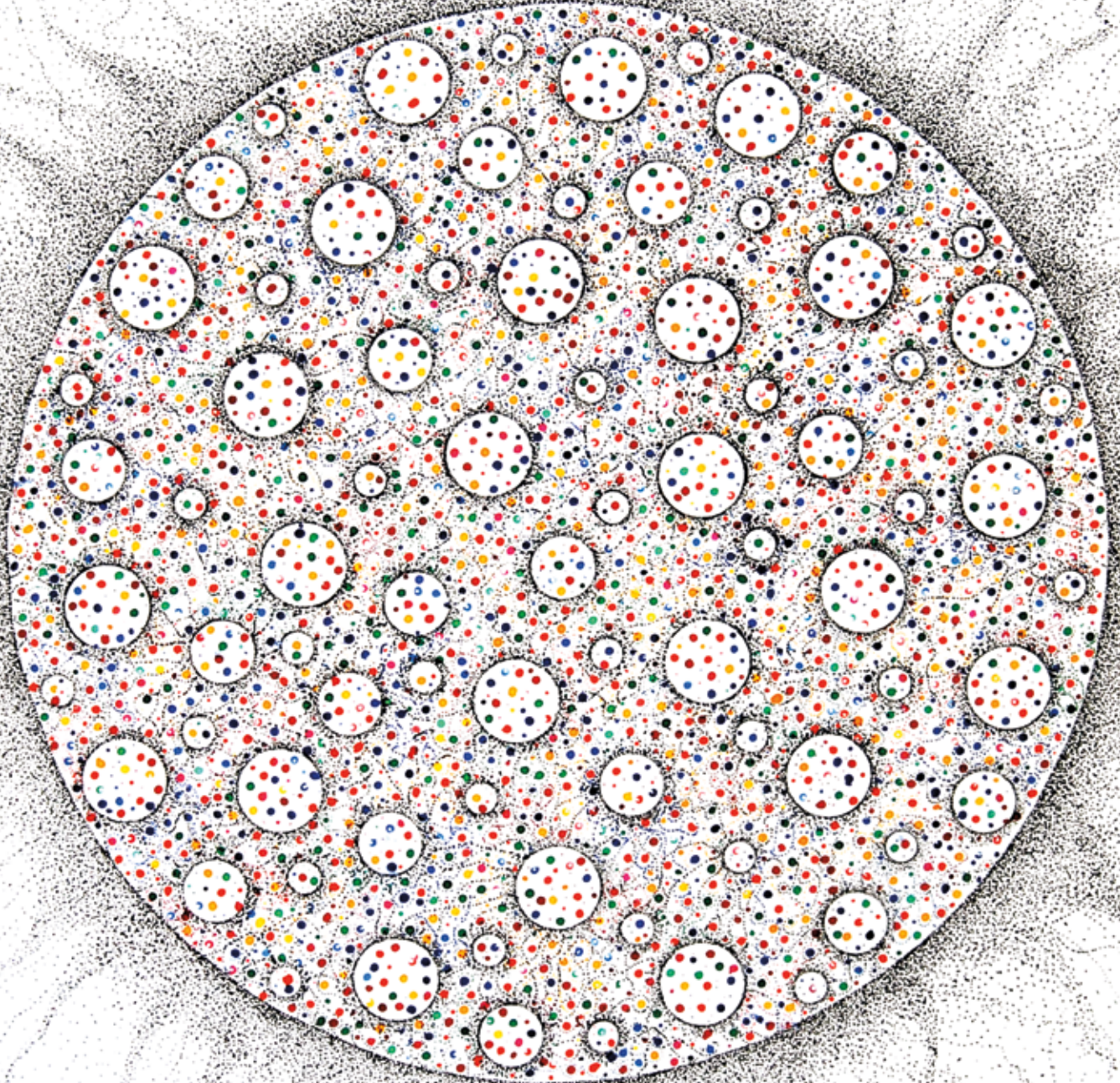


# MONTGOMERY COUNTY SCIENCE FAIR 2015

MARCH 13, 14, 15  
FDA WHITE OAK CAMPUS  
10903 NEW HAMPSHIRE AVE, SILVER SPRING



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<b>Cu-Copper (\$500-\$999)</b>	Milton Axley, PhD Kate Baldwin, PhD Bechtel Power Corporation Michael Burgett, PhD Federation of American Societies for Experimental Biology Ellen and Bill Kominers Montgomery County Education Association United States Nuclear Regulatory Commission Rockville Science Center Social and Scientific Systems, Inc. Technical Resources International, Inc.
<b>Fe-Iron (\$150-\$499)</b>	Kevin and Patricia Brady Fitzgerald Auto Malls Genvec Lerch, Early & Brewer, Chtd Ram Narula Raghavan Venkat, PhD
<b>Friends of ScienceMONTGOMERY (Up to \$149)</b>	Eric Afoakwah, PhD Sunil Lingayat, PhD Nuray and Yavuz Anahtar Jan Linkenhoker, DVM, MSPH Angelique Bosse Anne Merrell Christopher Cochran Mary Shaffran Deborah Haase Aprajita Srivastava Laura Lee Johnson, PhD Dongbo Wang, PhD April Killikelly, PhD Scott Smedira
