dietary Supplements  
National Institutes of Health  
U.S. Department of Health & Human Services  
Bethesda, Maryland



## 2011 Category and ISEF Awards Judges

| Name                        | Affiliation                           | Name                   | Affiliation                        |
|-----------------------------|---------------------------------------|------------------------|------------------------------------|
| Ms. Abolade Adepiti         | TASC                                  | Ms. Jessica Galant     | MRIGlobal                          |
| Dr. Neeraj Agarwal          | NIH                                   | Mrs. Mary Galloway     | Life Technologies                  |
| Dr. Amy Andrew              | NIH                                   | Mr. Alan Gambrell      | Self, Communications               |
| Dr. Houmam Araj             | NIH                                   | Ms. Anna Ganelina      | Supernus Pharmaceuticals, Inc      |
| Dr. Ravikiran Attota        | NIST                                  | Dr. Eric Graber        | FDA                                |
| Mr. John Bagnoli            |                                       | Mr. Ira Gershkoff      | Software engineering               |
| Dr. Susan Baker             | NOAA                                  | Mr. Karl Goller        | Retired                            |
| Dr. Robert Balaban          | NIH                                   | Mr. Jon Griffin        |                                    |
| Dr. Nagaraja Balakathiresan | USHUS                                 | Ms. Joy Gunter         | Charles River Labs                 |
| Dr. Kate Baldwin            |                                       | Dr. Jonathan Hardis    | NIST                               |
| Ms. Eileen Baker            | MRIGlobal                             | Dr. J. Terrell Hoffeld | Int'l College of Dentists/NIH      |
| Dr. Christopher Berndsen    | Johns Hopkins School of<br>Medicine   | Mr. Larry Hothem       | USGS/DOI                           |
| Ms. Gail Blakley            | U. of Maryland College Park           | Dr. Syed Hussan        | NIH                                |
| Mr. Richard L. Cairns III   | NRL                                   | Dr. William Iverson    | MedImmune                          |
| Dr. Bishwanath Chatterjee   | NIH                                   | Dr. Jonathan Jacobs    | MRIGlobal                          |
| Ms. Chaitali Chattopadhyaya | FDA/CVM                               | Ms. Mitsy Canto Jacobs | HDR Architecture                   |
| Dr. De Chen                 | NCI Frederick                         | Dr. John Jones         | Children's National Medical Center |
| Dr. Pradeep Cheruku         |                                       | Dr. Robert Kahn        | USDA-APHIS, Retired                |
| Ms. Jeanette Coffin         | MRIGlobal                             | Dr. Patricia Kapinga   |                                    |
| Dr. Hall Crannell           | Retired                               | Dr. Yoko Kebukawa      | Carnegie Institution of Washington |
| Dr. Carlos Cruz             |                                       | Mr. Kevin Kesler       | US Dept of Transportation          |
| Dr. Nicholas Dagalakis      | NIST                                  | Mr. Scott Kominers     | Harvard University                 |
| Mr. George Daniello         | US Gov't/retired                      | Dr. David Kosub        | NIH                                |
| Dr. Salil Das               | PG Community/<br>Montgomery Colleges  | Dr. Rajesh Krishnan    | Science & Technology Associates    |
| Dr. Robert deGroof          | Biotechnology, Retired                | Dr. Ming Lei           | National Cancer Institute          |
| Dr. Jana Delfino            |                                       | Dr. Xiang-Ning Li      |                                    |
| Dr. Matt Devalaraja         | Human Genome Sciences, Inc.           | Dr. Sunil Lingayat     | Northrop Grumman                   |
| Dr. Lena Diaw               |                                       | Dr. Chunqiao Liu       | NIH                                |
| Dr. Garry Didinsky          | ATK                                   | Ms. Ivy Liu            | Lockheed Martin Corporation        |
| Mr. Tom Dror                |                                       | Dr. Edward Masler      | USDA/ARS                           |
| Dr. Irith Dror              | Discovery Communications              | Mr. Stephen Mason      | Johns Hopkins University, APL      |
| Dr. Mark Engle              | U.S.G.S.                              | Ms. Sonya Mazumdar     |                                    |
| Mr. Ron Engle               | NIH                                   | Mr. Joseph McKennan    |                                    |
| Dr. Luis Espinoza           | Georgetown University                 | Mr. Stephen McMurray   | Technology Service Corp.           |
| Mrs. Nancy Farrar           |                                       | Ms. Erin Merritt       | MRIGlobal                          |
| Mr. Wesley Farrell          |                                       | Dr. Julia Michelotti   | MRIGlobal                          |
| Mr. Kamron Fazel            | US Navy                               | Mr. Scott Miller       | QIAGEN                             |
| Mrs. Katherine Fazel        |                                       | Dr. Sheenu Mittal      |                                    |
| Dr. Dionysis Foustoukos     | Carnegie Institution of<br>Washington | Dr. Peyton Myers       | FDA                                |
| Dr. Christine France        | Smithsonian Institution               | Dr. Jeff Owrutsky      | Naval Research lab                 |
| Dr. John Francis            | National Geographic Society           | Dr. Robert Peters      | NASA                               |
| Dr. Patricia Fritz          | Charles River Labs                    | Ms. Nilda Piczon       | Northrop Grumman                   |
| Dr. Sarah Gaillot           |                                       | Dr. Sara Pistoiesi     | NIH                                |
|                             |                                       | Mr. Jordan Publico     | Charles River                      |
|                             |                                       | Dr. Savelas Rabb       | NIST                               |
|                             |                                       | Dr. Mangala Rao        | Walter Reed Inst. of Research      |

**2011 Category and ISEF Awards Judges (continued)**

| <b>Name</b>             | <b>Affiliation</b>         | <b>Name</b>              | <b>Affiliation</b>           |
|-------------------------|----------------------------|--------------------------|------------------------------|
| Dr. Salvarore Rapisardi | Howard University, retired | Ms. Claudia Smith        | BioReliance                  |
| Ms. Lisa Read           | MRIGlobal                  | Ms. Katherine Somers     | NIH, NICHD                   |
| Ms. Aimee Reis          | NIH, NIAID                 | Dr. Diana Speelman       | U. MD School of Medicine     |
| Ms. Karine Reiter       | NIH                        | Dr. Forrest Spencer      | Johns Hopkins University     |
| Ms. Chris Richardson    | Rapid Changing Technology  | Dr. Shireesh Srivastava  | NIH                          |
| Ms. Molly Romick        | NCAB/AALAS                 | Dr. Yee San Su           | CNA                          |
| Mrs. Miriam Rose        | NCAB/AALAS                 | Dr. Tricia Takahara      | FDA/Howard Community College |
| Mr. Billy Rose III      | NCAB                       | Mr. McAnthony Tarway     | NIH                          |
| Dr. Jermaine Ross       | NIH                        | Dr. David Tomko          | NASA                         |
| Dr. Adam Ruben          | Sanaria Inc.               | Mr. Burak Uzman          |                              |
| Mr. Martin Rush         | IBM, Retiree               | Ms. Tresa Vidaythil      |                              |
| Ms. Kristina Sanders    | Charles River Labs         | Mr. Marc Willis          | Lab Products, Inc.           |
| Mr. Keith Schur         | Northrop Grumman           | Dr. David Winfield       |                              |
| Dr. Anuj Sharma         |                            | Dr. Michael Wise, D.V.M. | Veterinarian                 |
| Dr. Sanjiv Shresta      | The MITRE Corporation      | Mr. Jeremy Zehr          | MRIGlobal                    |

**ScienceMONTGOMERY Participating Schools-2011**

| <b>School</b>                      | <b>Abbrev.</b> | <b>School</b>                          | <b>Abbrev.</b> |
|------------------------------------|----------------|--|----------------|
| Bethesda-Chevy Chase High School   | BCH            | Richard Montgomery High School         | RMH            |
| Bullis School                      | BUS            | Roberto Clemente Middle School         | RCM            |
| Charles E. Smith Jewish Day School | JDS            | Shady Grove Middle School              | SGM            |
| Col. Zadok Magruder High School    | MGH            | Sherwood High School                   | SWH            |
| Forcey Christian Middle School     | FCM            | St. Andrew Apostle School              | SAA            |
| Gaithersburg High School           | GBH            | St. Catherine Laboure School           | SCL            |
| Herbert Hoover Middle School       | HHM            | St. Mary's School                      | SMS            |
| Holy Cross School                  | HCS            | Stone Ridge School of the Sacred Heart | SSH            |
| James Hubert Blake High School     | HBH            | Takoma Park Middle School              | TPM            |
| John H. Poole Middle School        | JPM            | Thomas S. Wooton High School           | WHO            |
| Montgomery Blair High School       | BLH            | Thomas W. Pyle Middle School           | PYM            |
| Newport Mill Middle School         | NMM            | Walt Whitman High School               | WWH            |
| North Bethesda Middle School       | NBM            | Walter Johnson High School             | WJH            |
| Northwest High School              | NWH            | Wheaton High School                    | WHH            |
| Parkland Middle School             | PLM            | White Oak Middle School                | WOM            |
| Poolesville High School            | POH            | Winston Churchill High School          | CHH            |