<b>Program Cover Art &amp; Design</b>	<i>Design:</i> Someet Narang, PhD <i>Art:</i> "Kshethra – Fractals" by Shanthi Chandrasekar Kshethra is the Sanskrit word for field or area. In this work, the artist explores the concept of field for entities ranging from sub-atomic particles to galaxies and voids

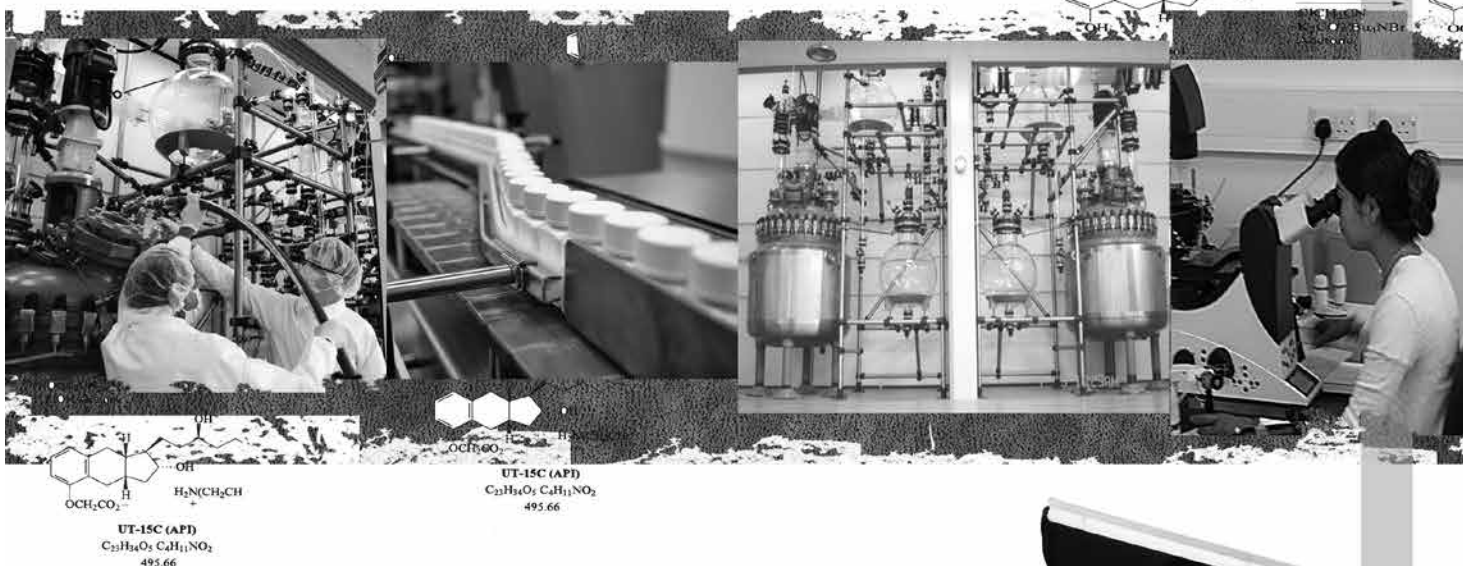
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**2015**  **Science**  
**MONTGOMERY** **Fair Schedule**  
[www.ScienceMONTGOMERY.org](http://www.ScienceMONTGOMERY.org)

**Food and Drug Administration, White Oak Campus,  
10903 New Hampshire Ave.  
Silver Spring, MD 20993**

**FRIDAY, MARCH 13, 2015**

**4 PM – 9 PM**      Student Project Set-Up: Set-up display boards and go through Safety Inspection at FDA White Oak Campus. Mentors, teachers, family members, and friends of Fair Participants are welcome to view the projects.