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# REGISTRANTS

## STUDENTS IN THE JUNIOR FAIR

### BEHAVIORAL AND SOCIAL SCIENCES

|      |  |                     |      |
|------|--|---------------------|------|
| J101 | Animal Magnetism   | Lipi Agrawal        | RCM  |
| J102 | Genre Jumble   | Colin Whelan        | HCS  |
| J103 | The Effect Of Eye And Mind Coordination  | Aditya Kaliappan    | RCM  |
| J104 | Do You Hear What I Hear?   | Catherine Paxton    | HCS  |
| J105 | Txtng+drvng=?  | Devon Lyons         | HCS  |
| J106 | Making A Breakthrough  | Brittany Menjivar   | HCS  |
| J107 | Is Alertness Affected By Physical Activity?                                    | Bennet McGlade      | NMM  |
|      |  | Nelson Le           | NMM  |
|      |  | Jenna Pastel        | NMM  |
| J108 | Effects Of Sleep   | Eric Xu             | RCM  |
| J109 | The Effect Of Severity Of Punishment On Misbehavior                            | David Miller        | TPM  |
| J110 | Making Sense Of Taste  | Marina Silva        | HCS  |
| J111 | The Effect Of Music And Talking On Driving                                     | Michael Zhang       | RCM  |
| J112 | Which Genders Use Hand Motions The Most To Express Emotions?                   | Ama Amissah         | FCMS |
| J113 | Does Color Affect Memory?  | Ryan Jang           | FCMS |
|      |  | Eugene Seto         | FCMS |
| J114 | Brain Lateralization Study   | Alexis Sandler      | PYM  |
| J115 | The Effect Of Color On The Memorization Of Images                              | Amanda Wessel       | TPM  |
| J116 | Audio Memory vs. Visual Memory   | Ellie Struewing     | TPM  |
| J117 | At The Scene Of The Crime...Who Remembers?                                     | Maggie Reed         | JPM  |
| J118 | Does Music Affect Teen's Work Ethic?   | Bethany Bilewu      | FCMS |
|      |  | Talia McFate        | FCMS |
| J119 | Do Cats Have A Preference As To The Type Of Cat Food?                          | Christopher Moran   | TPM  |
|      |  | Christopher Montano | TPM  |
|      |  | Eric Pattmon        | TPM  |
| J120 | Do Humans And Animals Go Through The Same Stages Both Mentally And Physically? | Vivien Adams        | TPM  |
| J121 | How Does Music Affect Plant Growth?  | Valeria Nunez       | TPM  |
|      |  | Lela Gaye           | TPM  |
| J122 | Do Different Bats Have Different Echolocation Frequencies?                     | Raymond Fisher III  | TPM  |
| J123 | Does Being Blindfolded Affect How Well You Hear?                               | Jack Yamai          | TPM  |
| J124 | Memory: Is It Better For Auditory Or Visual Learners?                          | Eleanor Struewing   | TPM  |
| J126 | Money vs. Greed: Why Do People Want It So Much?                                | Brendan Mayer       | TPM  |
| J127 | How Music Affects The Human Brain  | Chimey Sonam        | TPM  |

### BIOCHEMISTRY

|      |   |                 |      |
|------|---|-----------------|------|
| J201 | Effect Of Magnesium On The Photosynthetic Activity Of Spinach           | Sarah Wagner    | TPM  |
| J202 | Cozy Enzymes: The Effect Of Environmental Conditions On Enzyme Activity | Anthony Li      | TPM  |
| J203 | Weight Loss -- Amylase's Inhibitor                                      | Grace Cheung    | RCM  |
| J204 | Effect Of Different Concentrations Of DEET On Young Basil Plants        | Kevin Liu       | RCM  |
| J205 | Bio-plastics  | Siddharth Nayak | RCM  |
| J206 | Can You Recognize The Difference In Two Types Of Hamburgers?            | Yeabsera Amare  | FCMS |
| J207 | The Effect Of pH On Lactase Activity                                    | Jacob Wagner    | HHM  |



|      |  |   |                      |
|------|--|---|----------------------|
| J208 | Vitamin C Levels In Juice  | Ellin Hu  | RCM                  |
| J209 | How Will Food Waste Decay The Fastest?   | Bethanne Venkatesan                             | FCMS                 |
| J210 | Degrading DNA  | Farah Kabir                                     | RCM                  |
| J211 | Which Liquid Grows Mold Faster On Bread?   | Grace Koo<br>Yelim Chu                          | FCMS<br>FCMS         |
| J212 | How Is The Volume Of A Balloon Effected By The Amount Of Baking Soda And Vinegar Combined? | Cameron Jones                                   | PLM                  |
| J213 | Difference In The Protein Makeup Of Turmeric And Ginger                                    | Trinish Chatterjee                              | RCM                  |
| J214 | What Is The Best Way To Keep A Soda Cold?  | Glenn Cotone                                    | FCMS                 |
| J215 | How Do Various Drinks Affect The Thinking Process?   | Lolade Solaru<br>Ayo Omolola<br>Elionai Wondimu | FCMS<br>FCMS<br>FCMS |
| J216 | Does Double Dipping Produce More Or Less Bacteria Than Direct Mouth Contact?               | Claude Williams                                 | FCMS                 |
| J217 | Hair Analysis  | Lois Owolabi                                    | TPM                  |

**BIOLOGY**

|      |  |   |                   |
|------|--|---|-------------------|
| J301 | Solar Water Purification: A Solution For Poor Countries & Natural Disasters?       | Christine Allaire                               | HCS               |
| J302 | Ziploc Rivalry (and Original Packaging Too!)                                       | Julia Condron                                   | HCS               |
| J303 | Does Keeping Banana In Various Locations In The House Affect Its Rate Of Ripening? | Amarachi Ibe                                    | SAA               |
| J304 | The Effect Of Vitamin B On Respiration Rates And Brightness Of Guppies             | Angela Park                                     | TPM               |
| J305 | Plant Growth In Different Light  | Ryan Scott                                      | PLM               |
| J306 | Different Liquids Effect On Plant Growth   | Claudia Espinoza                                | RCM               |
| J307 | How Different Types Of Compost Affect The Growth Of Basil Plants                   | Brianna Velazquez                               | RCM               |
| J308 | Effect Of Different Plant Foods On The Growth Of Mint Plants                       | Oliver Hu                                       | RCM               |
| J309 | The Effect Of Light On The Growth Of Ferns And How Quickly Their Leaves Dry        | David Zhang                                     | RCM               |
| J310 | Is There More Similarity In Fingerprints Between Siblings Than Non-related People? | Raveesha Arora                                  | RCM               |
| J311 | Tooth Decay And Drinks   | Rachel McIntyre                                 | JPM               |
| J312 | Plants Dead But Living   | Victoria Atkinson                               | PLM               |
| J313 | CO <sub>2</sub> + Heat/light = Photosynthesis                                      | Clarisse May Pascual                            | PLM               |
| J314 | Egg Floats   | Sonia Rodriguez                                 | PLM               |
| J315 | Fingerprints   | Fiona MacNairn                                  | TPM               |
| J316 | Effect Of Gravity On The Rate And Direction Of Root Growth                         | Amy Borton                                      | TPM               |
| J317 | Brown Rice's Antibiotic Activity   | Xinquan Tian                                    | RCM               |
| J318 | Do Plants React Differently To The North And South Poles Of A Magnet?              | John Baur                                       | TPM               |
| J319 | Plant Growth   | Kevin Tu  | PLM               |
| J320 | Pilobolus Adventures: Effect Of Light Intensity And Direction On Sporulation       | Tommy Ryan<br>Conor Clark                       | TPM<br>TPM        |
| J322 | Life From The Light  | Saul Sallah                                     | RCM               |
| J323 | How Music Affects The Heart Rate   | Jack Farias                                     | TPM               |
| J324 | Is Plant Growth Affected By Location & Temperature?                                | Julia Goldsmith<br>Lila Tovar<br>Isabel Brecher | TPM<br>TPM<br>TPM |
| J325 | Do Thumbprints Differ In The Age And Gender Of A Person?                           | Brandon Royal<br>Hodalis Gaytan                 | TPM<br>TPM        |
| J326 | How Do Thumbprints Differ Among Children?  | Karis Clement                                   | TPM               |
| J327 | Which Type Of Mouthwash Kills The Most Germs?                                      | Carlito Moyer                                   | TPM               |
| J328 | Does The Size Of A Jar Affect How Long A Candle Will Burn?                         | Julian Shofar                                   | TPM               |
| J329 | The Effect Of pH On Tadpoles   | Sulayman Sallah                                 | RCM               |