**SATURDAY, MARCH 14, 2015**

**9:30 AM – 12:15 PM**      Judges Preview Period (No students present)

**12:15 – 1:00 PM**      Students admitted

**1:00 – 4:00 PM**      Student Interviews: All Judges, all grades;  
Students must stay till end of all judging

**4:00 - 5:00 PM**      Project Removal: All projects must be removed by 5 PM  
or they will be discarded.

**SUNDAY, MARCH 16, 2015**

**2:00 PM – 4:00 PM**      Awards Ceremony at Albert Einstein High School,  
11135 Newport Mill Rd., Kensington, MD 20895

**4:00 PM – 5:00 PM**      Meeting with ScienceMONTGOMERY High School International Science and  
Engineering Fair (ISEF) Winners and First Runner-up and their families, about trip  
to Pittsburgh, PA for ISEF, Albert Einstein High School Auditorium Stage



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**SCIENCE FAIR**

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Montgomery Area Science Fair and salutes the intelligence,  
inventiveness, and ingenuity of all the participating students.**

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*Education Association*

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*Montgomery County Science Fair*



## MONTGOMERY AREA SCIENCE FAIR ASSOCIATION

Welcome to the Montgomery County Science Fair!

ScienceMONTGOMERY congratulates the students who are participating in the Fair and applauds them for their hard work. We hope that developing a Science Fair project was both enjoyable and a valuable learning experience.

We are most grateful for the parents, teachers and mentors who have supported and encouraged Fair participants. Adult sponsors are an essential part of the Fair program.

The Fair brings together scientists, engineers, mathematicians, educators, parents, and students from throughout the Montgomery County. ScienceMONTGOMERY provides a venue for competition among hundreds of students from public, private, and home school affiliations, in grades 6 through 12. We provide cash prizes for project excellence via our many Category Awards. Complementing these are a large number of Community Awards generously provided by various business, scientific, professional, and educational organizations and several US Government agencies. Students are competing for over \$40,000 worth of prizes: cash, scholarships, internships, travel, banquets, bonds, books, certificates, medals, and merchandise.

ScienceMONTGOMERY is a 501(c)3, nonprofit, all volunteer organization which relies on generous sponsors to fund the county-wide fair competition each year. MedImmune, for the eleventh consecutive year, serves as our premier sponsor for which we are most grateful. We also are thankful for the generous support of GlobalNet Services, Inc., Northrop Grumman and the United Therapeutics Corporation. Other major sponsors are Qiagen, MRI Global and the Food and Drug Administration. All of our sponsors make the Fair possible and we thank you.

The all-volunteer ScienceMONTGOMERY Board of Directors wishes to thank each of the organizations and individuals listed in this program for making the Fair possible. Every year, we are indebted to the more than 200 volunteer judges, representing area business and professional organizations, who painstakingly evaluate projects, and perhaps more importantly, encourage students' further pursuit of scientific understanding.

I personally thank and acknowledge the ScienceMONTGOMERY Board members who have contributed significant talent, time, and resources, late at night, after work, on weekends, in good weather and bad to make the Fair happen.

As an affiliate of the Intel International Science and Engineering Fair (ISEF), ScienceMONTGOMERY follows 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 projects at the 2015 International Science and Engineering Fair in Pittsburgh, PA.

Kate M. Baldwin, Ph.D.

Fair Director

March 2015

**Proud Sponsor  
of the Montgomery  
County Science Fair**

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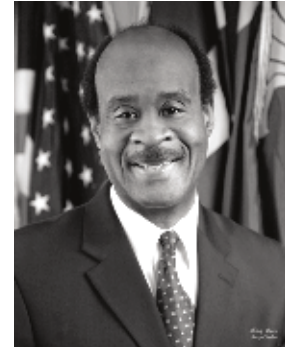


OFFICE OF THE COUNTY EXECUTIVE  
ROCKVILLE, MARYLAND 20850

Isiah Leggett  
*County Executive*

February 2015

Dr. Kate Baldwin  
Fair Director  
*ScienceMONTGOMERY*  
Montgomery Area Science Association  
6422 Kenhowe Drive  
Bethesda, Maryland 20817



Dear Dr. Baldwin:

Montgomery County supports and applauds *ScienceMONTGOMERY*, and your ongoing efforts to encourage interest in science throughout our community. 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 hundreds of Montgomery County public and private school students and we are very proud to support your mission to celebrate performance in science education throughout the County.