## CHEMISTRY

|      |   |  |              |
|------|---|--|--------------|
| J401 | It's Alive! Fabric Breathability  | Robert Boies                           | SAA          |
| J402 | Dirty Soap  | JonMarc Olivier                        | HCS          |
| J403 | Different Temperatures Affecting Paint And Glue   | Emma Rainard<br>Catherine Estrada      | SCL<br>SCL   |
| J404 | Electric Potato   | Guido Frega                            | SGM          |
| J405 | Solvents vs. Sharpies   | Katie Biggins                          | SMS          |
| J406 | Don't Cry Over Spoiled Milk   | Briana Caballero                       | RCM          |
| J407 | Calcium vs. Caffeine  | Hanna Fantom                           | SCL          |
| J408 | Which Ibuprofen Pill Dissolves The Fastest?   | William Miyashita                      | SCL          |
| J409 | Which Drink Contains More Electrolytes: Gatorade, Orange Juice, Or Coconut Water?                               | Emily Zhang                            | RCM          |
| J410 | The Effect Of The pH Of A Liquid Solvent On Copper Corrosion  | Christopher Lee                        | RCM          |
| J411 | Differences In Electrical Conductivity In Both Cooked And Uncooked Fruits And Vegetables                        | Alex Frost                             | RCM          |
| J412 | The Effects Of Liquids On Nails?  | Rohith Battina                         | RCM          |
| J413 | How Does The Color Of An Ice Cube Affect How Long It Takes To Melt?<br>In Sunlight? In Darkness? In Room Light? | Vidya Shaker                           | PLM          |
| J414 | Different Effects Of Different Metal Salts On Plant Protein Coagulation   | Angela Li                              | RCM          |
| J415 | CSI: Fingerprints   | Priya Shukla<br>Natasha Velasquez      | RCM<br>RCM   |
| J416 | How Do Different Liquids At Different Temperatures Affect The Rusting Process Of Metals?                        | Temi Aladesuru                         | FCMS         |
| J417 | The Effect Of Magnesium Sulfate Concentration On The Ph Change Rate Of Electrified Salt Solutions               | Nathan Li                              | RCM          |
| J418 | Your Mom Will Be Home In 30 Seconds. What Do You Do?  | Heather Levine                         | PLM          |
| J419 | Eggs And Salt Water   | Sophia Levy                            | PLM          |
| J420 | How Does Soapy Water Affect Oil Slicks?   | Patrick Giffin                         | PLM          |
| J421 | Fabric Heat   | Marron McConnell                       | PLM          |
| J422 | Club Soda And Mentos  | Belinda Tamrakar                       | PLM          |
| J423 | H2O Filtration Systems  | Gabrielle Muir<br>Meera Krishnamoorthy | RCM<br>RCM   |
| J424 | Melting Ice Cubes   | Gabriela Ortega                        | PLM          |
| J425 | Which Liquid Will Make a Penny Rust the Fastest?  | Isaac Woldemichael                     | FCMS         |
| J426 | Egg Observations-The Eggsperiment   | Christine Ejimogu                      | PLM          |
| J427 | What Will Make Glowsticks Last The Longest?   | Jessica Ho<br>Angela Chan              | FCMS<br>FCMS |
| J428 | To Zinc Or Not To Zinc That Is The Question   | Victor Kyle                            | PLM          |
| J429 | Vitamin C: More Or Less   | Brooke Popkin                          | NBM          |
| J430 | Which Method Of Fire Proofing Works Best On Different Fabrics?  | Sam Steingard<br>Ron Domingo           | RCM<br>RCM   |
| J431 | Countless Calories  | Tahiru Jallow<br>Sasha Gorlenko        | RCM<br>RCM   |
| J432 | Exothermic Reactions On Steel Wool  | Loren Brill<br>Thomas Whiting          | SCL<br>SCL   |
| J433 | The Science Behind Tooth Decay  | Jennifer Chen<br>Christine Wan         | TPM<br>TPM   |
| J434 | Dehydration Of Sugar: An Alternative Non-Polluting Energy Source  | Nina Simpkins                          | JDS          |
| J435 | Vitamin C For You And Me  | Karen Gordon<br>Jacqueline Kerlin      | SAA<br>SAA   |
| J436 | Sugar, Salt, Saturation   | Matthew Sykes                          | PLM          |



|      |  |                      |      |
|------|--|----------------------|------|
| J437 | Do Commercial Filters Work?  | Kevin Ying           | RCM  |
| J438 | Incinerate A Sugar Cube  | Aisha Hanif          | SGM  |
| J439 | Is An Acid Or Base Faster At Curdling Milk?                                | Mansura Dansani      | SGM  |
| J440 | Does Bleach Turn Everything White?   | Katie Warner         | FCMS |
| J441 | Going Green Will Keep It Hot!  | Patrick Diaz         | SCL  |
|      |  | Jonathan Mack        | SCL  |
|      |  | Fernando Cabrera     | SCL  |
| J442 | What Liquids Will Rust Nails The Most?                                     | Alexander Newman     | TPM  |
| J443 | What Is The Effect Of Heat On The Amount Of Ascorbic Acid In Orange Juice? | Eleanor Cook         | TPM  |
| J444 | Which Detergent Removes Stains Better?                                     | Reid Williams        | TPM  |
| J445 | Does The Temperature Of The Water Affect A Chemical Reaction?              | Tiffany Pauls        | TPM  |
|      |  | Brianna Moreno       | TPM  |
|      |  | Maliya Ojo           | TPM  |
| J446 | Which Type Of Clothing Is The Most Water Resistant?                        | Ikram Abdoulwasse    | TPM  |
| J447 | How Does The Location Of A Liquid Affect Its Evaporation Rate?             | Latoya Gayle         | TPM  |
|      |  | Julissa Lima-Paredes | TPM  |
| J448 | Does The Color Of The Paper Determine How Long It Will Burn?               | Zachary Wathen       | TPM  |
| J449 | Fruits And Gelatin, Friend Or Foe?   | Fonda Shen           | TPM  |
|      |  | Erica Lin            | TPM  |

### COMPUTER SCIENCE

|      |  |                     |     |
|------|--|---------------------|-----|
| J501 | The Effect Of The Number Of Messages On The Success Of A Birthday Attack | Arjun Blum          | TPM |
| J502 | Sorting In True Basic  | Nadja Bzhilyanskaya | RCM |
| J503 | Loading Scratch Games  | Angeline King       | RCM |
| J504 | Compiler Optimization and Algorithm Efficiency                           | Matthew Das Sarma   | TPM |
| J505 | Construction Of A Three Dimensional Nature Scene                         | Jonathan Ni         | RCM |

### EARTH AND SPACE SCIENCE

|      |  |                       |     |
|------|--|-----------------------|-----|
| J601 | What Causes Granular Lightning?                          | Paul Lathrop          | WOM |
| J602 | Filtering Water  | Kimberly Juarez       | PLM |
| J603 | 2012   | Lou Sall              | NBM |
| J604 | How Materials Affect Radio Signals                       | Aidan Gibbons         | PLM |
| J605 | How Fast Does Jupiter Rotate?                            | Eric Arai             | NBM |
| J606 | The Moon And The Stars                                   | Eric Le               | PLM |
| J607 | Are Montgomery County Residents Polluting Its Night Sky? | Shubham Chattopadhyay | PLM |

### ENGINEERING

|      |  |                   |     |
|------|--|-------------------|-----|
| J701 | How Temperature Affects The Voltage, Current, And Power Generation Of A Solar Cell | Gabriela Glueck   | JDS |
| J702 | The Influence Of Material On The Resilience Of Sports Balls                        | Vishnu Dharmaraj  | TPM |
| J703 | Oil Spill Terminator   | Pablo Lopez       | HCS |
| J704 | How To Make Objects Invisible To Radar   | Jackson Douglas   | RCM |
| J705 | The Effect Of Flap Settings On The Stall Speed Of An Airplane                      | Mahesh Sullivan   | TPM |
| J706 | Effects Caused By Gelatin Concentration  | Akari Kumagai     | PLM |
| J707 | Can A Car Recapture The Energy It Uses?  | Trishul Nagenalli | RCM |
| J708 | Which Type Of Wheel Works Best On Different Terrains                               | Eric Li           | RCM |
| J709 | Voltage Produced By A Fruit Battery  | Gayane Matevosyan | RCM |
| J710 | Which Type Of Solar Panel Is The Most Efficient In Collecting Energy               | Ninad Nirgudkar   | RCM |
| J711 | The Effect Of Alternative Energy(s)  | Sylvana Aho       | RCM |
| J712 | Building A Seawall   | Carlos Mejia      | PLM |



|      |   |                       |     |
|------|---|-----------------------|-----|
| J713 | Solar Energy Powered Cars vs. Battery Powered Cars  | Michelle Wang         | RCM |
| J714 | Electromagnetism, Feel The Attraction!  | Patrick Wisor         | SAA |
| J715 | The Effect Of The Amount Of Capacitance On A Programable Timer's Delay Time                                   | Zubair Khan           | RCM |
| J716 | How To Stop A Flood! (Water Absorbtion)   | Conor Casey           | RCM |
| J717 | Stretching Hooke's Law: How Far Can A Spring Stretch Before Hooke's Law No Longer Applies?                    | Xavier Roberts-Gaal   | PYM |
| J718 | How Do Reservoir Heights Affect The Amount Of Hydro Electricity Produced?                                     | Aparna Natarajan      | PLM |
| J719 | Perpetual Motion Machine  | Jack Qian             | RCM |
|      |   | William Saar          | RCM |
| J720 | Arm Length On A Catapult  | Kyle Christiano       | PLM |
| J721 | Solar Battery   | Aseem Peshwa          | RCM |
|      |   | Dante Roncoli         | RCM |
| J722 | What Is The Effect Of Changing The Bridge Type On The Amount Of Weight It Can Support?                        | John Hartwell         | RCM |
|      |   | Matthew Gates         | RCM |
| J723 | The Effectiveness Of Self-Sustained Thermoelectric And Evaporative Cooling On Water                           | Umesh Padia           | RCM |
| J724 | Obstacle Detection Robot  | Adithya Girish        | RCM |
| J725 | Angle Of Attack Of A Wind Turbine's Blades  | Jeffrey Shih          | RCM |
| J726 | The Use Of Fluorometers In Testing Blood Glucose Level  | Suriya Kandaswamy     | RCM |
| J727 | Unleashing The Pinwheel   | Ashley Carbajal       | RCM |
| J728 | What Type Of 3-D Glasses Is The Most Effective?   | Jenny Chen            | TPM |
| J729 | Investigation Of Static Electricity   | Sushmitha Tamilselvan | PLM |
| J730 | Windmills: Aerodynamic Or Not?  | Michael Vetter        | RCM |
|      |   | Harrison Williams     | RCM |
| J731 | The Effect Of Pivot Distance From The Counterweight On A Trebuchet On The Distance Traveled By The Projectile | Eric Chen             | TPM |
|      |   | Tiger Zhang           | TPM |
| J732 | Which Ceiling Pannel Will Provide The Most Noise Absorption?  | Katrina Choong        | SCL |
|      |   | Laura Williamson      | SCL |
| J733 | What Is The Best Parachute Shape?   | Alex Fehlinger        | RCM |
| J734 | The Effect Of Robot Control Method On Target Shooting Ability   | Rachit Agarwal        | RCM |
| J735 | How To Tune Your Way To A Sound Battery   | Kalin Vassilev        | TPM |
| J736 | Food Powers   | Phillip Wesley        | SAA |
| J737 | Bridge Types Against Stationary Loads   | David Liang           | TPM |
|      |   | Wilson Lin            | TPM |
| J738 | Properties Of Pykrete   | Alex Miao             | TPM |
|      |   | Calvin Liu            | TPM |
| J739 | How Do Different Foodstuffs Prevent An Egg From Breaking?   | Julian Parish-Katz    | TPM |
|      |   | Jared Williams        | TPM |
|      |   | Omari Brooks          | TPM |



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|------|--|--------------------|-----|
| J740 | How Does The Wingspan Of Airplane Affect Its Flight?         | Nathaniel Marshall | TPM |
| J741 | Which Structures Are Able To Withstand Earthquakes The Best? | Alana Richards     | TPM |
| J742 | Energy Chemistry Over Energy Capacity                        | Jimmy McMillian    | TPM |

**ENVIRONMENTAL SCIENCES**

|      |   |   |                   |
|------|---|---|-------------------|
| J801 | Does The Source Of Drinking Water Affect Its Acidity And Does Filtering Affect Its Acidity? | Chimaoge Ibe                              | SAA               |
| J802 | Just Swim Don't Drink, Water Quality Of Maryland Waterways                                  | Hannah Josovitz                           | JDS               |
| J803 | Global Warming's Effect On Sea Level Rise   | Connie Xu<br>Angela Zhou<br>Jade Liu      | TPM<br>TPM<br>TPM |
| J804 | Water Quality Study Of The Milestone Pond And Stream System                                 | Frederick Xu<br>Addi Giffin               | RCM<br>RCM        |
| J805 | Soda Hydroponics System   | Cooper Teich                              | RCM               |
| J806 | Can Plants Produce Heat With The Help Of Different Colored Lights Shining On Them?          | Stephanie Chang                           | RCM               |
| J807 | Effect Of A Single Nutrient Given To A Plant On The Plant's Rate Of Growth                  | Yu Lu                                     | RCM               |
| J808 | Is It Really Worth Recycling A Yogurt Can?  | Natalie Zhang                             | RCM               |
| J809 | Are There Still Lead Dangers Planted In Mother Earth's Soil?                                | Elizabeth Choi                            | RCM               |
| J810 | Creating Craters  | Lince Quintanilla                         | PLM               |
| J811 | Fertilizer vs. Water  | Jason Canales                             | PLM               |
| J812 | How They Grow? Nobody Knows!  | Daniel Obia-Amauwa                        | PLM               |
| J813 | Thirsty Plants Demand Vitamins  | Domenico Bucci                            | PLM               |
| J814 | Leaf Pigments And Chromatography  | Andy Zhang                                | PLM               |
| J815 | Roots vs. Blades In Control Of Pollution By Turfgrass                                       | Theodore Johnson                          | RCM               |
| J816 | What Soil Is Best For Plant Growth?   | Anthony Massiah                           | FCMS              |
| J817 | Algicide On Grass   | Devika Haridas                            | RCM               |
| J819 | Colored Lights On Plants: Which One Is The Best?  | Rodrigo Salamanca                         | RCM               |
| J820 | Buffering In Different Solutions  | Nestor Leche                              | PLM               |
| J821 | What Soil Filters Water Best?   | Brooke Nesselt<br>Sydney Abella           | RCM<br>RCM        |
| J822 | Colored Lights On Plants  | Krishna Gajjala<br>Berwin Yuan            | RCM<br>RCM        |
| J823 | Rain, Rain, Runaway   | Ellinore Homan                            | HCS               |
| J824 | How To Save Our Oceans From The Devastating Oil Spill                                       | Reann Philogene<br>Kelli White            | SAA<br>SAA        |
| J825 | An Analysis Of pm Levels Along Major Roadways   | Teddy Corrales<br>Tonle Bloomer           | TPM<br>TPM        |
| J826 | Water Quality Of Water Filtered Through Soil  | Navya Nanda<br>Pujitha Lava               | RCM<br>RCM        |
| J827 | Effects Of Rock Music On Plant Growth   | Katie Lo Re                               | PLM               |
| J828 | Chicken Egg Quality Over 1 Year   | Jack Weaver                               | RCM               |
| J829 | The Effect Of Polluted Water On Algae's Environment   | Rona Yu                                   | TPM               |
| J830 | Which Type Of Wood Preservative Prevents The Most Water Damage?                             | Margaret Gallishaw                        | TPM               |
| J831 | How Well Do Plants Grow In A Wick System?   | Malik Chung                               | TPM               |
| J832 | How Well Do Cucumbers Grow In Different Mediums?  | Joel Brown                                | TPM               |
| J833 | What Angle Is A Solar Panel Most Efficient At?  | Ishaan Parikh<br>Matt Zipf<br>Ashwin Ojha | TPM<br>TPM<br>TPM |