Now more than ever, Montgomery County is doing all it can to ensure a strong, vibrant economy and healthy, sustainable communities 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**59<sup>TH</sup> Montgomery Area Science Fair – 2015

FDA Science Center, White Oak Campus, 10903 New Hampshire Ave, Silver Spring, MD

**OFFICERS AND BOARD, MONTGOMERY AREA SCIENCE FAIR ASSOCIATION****President: Michael Burgett, Ph.D.***Henry M. Jackson Foundation  
for the Advancement of Military  
Medicine, Retired***Secretary: Eric Afoakwah, Ph.D.***Technical Resources International Inc.***Vice President: Dongbo Wang, Ph.D.***NIST***Treasurer: Christopher Cochran***Walter Johnson High School***Fair Director: Kate Baldwin, Ph.D.***Howard University, Retired***BOARD MEMBERS****Nuray Anahtar, AIA**  
*NOA Architects***Sunil Lingayat, Ph.D.**  
*Northrop Grumman***Yavuz Anahtar, RA**  
*NOA Architects***Jan Linkenhoker, DVM, MSPH, DACLAM**  
*NIH***Milton Axley, Ph.D.**  
*MedImmune***Anne Merrell**  
*Ridgeview Middle School***Angelique Bosse**  
*Montgomery Blair High School***Ram Narula**  
*Narula Energy and Environmental Consultants***Deborah Pober Haase**  
*Quince Orchard High School***Mary Shaffran**  
*Northrop Grumman***Laura Lee Johnson, Ph.D.**  
*FDA***Aprajita Srivastava**  
*Netransform LLC***April Killikelly, Ph.D.**  
*NIH, NIAID, VRC***Raghavan Venkat, Ph.D.**  
*MedImmune*



# AWARDS PROGRAM

2:00 P. M.

Sunday, March 15, 2015

Albert Einstein High School Auditorium

<b>Opening of Awards Program and Welcome to ScienceMONTGOMERY</b>	Kate Baldwin, Fair Director Montgomery Area Science Fair Association
<b>Presentation of Community Awards:</b>	Current and Former ScienceMONTGOMERY Board Members
<b>Presentation of Category Awards:</b>	Current and Former ScienceMONTGOMERY Board Members
<b>Presentation of ISEF Awards:</b>	Milton Axley, Ph.D.
<b>Thank you and Adjournment</b>	
<b>ISEF Award Winners Meeting</b>	4:00–5:00 PM

## SPECIAL FAIR RESPONSIBILITIES

<b>Venue and Food:</b>	Kate Baldwin, April Killikelly
<b>Website Oversight:</b>	Kate Baldwin, April Killikelly
<b>Category Awards:</b>	Sunil Lingayat
<b>Community Awards:</b>	Nuray Anahtar, Yavuz Anahtar Co-Chairs
<b>Program:</b>	Raghavan Venkat
<b>Display and Safety Committee:</b>	Anne Merrell
<b>Fund Raising:</b>	Michael Burgett
<b>Data Entry:</b>	Eric Afoakwah
<b>T-Shirts and Check-In:</b>	Bill and Ellen Kominers
<b>Scientific Review Committee:</b>	Laura Lee Johnson, Chair; Deborah Pober Haase, Vice-Chair; Milton Axley, Kate Baldwin, Susan Baker, Robyn Bent, Angelique Bosse, Michael Burgett, Christopher Cochran, Kevin Connolly, James Douglas, April Killikelly, Jan Linkenhoker, Cathryne Manner, Stephen Mason, Anne Merrell, Ranganath Muniyappa, Elizabeth Vincent, Dongbo Wang
<b>SRC Data Management:</b>	Adam Berger, Megan Brady, Taylor Douglas, Maggie Glaudemans
<b>ISEF Delegation:</b>	Milton Axley, Angelique Bosse, Laura Lee Johnson, Jan Linkenhoker



## Community Organizations Presenting Awards–2015

Aerospace Corporation	Lockheed Martin
American Industrial Hygiene Society—Potomac Section	MdBioLab
American Institute of Aeronautics and Astronautics-National Capital Chapter	MIT Club of Washington DC
American Meteorological Society—DC Chapter	MedImmune
American Nuclear Society, Washington, DC Section	Metro Bethesda Rotary Club
American Psychological Association	MBHS Magnet Class of 2004 Science Fair Award
American Society of Mechanical Engineers	MRIGlobal
ASM Materials Education Foundation—DC Chapter	Mu Alpha Theta
Association for Women Geoscientists	National Capital Astronomers
ASU Walton Sustainability Solutions Initiatives	National Oceanic and Atmospheric Administration (NOAA)
Bethesda Magazine	Office of Naval Research (U.S. Navy/ U.S. Marine Corps)
Biophysical Society	Optical Society of America, National Capital Section/ IEEE Phototonics
Broadcom MASTERS Competition	Ricoh Americas Corporation
Central Intelligence Agency	Rockville Science Center
Clean Air Partners	Sigma Xi—FDA Chapter
Federal Water Quality Association	Sigma Xi—NIST Chapter
Friends of Agricultural Research-Beltsville, Inc.	Society for In Vitro Biology
GENIUS Olympiad—SUNY Oswego	Stockholm Junior Water Prize
Geological Society of Washington	U.S. Air Force
Graduate Women in Science	United States Metric Association
Hon. Eddie Bernice Johnson's "Excellence in Science" Award	United States Nuclear Regulatory Commission
IEEE Washington Section	U.S. Public Health Service
Intel Excellence in Computer Science	United States Public Health Service--Commissioned Officers Association, D.C.
Intel Science Talent Search	Washington Statistical Society
I-SWEEEP	Yale Science and Engineering Association, Inc.
KJW Young Scientists Association	



## **ScienceMONTGOMERY 2015 Update**

### **Congratulations to our 2014 ScienceMONTGOMERY Grand (ISEF) Prize Winners:**

---

<b>Daniela Ganelin</b>	Behavioral & Social Sciences
<b>Neil Davey</b>	Biology
<b>Jessica Shi</b>	Computer Science and Mathematics
<b>Vinay Sriram</b>	Computer Science and Mathematics
<b>Alternate: Shaun Datta</b>	Physics

### **We Proudly Announce that our ISEF Finalists were recognized with these Awards at ISEF 2014 (Phoenix):**

---

**Daniela Ganelin:** Fourth Place, Grand Awards, Behavioral & Social Sciences  
**Neil Davey:** First Place, Grand Awards, Medicine & Health Sciences  
**Jessica Shi:** Special Award, United Technologies Corporation  
**Vinay Sriram:** Fourth Place, Grand Awards, Computer Science

### **Kudos to These Members of our ScienceMONTGOMERY Family For Their Wonderful Accomplishments in the Past Year:**

---

**Maryland Junior Science and Humanities Symposium:** Vinay Sriram (First Place), Ayush Goyal (Fourth Place), Dhruv Shankar (Fifth Place); Poster Session: Jerry Zhang (First Place), Anirudh Gubba (Second Place)

**Greater Washington, DC Area Junior Science and Humanities Symposium:** Megan Chao (First Place)

**Breakthrough Prize in Mathematics:** Jacob Lurie (ScienceMONTGOMERY '95)

**Discovery Education 3M Young Scientist Challenge:** Katherine Wu (Finalist)

**Davidson Fellow:** Neil Davey

**Broadcom MASTERS Finalist:** Katherine Wu; Semifinalists: Sreya Vangara, Elliot Kienzle, Noah Gabriel Singer

**MacArthur Fellow:** Jacob Lurie (ScienceMONTGOMERY '95)

**Siemens Competition in Math, Science, and Technology (Semifinalists):** Brandon Grinkemeyer, Tej Joshi, Sreejan Kumar, Sangho Myung, Navya Nada, Umesh Padia, Kushi Ranganath

**NYU Cyber Security Forensics Challenge (First Place):** Kent Ma, Jonathan Ni, Umesh Padia

**Intel Science Talent Search (Semifinalists):** Matthew das Sarma, Bennet McGlade, Umesh Padia, Ishaan Parikh



Each year, *ScienceMONTGOMERY* alumni return to volunteer at our Fair.  
Many thanks to these Distinguished *ScienceMONTGOMERY* Alumni  
for their key help in making the Fair happen:

Melis Anahtar • Melodi Anahtar  
Adam Berger • Megan Brady  
Kuo-Kai Chin • Re-I Chin  
Stephanie Douglas • Taylor Douglas  
Jeremy Fallick • Maddie Golding  
Maggie Glaudemans • Jacob Hurwitz  
Phanna Iamlek • Sneha Kannan  
Matthew Kinnard • Josh Klontz  
Paul Kominers • Scott Kominers  
Kyle Le • Emily Levine • Daniel Liss  
Nina Jessica Lu • Reethika Maddenini  
Gyyoung Oh • Jason Qian  
Sikandar Porter-Gill • Kenny Rosenberg  
Reid Simon • Mike Sousane  
Carmelita Ugarte • Jennifer Wang • Louis Wasserman  
Claire Wortmann • Grace Young • David Zhang

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



## 2015 Category and ISEF Awards Judges

Name	Affiliation
Mrs.Malini Ahuja	NIH
Mr.Yezdi Antia	Hughes Network Systems
Dr.Gunjan Arora	
Mr.Michael Askenase	NIH
Ms.Ruchi Badani	QIAGEN
Dr.Susan Baker	NOAA
Dr.Mariana Baz	
Dr.Heather Benz	FDA
Dr.Denis Bergeron	NIST
Ms.Heysol Bermudez	NIH
Mr.Gerald Blum	Retired
Dr.Jennifer Boylston	NIH/NHLBI
Dr.Pepper Buckley	
Dr.Jay Buckley	
Mr.Keith Bullock	The Foundation School
Dr.Jeffrey Burke	Circulomics
Ms.Allyson Byrd	NIH
Mr.Yong Chang	
Mr.Leon Chao	NIST
Dr.Gouri Chattopadhyay	CDER, FDA
Ms.Kanita Chaudhry	NIH
Dr.Shu Hui Chen	NIH
Dr.Xi Chen	
Dr.Swati Choksi	NIH
Ms.Ashley Chung	FDA
Dr.Kevin Connolly	Retired
Dr.Melissa Coughlin	MedImmune
Ms.Elizabeth Coyle	FDA
Dr.Luciana Crotti Espinoza	
Mr.George Daniello	Retired
Mr.Salil Das	Prince Georges Community College
Ms.Jeannie David	FDA
Dr.Marciela DeGrace	NIH
Dr.Soumyadeep Dey	NIH
Dr.Lena Diaw	NHLBI/NIH
Dr.Garry Didinsky	ATK
Dr.Allissa Dillman	Henry Jackson Foundation
Dr.Douglas Dluzen	
Dr.Mohibullah Durrani	Montgomery College
Dr.Debargh Dutta	USUHS
Ms.Merina Elahi	FDA
Dr.Abdeladim Elhamdani	A+Science4Kids
Ms.Kathleen Elliott	NIH
Ms.Rebecca Fallon	NIDA/JHU
Ms.Sarah Friedrich	
Dr.Salina Gairhe	NIH
Ms.Mary Galloway	FDA
Ms.Anna Ganelina	NIH
Mr.Sudip Gangopadhyay	MedImmune
Mr.Anirudh Gaur	Georgetown University

Name	Affiliation
Dr.Jeffy George	HJF
Dr.Amalendu Ghosh	NIH
Ms.Portia Gough	NIH
Dr.Miranda Gray	Henry Jackson Foundation/USUHS
Mr.Jon Griffin	
Dr.Jonathan Hardis	NIST
Mr.Subodh Harmalkar	
Ms.Juliane Hill	NIH
Dr.Kwan-Yuet Ho	SRA International
Dr.J Terrell Hoffeld	U.S. Public Health Service (Retired)
Dr.Lisa Holt	Intelligent Automation, Inc.
Mr.Kevin Hopson	FDA
Mr.Larry Hothem	U.S. Geological Survey
Dr.Na Hu	
Ms.Deborah Jack	NIH/NIAID
Mr.Gregor Jacob	NIST
Ms.Charelle Jeffries	Howard University
Mrs.Venera Jordan	QIAGEN
Ms.Patricia Kamdem	
Dr.Priya Kannan	
Dr.Sukhbir Kaur	NIH
Dr.Bharat Khurana	FDA
Dr.April Killikelly	NIH
Mrs.Yunju Kim	University of Maryland
Dr.Anthony Kluk	Nuclear Energy
Mrs.Shelley Kluska	Northrop Grumman
Dr.David Kosub	NIH
Ms.Lucy Kotlyanskaya	
Dr.Ivan Krivega	NIDDK, NIH
Dr.Azad Kumar	NIH
Ms.Brenna LaBarre	
Dr.William Lee	Naval Research Laboratory
Dr.Sangram Lenka	
Dr.Risa Lin	Northrop Grumman
Mr.Billy Lin	NIH
Mr.Shubing Liu	QIAGEN
Dr.Namal Liyanage	NCI / NIH
Mr.Jonathan LoTempio, Jr.	NIH/NHGRI
Dr.Ganwei Lu	QIAGEN
Dr.Chinmoyee Maharana	NIH
Dr.Jessica Mann	Government
Dr.Kimberly Mapp	QIAGEN
Dr.Jarrad Marles	Toeroek Associates Inc.
Dr.Philippe Marmillot	
Mr.Casey Martin	NHGRI
Mr.Stephen Mason	Johns Hopkins University
Ms.Kaya Matson	NIH
Dr.Anna McCarrey	NIH
Dr.Shasta McClenahan	FDA