|                            |  |                                   |            |
|----------------------------|--|-----------------------------------|------------|
| J834                       | How Do Different Rooftops Affect A Household's Temperature?                              | Robert Pfefferle<br>Charles Waltz | TPM<br>TPM |
| J835                       | What Type Of Terracing Is Best Constructed To Prevent Erosion?                           | Isabel Callahan                   | TPM        |
| <b>MATHEMATICS</b>         |  |                                   |            |
| J901                       | Methods Of Rubik's Cubes   | Abby Beeler                       | RCM        |
| J902                       | Investigating Arbelos  | Andrew Wang<br>Timothy Wang       | RCM<br>RCM |
| J903                       | The Golden Ratio   | Denise Larson                     | JPM        |
| <b>MEDICINE AND HEALTH</b> |  |                                   |            |
| J1001                      | Which Beverage Stains Human Tooth Enamel The Most?                                       | Eileen Morocho                    | PLM        |
| J1002                      | Do You Hear What I Hear?   | Sawyer Sampson                    | PLM        |
| J1003                      | The Effects Of Various Drinks On Teeth   | Seema Snitkovsky                  | RCM        |
| J1004                      | The Effects Of Acid In Soft Drinks On Tooth Enamel                                       | Ethan Kramer                      | JDS        |
| J1005                      | Genetics And Cancer: How Do They Link?   | Cynthia Song                      | RCM        |
| J1006                      | Tamoxifen's Effect To Breast Cancer Stem Cells   | Hansheng Zhang                    | RCM        |
| J1007                      | Is Only One DNA Repair Pathway Needed To Repair DNA Damage Caused By SAHA?               | Sangho Samuel Myung               | HHM        |
| J1008                      | The Effect Of A Person's Surroundings To Their Blood Pressure And Heart Rate             | Howard Nicholson                  | RCM        |
| J1009                      | Are Dandelions As Useful As Commonly Prescribed Antibiotics Against Bacteria?            | Sambuddha Chattopadhyay           | TPM        |
| J1010                      | Do Immunization Shots Really Reduce The Rate Of Infection And Disease?                   | Deonna Manuel<br>Chelsea Ojage    | TPM<br>TPM |
| <b>MICROBIOLOGY</b>        |  |                                   |            |
| J1101                      | Jeong's Brine Shrimp Project   | Jeong Yang                        | RCM        |
| J1102                      | The Effect Of Changing Temperature On Growth Of Mesophilic Bacteria                      | Sanna Madan                       | RCM        |
| J1103                      | What Type Of Water Does Algae Best Grow In?  | Cynthia Liu                       | RCM        |
| J1104                      | Mouthwashes And Oral Bacteria  | Constance Chen<br>Ramnik Dhingra  | RCM<br>RCM |
| J1105                      | Best pH And Temperature For Growing Lactic Acid Bacteria                                 | Emily Wang                        | RCM        |
| J1106                      | Herbal Protection  | Diwakar Ganesan                   | RCM        |
| J1107                      | After Evolution, What Are The Traits That Genes Of The Woolly Mammoth Might Have Changed | Arun Dilipan                      | RCM        |
| J1108                      | What Is In Your Milk?  | Chloe Jean-Pierre                 | HCS        |
| J1109                      | Effect Of Amount Of Yeast On The Volume Of Final Baked Product                           | Noah Friedlander                  | TPM        |
| <b>PHYSICS</b>             |  |                                   |            |
| J1201                      | Investigating The Effect Of Charge On The Strength Of Homemade Magnets                   | Gillian Hutter                    | SSH        |
| J1202                      | Shine Through Me   | Eleanor Nuckolls                  | HCS        |
| J1203                      | Does The Length Of A Guitar String Affect Its Frequency Level And Pitch?                 | Gabriel Castro                    | SMS        |
| J1204                      | How Does Parachute Size Affect The Rate Of Fall?   | Jacob Glueck                      | JDS        |
| J1205                      | Challenges In Measuring The Speed Of Light In Jell-O, Tap Water, And Sugar Water         | Natasha Fall-Dickson              | HCS        |
| J1206                      | Which Type Of Wood Is The Strongest When Building A Bridge?                              | Robert Sherwood                   | SMS        |
| J1207                      | What Should You Wear?  | Jason Tafuri                      | SMS        |
| J1208                      | Are Wooden Bats More Effective Than Aluminum Bats?                                       | Yonathan Aklile                   | SAA        |
| J1209                      | Lemon vs. Lime   | Dakota Dumire                     | SCL        |
| J1210                      | Homemade Lemon Batteries   | Praneet Aryal                     | SCL        |
| J1211                      | Comparing Conductivity Of Various Recyclable Materials                                   | Jesse Matthews                    | TPM        |
| J1212                      | Eggs And Density   | Charlie Ching                     | PLM        |
| J1213                      | Temperature And The Speed Of Sound   | Alexander Yaney                   | PLM        |



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| J1214 | Viscosity Of Liquids Under Different Temperatures                                    | Shanta Murthy         | PLM  |
| J1215 | How Does A Cars Shape Affect How Far A Car Rolls?                                    | Austin Grinkemeyer    | RCM  |
| J1216 | The Most Effective Water:Total Volume Ratio For Water Rockets                        | Ankita Sharma         | RCM  |
| J1217 | The Effect Of Spin On The Flight Of A Ball   | Seong Joon Yoo        | RCM  |
| J1218 | Does Temperature Affect The Viscosity Of A Liquid?                                   | Raviteja Kemburu      | RCM  |
| J1219 | Do Different Colors Of Paper Reflect Television Rays Differently?                    | Rohit Mandavia        | RCM  |
| J1220 | What Material Launches Farthest Out Of A Trebuchet?                                  | Declan Whitford Jones | RCM  |
| J1221 | Strength Of An Electromagnet   | Christina Kingsley    | PLM  |
| J1222 | The Impact Of Mass On Friction   | Jason Moy             | PLM  |
| J1223 | How Does The Type Of Oil Affect The Amount Of Heat Energy Produced When It's Burned? | Brionna Gray          | PLM  |
| J1224 | Egg Drop   | Jace Studley          | PLM  |
| J1225 | Does Greater Mass Determine The Speed At Which A Ball Will Fall?                     | Alex Melendez         | FCMS |
| J1226 | Soccer Ball Launcher   | Richard Gonzales      | PLM  |
| J1227 | How Will Mass Affect The Kinetic Energy Of A Toy Car?                                | Archis Sathe          | PLM  |
| J1228 | Strength Of Electromagnet Fields   | Laura Martinez        | PLM  |
| J1229 | Which Metals Conduct Electricity The Best?   | Nehemiah Lawton       | FCMS |
| J1230 | Hot Pursuit: The Search For The Hottest Hand Warmer.                                 | Nolan Yager           | NBM  |
| J1231 | The Siphon Tube  | Pei-Yi Lin            | RCM  |
| J1232 | The Effect Of Gear Ratios On Speed   | Jimmy Li              | RCM  |
|       |  | Jeffrey Wang          | RCM  |
| J1233 | Conductivity Of Different Concentrations Of Salt Water                               | Atharv Kumar          | PLM  |
| J1234 | Melting Ice  | Matthew Orellana      | PLM  |

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| J1236 | The Speed Of Sound   | Christina McCann        | PLM  |
| J1237 | Which Household Items Lubricate Metal The Best?  | Kidus Adal              | FCMS |
| J1238 | Exslosion  | Tahina Moise            | PLM  |
| J1239 | Robo Bug   | Angelo Capuzzo Hajaji   | NBM  |
| J1240 | Air Pressures Effect On Soda Cans  | Nathan Strelser         | RCM  |
| J1241 | Bottle Rocket  | Austin Le               | PLM  |
| J1242 | Restriction Caused By Air  | Joshua Mucha            | PLM  |
| J1243 | Conductivity vs. Electromagnetism  | Lissa Rennert           | PLM  |
| J1244 | How Does Air Resistance Affect Distance?   | Patrick Sykes           | PLM  |
| J1245 | The Flame Retardence Of Clothing Fabrics   | Quincy Clarke           | PLM  |
| J1246 | Creating A p-n Junction Semiconductor Solar Cell   | Laura Klett             | TPM  |
| J1247 | What Is The Effect Of Heat And A Fan On Water Evaporation?   | Sean Wilson-Blake       | RCM  |
| J1248 | Effect Of Tube Material On Falling Speed Of Magnet   | Rizwan Bashir           | RCM  |
| J1249 | Solar Parabolic Troughs  | Wenqing Xu              | RCM  |
| J1250 | Magnets! The Effect Of Temperature On Their Magnetic Attraction                                      | George Tong             | RCM  |
| J1251 | Fun With Balloons!   | Spencer Hamilton        | PLM  |
| J1252 | Whistling Wine Glasses   | Kerry McGovern          | RCM  |
|       |  | Shannon McAvoy          | RCM  |
| J1253 | How Does The Shape Of A Megaphone Affect The Volume Of A Projected Sound?                            | Christina Lingfu        | RCM  |
| J1254 | Projectile Launch Analysis   | Serge-Olivier Amega     | PLM  |
| J1255 | Bridge Construction Contest  | Thomas Weeden           | SCL  |
| J1256 | How Can Magnetic Power Be Increased?   | Stefanny Fernandez      | TPM  |
|       |  | Iris Oliva              | TPM  |
| J1257 | Boom! Boom! Boomerangs!  | Andrew Lehnus           | RCM  |
|       |  | Brandon Grinkemeyer     | RCM  |
| J1258 | Newtons First Law In Roller Coasters   | Dagan Fullano           | PLM  |
|       |  | Ben Wing                | PLM  |
| J1259 | Roller Coaster Marbles: Converting Potential Energy To Kinetic Energy                                | Sandeep David           | TPM  |
| J1260 | Fruitricity  | McKenzie Glotzbach      | PLM  |
| J1261 | Eggstreme Strength   | Megan Souder            | JPM  |
| J1262 | Magnetic Power Comparisons   | Crista Campbell         | PLM  |
| J1263 | What Is The Effect Of Temperature On The Strength Of A Ceramic Magnet?                               | Rishi Banerjee          | RCM  |
|       |  | Nicholas Suddith        | RCM  |
| J1264 | How Will Adding Glides To A Straw In A Launcher Affect How Far It Goes?                              | Heran Kebede            | PLM  |
| J1265 | Soda Glider  | Duy Ha                  | PLM  |
| J1266 | How Will The Radiographic Density Of An X-ray Image Change When X-raying Different Amounts Of Water? | Matthew Ost             | JDS  |
| J1267 | Distance Catapulting   | McCauley Peters         | SCL  |
|       |  | Jordy Diaz              | SCL  |
| J1268 | How Can You Make Gravity?  | Davin Pester-Wiggins    | TPM  |
| J1269 | How Does The Length Of A Kite's Tail Affect Its Flight?  | Malik Blythers          | TPM  |
| J1270 | How Does The Length Of An Airplane's Wing Affect Its Flight Time                                     | Destiny Porter-Stephens | TPM  |
| J1271 | Does The Type & Stretch Of A Rubberband Affect Its Pitch?  | Kayin Mazyck            | TPM  |
| J1272 | How Does An Airplane's Wing Design Affect Its Flight Pattern?  | Benjamin Lickerman      | TPM  |
| J1273 | Electromagnetism And Sound   | Shivani Mattikalli      | TPM  |



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|-------|--|----------------|-----|
| J1274 | Launching Carbs                            | Sam Ehrenstein | TPM |
| J1275 | Does Magnetic Attraction Occur Underwater? | Fatima Yansane | TPM |
|       |  | Rhodesia Fox   | TPM |
|       |  | Nandi Silvera  | TPM |

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**BEHAVIORAL AND SOCIAL SCIENCES**

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| S101 | Hand Eye Coordination In Musicians                  | Jenny Lee        | SWH |
|      |   | Kristine Kim     | SWH |
|      |   | Gyyoung Oh       | SWH |
| S102 | Do Horror Movies Affect Heartrate?                  | Elizabeth Franco | SWH |
|      |   | Irene Fobe       | SWH |
| S103 | Disorientation And Its Effect On Motor Coordination | Amy Dinerman     | SWH |
|      |   | Taylor Trombley  | SWH |
|      |   | Samantha Gordon  | SWH |
| S104 | The Psychology Of Scarcity                          | Rebecca Stussman | SWH |
|      |   | Jackie Weiss     | SWH |
| S105 | Does Music Affect Study Skills?                     | Olyvia Sanchez   | SWH |
|      |   | Elaine Bell      | SWH |
| S106 | Music And The Fight Or Flight Mechanism             | Adam Zhao        | SWH |
| S107 | Test Performance vs. Paper Color                    | Caitlin Kyber    | SWH |
|      |   | Emily Hughes     | SWH |
|      |   | Sara Sabry       | SWH |



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|------|---|---------------------|-----|
| S108 | Music vs. Mood  | Danielle Ranaudo    | SWH |
|      |   | Wanida Suanpan      | SWH |
| S109 | Effects Of Different Types Of Dance On The Average Stride Length                      | Jhansi Katakam      | WHO |
| S110 | The Effect Of A High Tone On A Choice Between Light/Dark Shades                       | Anya Ramamurthy     | WHO |
| S111 | Effect Of Playing An Instrument On Choice Of Signature Program                        | Isha Agarwal        | WHO |
| S112 | The Consequences Of Distraction In Teenage Driving                                    | Alyssa Lesho        | SWH |
|      |   | Demetra Tzamaras    | SWH |
|      |   | Ashley Singh        | SWH |
| S113 | Impact Of Electrolytes From Different Sports Drinks On The Speed Of Running A Mile    | Abhas Arya          | BCH |
|      |   | Amir Alwali         | BCH |
| S114 | Correlation Between The Confidence In Identifying A Real Smile And The Actual Ability | Ankur Kalaria       | WHO |
| S115 | The Relationship In The Distribution Of True Colors And Zodiac Signs                  | Akhila Vishnubhotla | WHO |
| S116 | The Effects Of Sex And Parity On The Bulk Intake Of Macaca Mulatta                    | Aminata Keita       | POH |
| S117 | Observational Learning In Long Evans Rats   | Renuka Tripu        | POH |
| S118 | Reading Comprehension And Phoneme Breakage  | Jessica Wilson      | WHO |

**BIOCHEMISTRY**

|      |   |                |     |
|------|---|----------------|-----|
| S201 | Identification And Characterization Of The Mechanism Of A Novel Small Molecule Antiandrogen For The Treatment Of Castration-Resistant Prostate Cancer | Annie Lin      | WJH |
| S202 | The Effect Of The Miracle Berry On Glucose Levels   | Sarabeth Jaffe | WHO |
| S203 | Role Of Mus81 Endonuclease In The Repair Of Topoisomerase I-Induced DNA Damage  | Nalini Tata    | WWH |

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| S204 | Understanding The Role Of Structure In The Immunogenicity Of Polysialic Acid Antigens                                   | Michael Mandler | WWH |
| S205 | Which Bean Produces More Efficient Catalase? Mung Beans From India Or Korea?  | Daniel Hwang    | WHO |
| S206 | Use Of Proteomic Approach To Identify Proteins That Interact With The Domains Of BRCA2 Encoded By Exons 4-7 And Exon 12 | Aashish Dewan   | POH |
| S207 | Synonymous Mutation Val107Val Impacts Expression And Function Of Coagulation Factor IX                                  | Justin Muste    | WHO |
| S208 | Identification Of Essential Glycoprotein Structures And Their Implications In The Treatment Of Genetic Disorders        | Shilpa Kannan   | BLH |
| S209 | Conservation Of Sodium-Potassium Atpase In Different Organisms  | Mashhood Wani   | WHO |
| S210 | The Effect Of Temperature On The Photosynthetic Activity Of Oscillatoria Alga   | Myles Wagner    | BLH |
| S211 | The Effect Of pH On The Refolding Of Hla-dr1  | Thomas Li       | WHO |
| S212 | Leptin Deficiency Leads To Myocardial Steatosis Through A Failure To Prevent Lipotoxicity In Glucose-fatty Acid Cycling | Maeva Nyandjo   | POH |

**BIOLOGY**

|      |  |                   |     |
|------|--|-------------------|-----|
| S301 | Identification Of Genes Involved In Toxicity Of Methamidophos Using Microarray Technology                                | Raymond Li        | CHH |
| S302 | Schizophrenia Susceptible Gene KCNH2 Regulates Synaptogenesis in the Central Nervous System                              | Grace Zhang       | POH |
| S303 | Characterization Of Domains Of E3 Ubiquitin Ligases Involved In Chemokine Receptor Down Regulation By Nef Protein Of HIV | Xiangxi Gao       | WJH |
| S304 | The Effects Of Akt/Pkb On Tumorigenesis  | Adam Goode        | WWH |
| S305 | Mapping Of Sirt-1 Mediated Gene Expression In Aging Animals  | Tingrui Zhao      | WJH |
| S306 | The Effect Of Salinity On Electroplating Efficiency  | Phillip Christman | MGH |
| S307 | Tracking Senescence In Human Bone Marrow Stromal Cell Cultures   | Katherine Tran    | POH |
| S308 | Cloning Staphylococcal Enterotoxin Q   | Yu Hao Chen       | POH |
| S309 | Analysis Of Avian Nucleus Angularis Action Potentials In Response To Noise Fluctuations                                  | Rama Atitkar      | POH |
| S310 | Beta-secretase Enzyme Bace1 Inhibition As A Therapy To Enhance Neuronal Regeneration And Prevent Degeneration            | Aniqa Tasnim      | WHO |
| S311 | Mechanisms Of Redd1 On Ionizing Radiation Induced Mammalian Cell Survival And Apoptosis                                  | Kabir Gumer       | WHO |

**CHEMISTRY**

|      |   |  |                   |
|------|---|--|-------------------|
| S401 | pH vs. Temperature  | Alexander Liu<br>Raymond Chan                  | SWH<br>SWH        |
| S402 | Magic Solvents And Permanent Markers  | Sara Fleming<br>Mea Karnley<br>Courtney Martin | SWH<br>SWH<br>SWH |
| S403 | Salt Compounds And Their Effect In Solution   | Nicholas Hung<br>Patrick Xiao                  | HBH<br>HBH        |
| S404 | Electrochemical Investigations Of Neurotransmitters Using Boron-Doped Diamond Microelectrodes | Kuo-Kai Chin                                   | WJH               |
| S405 | Rapid Monitoring Of Bisphenol A In Drinking Water Bottled In Plastic Containers               | Jee-Eun Rosaline Rho                           | BUS               |
| S406 | Fuel Cells: Engineering A Cleaner Power Source  | Rahul Menon<br>Dhruv Shankar                   | POH<br>POH        |
| S407 | Using Magnetic Resonance To Observe Proton Motions In Proton-Conducting Polymers              | Lori Kaufman                                   | BLH               |