**2015 Category and ISEF Awards Judges (continued)**

Name	Affiliation	Name	Affiliation
Mr. Joseph McKennan	DVR/SoBran	Dr. Jermaine Ross	NIH
Dr. Mariana Meyer	Northrop Grumman	Mr. Manuel Rovira	NIH
Ms. Chun-yan Mi	Defense	Ms. Yazmin Rovira Gonzalez	FDA/CBER
Mr. Scott Miller	QIAGEN	Dr. Andaleeb Sajid	NIH
Mr. Kevin Minn		Mr. Krishna Samavedam	Hughes Network Systems
Mr. Jack Morgan	Lawyer	Dr. Tamika Samuel	University of Maryland
Dr. Sarah Morgan	NIH	Ms. Nicole Schneck	UMD
Mr. Tom Mulrooney		Mr. Jeremy Schreier	FDA
Dr. Sin Man Ng		Dr. Sherri-Gae Scott	FASEB
Dr. Kapinga Ngalula		Mr. Abhinav Sharma	
Ms. Joan Ngwuta	NIH	Dr. Robert Silverberg	Retired
Dr. Veera Padmanabhan	MedImmune	Ms. Brittany Simpson	
Dr. Naimish Pandya		Dr. Amy Soller	
Dr. Randi Parks		Ms. Poorna Sreekumar	BioReliance
Dr. Anna Pasetto	NIH	Dr. Corey Stambaugh	NIST
Dr. Mira Patel	University of Maryland School of Medicine	Mr. Cyrus Tang	Northrop Grumman
Dr. Robert Peters	NASA/Stellar Solutions	Dr. Gil Toombes	
Dr. Norman Peterson	MedImmune	Dr. Elizabeth Trainor	FDA
Ms. Rahel Petros	NIH-SoBran Inc	Dr. Punam Tyagi	Maryland Department of the Environment
Dr. Aurelie Ploquin	NIH	Dr. Rachel Van Duyne	NIH
Mr. Brandon Podyma		Dr. Raghavan Venkat	MedImmune
Dr. Sylvie Poluch	USUHS	Dr. Ramesh Venna	FDA
Ms. Meagan Prophet	MedImmune	Ms. Tresa Vidayathil	Law
Dr. Kanika Pulliam	FASEB	Dr. Bandana Ajay Vishwakarma	USUHS
Dr. Savelas Rabb	NIST	Mr. Terry Wu	NIH
Dr. Erica Raterman		Mrs. Yinmeng (Amy) Yang	
Ms. Tracey Ray	QIAGEN	Dr. Jingping Yang	QIAGEN
Ms. Lisa Read	MRIGlobal	Mr. Wyatt Yelverton	Virginia Hospital Center
Ms. Elizabeth Richards	NIH	Dr. Ian Yeung	NEI/NIH
Dr. Becky Robinson	FDA	Dr. Yang Zhao	FDA
Dr. Julia Rodiger	NIH	Dr. Yebin Zhou	
Ms. Rachael Rodriguez	FDA/CBER	Dr. Tong Zhou	