**COMPUTER SCIENCE**

|      |   |                   |     |
|------|---|-------------------|-----|
| S501 | Scalable Architecture For Routing And Addressing In The Future Internet                       | Vinay Sriram      | POH |
| S502 | Comparative Analysis Of High Velocity Projectile Images Using MATLAB                          | Ann Choi          | BLH |
| S503 | Convex Body Physics Simulation  | Matthew Du        | WHO |
| S504 | Computer Scrabble: A Case Study In Automated Reasoning With Incomplete Information            | Russell McQueeney | CHH |
| S505 | Hydrate Equilibrium Pressure Modeling GUI Program With A Pre-Made Text-Based Analysis Program | Allen Chang       | POH |



**EARTH AND SPACE SCIENCE**

|      |  |             |     |
|------|--|-------------|-----|
| S601 | A Study Of The Orbits Of Sungrazing Comets Using STEREO 3-D Observations | David Zhang | RMH |
| S602 | Earth's Magnetosphere As A Complex Network                               | Julia Cline | WWH |

**ENGINEERING**

|      |   |                  |     |
|------|---|------------------|-----|
| S701 | Holography Reengineered: Look No Lasers   | Daniel Liss      | JDS |
| S702 | Improving Engine Fuel Efficiency  | Ashish Singh     | GBH |
| S703 | Fire Dynamics Simulation Of Hallways  | Stephen Lee      | CHH |
| S704 | An Investigation into the Fundamentals of Complex Intelligence                            | Austin Duff      | GBH |
| S705 | Incident Of Angle For Pitch Of Windmill Blades While Focusing On Source Direction Of Wind | James Baur       | WHH |
| S706 | Improved Device Fabrication For Microchip Electrophoresis                                 | Divya Sahajwalla | WHO |
| S707 | Effect Of Blade Length On Voltage Output Of Wind Turbines                                 | Ambar Soni       | WHO |
| S708 | Construction And Testing Of A Submersible Glider  | Vineet Padia     | POH |
| S709 | Optimum Volume Tomographer Design   | Maria Dagalakis  | CHH |
| S710 | Microbial Fuel Cells: Making Energy From Mud  | Dhruv Shankar    | POH |
| S711 | Determination Of Effects Of Key Properties Of Subgrades On Road Performance               | Daniel Barotti   | POH |
| S712 | Experimentation To Determine The High Temperature Tensile Strength Of Steel               | Alexander Vu     | POH |

**ENVIRONMENTAL SCIENCES**

|      |  |  |            |
|------|--|--|------------|
| S801 | The Environmental And Economic Feasibility Of Clean Energy | Ankit Sarkar                             | RMH        |
| S802 | Plant And Algal Growth In Freshwater Ecosystems            | Katarina Niedermair<br>Nicole Jakobowski | SWH<br>SWH |
| S803 | The Dirt On Soil   | Kelly Kendall<br>Stephanie Golding       | SWH<br>SWH |

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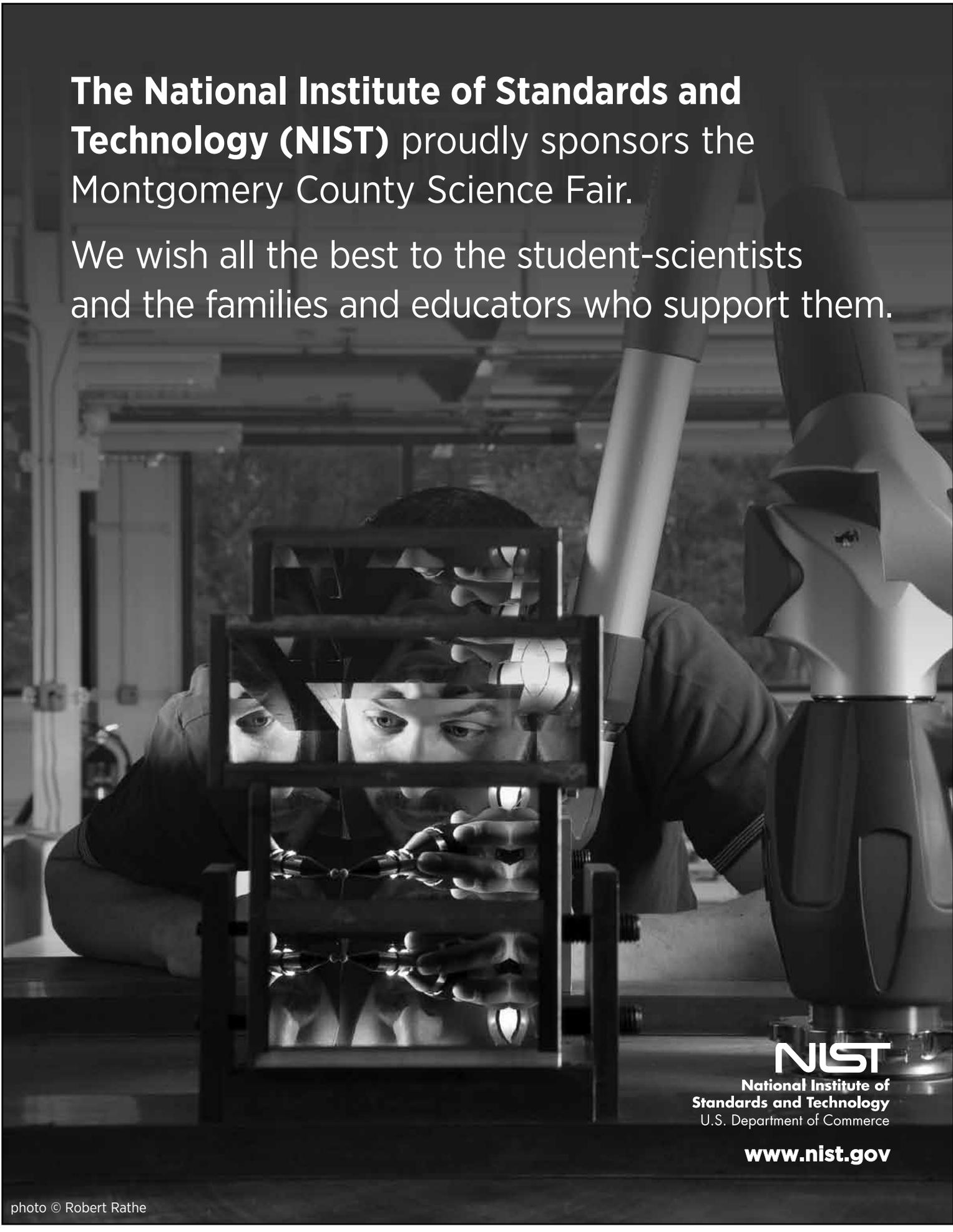
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| S804 | Is There A Correlation Between The Highway Miles Per Gallon Of A Vehicle And The Temperature Of Its Exhaust Pipe?     | Gibran Mangui | WHO |
| S805 | Climate Change In The Chesapeake Bay: Correlation Of Changes In The North Atlantic Oscillation And The Chesapeake Bay | David Brookes | WWH |

### MATHEMATICS

|      |   |                    |     |
|------|---|--------------------|-----|
| S901 | Prediction For National Catastrophe Fund              | Pushkar Aggarwal   | POH |
| S902 | Beating The Buy And Hold Strategy In The Stock Market | Christopher Hazard | CHH |

### MEDICINE AND HEALTH

|       |  |                      |     |
|-------|--|----------------------|-----|
| S1001 | A Better Mousetrap: Examining The Hypersensitivity Of Eosinophilic Esophagitis To Pinpoint Crucial Cytokines And Evaluate Response To Atopic Patch Testing | Melodi Anahtar       | BLH |
| S1002 | Does Caytaxin Have A Tumor-Promoting Potential? A Bioinformatics Analysis  | Praveen Bachoti      | NWH |
| S1003 | Smells Affecting Blood Pressure  | Claire Wortmann      | SWH |
|       |  | Elizabeth Scanlon    | SWH |
|       |  | Phanna Iamlek        | SWH |
| S1004 | Hearing Loss Recovery  | Brian Fanelli        | SWH |
|       |  | Emma Newcomb         | SWH |
| S1005 | Survey Of Weight Loss Programs And Their Effects On Diabetics  | Raveena Edwards      | SWH |
| S1006 | The Effect Of Age On Lung Capacity   | Zoe Sousane          | SWH |
|       |  | Ellen Wengert        | SWH |
| S1007 | The Effect Of Folic Acid On Brine Shrimp Population Size   | Wei Cheng            | WHO |
| S1008 | Difference In Average Hours Of Sleep Between Bharatanatyam Dancers & General Population Of Teenagers   | Padmavathi Tipparaju | WHO |

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| S1010 | Characterization Of NALP10 In Murine Models Of Inflammatory Myopathies  | Subhradeep Datta  | WHO |
| S1011 | Association Of Brain-Derived Neurotrophic Factor Single Nucleotide Polymorphisms With Higher Body Mass Index And Altered Transcription Factor Binding | Evguenia Morgun   | WJH |
| S1012 | Glucose Level vs. Peaches   | Cassandra Lee     | WHO |
| S1013 | Observing SH-SY5Y Morphological Response To Hypoosmotic And Hyperosmotic Mechanical Stress  | Ajay Kannan       | BLH |
| S1014 | Do Retina Presynaptic Blue Cone Cells (BCs) Affect The Development/Synaptic Targeting Of Postsynaptic Blue Cone Bipolar Cells (CBCs)?                 | Sharon Ong        | CHH |
| S1015 | Adverse Event Reporting Of Dietary Supplements In The US  | Tasneem Sharaf    | MGH |
| S1016 | Kinetic Analysis Of Recombinant Enzymes With Potential Therapeutic Applications   | Scott Hallock     | CHH |
| S1017 | Impact Of Fc Receptor Polymorphisms On Efficacy Of Therapeutic Antibodies For The Treatment Of Cancer   | Kevin Tyan        | WWH |
| S1018 | Incidence Of Primary Central Nervous System Lymphoma From 1992 Through 2007: A Surveillance, Epidemiology, And End Results (SEER) Analysis            | Caroline Park     | WWH |
| S1019 | Evaluation Of Apomab On Ewing's Sarcoma   | Maureen Lei       | BLH |
| S1020 | Body Mass Index And Lung Cancer Risk Among Never, Former, And Current Smokers In The NIH-AARP Diet And Health Study                                   | Llewellyn Smith   | WWH |
| S1022 | The Role Of Mitochondrial Function In Tumor Development   | Kira Finkel       | BCH |
| S1023 | Study Of Platelet Function In Three Different Animal Trauma Models  | Nikita Maheshwari | RMH |
| S1024 | DNA Genotyping  | Sheeva Norooz     | WWH |
| S1025 | Use Of Illumina High Density Snp Chips To Identify Linkage Intervals For Dentin Dysplasia Type 1  | Rebecca Hart      | WHO |
| S1026 | Fat Distribution In The Liver   | Matthew Tsang     | WWH |
| S1027 | Stress Induced Steroidogenesis Is Associated With Melanocortin Receptor Associated Protein (MRAP)   | Victoria Huang    | POH |



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the successful operations of the Montgomery County Science Fair:**

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Sneha Kannan · Matthew Kinnard  
Paul Kominers · Scott Kominers  
Emily Levine · Sikandar Porter-Gill  
Kenny Rosenberg · Jennifer Wang  
Louis Wasserman**

*We invite all ScienceMONTGOMERY alumni to join us as volunteers at future fairs.  
To volunteer, email [alumni@sciencemontgomery.org](mailto:alumni@sciencemontgomery.org)*



|                     |   |   |                   |
|---------------------|---|---|-------------------|
| S1028               | Differences In CCL5 And CXCL5 Chemokine Levels In Human Serum And Plasma:<br>The Effect Of Anticoagulants   | Vishnu Rao                                    | BLH               |
| S1029               | Immunohistochemistry  | Hailey Siller                                 | WWH               |
| <b>MICROBIOLOGY</b> |   |   |                   |
| S1101               | Antibiotic Resistance In Successive Generations Of Bacteria   | Daniel Frank<br>Tin Lok Wong<br>Paul Szewczyk | SWH<br>SWH<br>SWH |
| S1102               | How Helicobacter Diversity In Feral vs. Inbred (or Outbred) Mice Affects Research At NIH  | Kyle Starost                                  | MGH               |
| S1103               | The Investigation Of Protein Markers In The Elongation Factor Pathway<br>That Are Responsible For Antimicrobial Sensitivity In Orientia Tsutsugamushi | Tiffany Le                                    | POH               |
| S1104               | Biodiversity Of Microorganisms In Organic Orange Peels Versus Non-organic Orange Peels  | Amanda Chow                                   | WHO               |
| S1105               | Generation Of Putative Ceramide Phosphoethanolamine Synthase Mutants In Drosophila Part 1   | Advait Iyer                                   | WHO               |
| <b>PHYSICS</b>      |   |   |                   |
| S1201               | A Nanoscale Study Of Structural And Electronic Transitions In Vanadium Dioxide  | Andrew Das Sarma                              | BLH               |
| S1202               | Signals And Information Carried On Radio Frequencies: A Free Ride At The Speed Of Light   | Jinhie Skarda                                 | BLH               |
| S1203               | A Study On The Magnetocaloric Properties Of Cr7Te8 For Magnetic Refrigeration Applications  | Justin Yu                                     | BLH               |
| S1204               | The Effect Of Different Substances On A Liquid's Viscosity  | Mohamed Keita                                 | GBH               |
| S1205               | Using A Laser Pointer To Measure The Spacing Between Tracks Of A CD And A DVD   | Katherine Brizzolara                          | WJH               |
| S1206               | Determining The Effect Of Conditioning Time On Asphalt's Physical Properties  | Mike Neubauer<br>Neal Malkani                 | WWH<br>WWH        |
| S1207               | Electron Transport Theory For Graphene  | Parakh Jain                                   | POH               |
| S1208               | Dense Nuclear Matter And Chiral Symmetry In The Skyrme Model, Revisited   | Raja Ratna Murthy Ayyagari                    | POH               |
| S1209               | Effect Of Ice Hockey Stick Material On Speed Of Wrist Shots From High School Players  | Adam Hurwitz                                  | WHO               |
| S1210               | Wavelet Analysis Of Ovarian Follicles   | Ramitha Manivannan                            | WHO               |
| S1211               | Investigation Of Hard X-Ray Photoionization In Highly Charged Krypton   | Pranav Gokhale                                | POH               |
| S1212               | Effect of Temperature On Conductivity And Resistance Of A Wire  | Waliullah Rifai                               | MGH               |

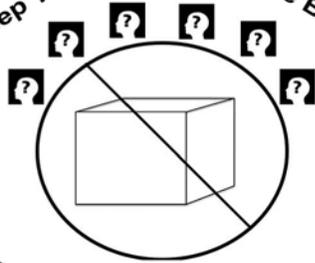


*Science*MONTGOMERY wishes to thank all the teachers, administrators, and other school staff, for their unstinting contributions to the students in our 2011 Fair. We especially thank Sherwood High School for their support of this 55<sup>th</sup> annual Fair!



2011 Montgomery Science Fair Contestants:

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**Join *ScienceMONTGOMERY*,  
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The Montgomery Area Science Fair Association is the organizational vehicle for the annual county science fair, *ScienceMONTGOMERY*, for public, parochial and private schools students in Montgomery County, MD.

The goals of the Association are to:

- Encourage students to explore science through experimentation and to present their results.
- Produce a top quality, annual science fair.
- Raise funds to conduct the fair through personal and corporate contributions.
- Provide for the top high school winners to attend the Intel International Science and Engineering Fair.

The Fair costs about \$125 per student. We ask you to support these talented students by joining with us and becoming involved with this venerable, all volunteer, 53 year old science fair.

Please complete the form and return it to the address below. Your help is greatly appreciated.

**Please print the following information**

**I want to be an Associate Member of the Montgomery Area Science Fair Assn**     **\$50.00** \_\_\_\_\_

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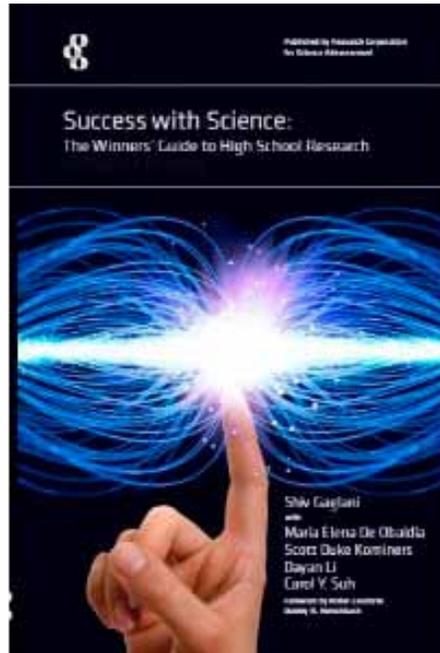




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Mail to 8613 Fenway Drive Bethesda, MD 20817

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