**ScienceMONTGOMERY Participating Schools-2015**

School	Abbreviation	School	Abbreviation
Argyle Middle School	AGM	Other Schools Not Listed	OTH
Montgomery Blair High School	BLH	Parkland Middle School	PLM
Winston Churchill High School	CHH	Poolesville High School	POH
Clarksburg High School	CHS	Thomas W. Pyle Middle School	PYM
Cabin John Middle School	CJM	Roberto Clemente Middle School	RCM
Eastern Middle School	ESM	Robert Frost Middle School	RFM
Forcey Christian Middle School	FCMS	Ridgeview Middle School	RIM
William H. Farquhar Middle School	FQM	Richard Montgomery High School	RMH
Holy Cross School	HCS	St. Andrew Apostle School	SAA
Home Schooled	HS	St. Bartholemew's School	SBS
The Heights School	HTS	Shady Grove Middle School	SGM
Julius West Middle School	JWM	Seneca Valley High School	SVH
Lakelands Park Middle School	LPM	Takoma Park Middle School	TPM
Muslim Community School	MCS	Thomas S. Wootton High School	WHO
North Bethesda Middle School	NBM	Walter Johnson High School	WJH
Northwest High School	NWH	Walt Whitman High School	WWH
Northwood High School	NDH		


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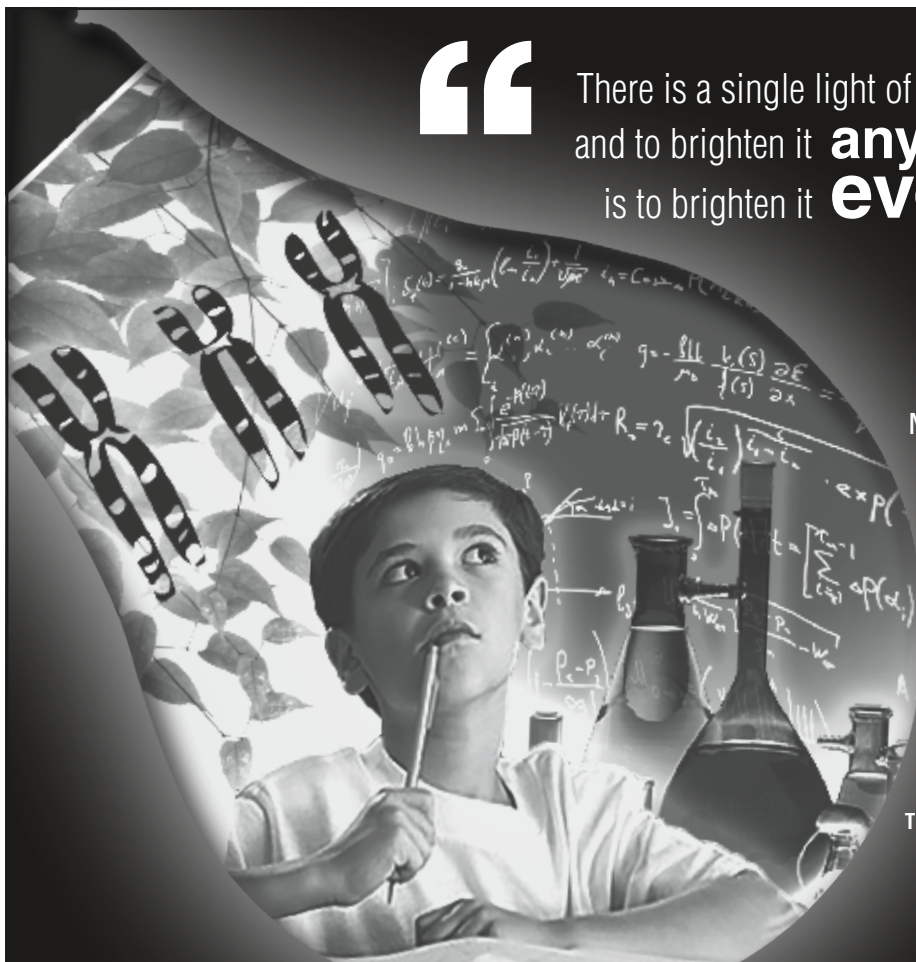
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is to brighten it **everywhere.** ”



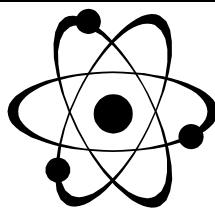
## **Technical Resources International, Inc.**

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# TRI

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Bethesda, MD 20817  
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Web: [www.tech-res-intl.com](http://www.tech-res-intl.com)



## **Congratulations to *Science*MONTGOMERY 2015**

**Best Wishes from the Kominers Family:**

**Ellen, Bill,**

**Scott (*Science*MONTGOMERY 2005), and**

**Paul (*Science*MONTGOMERY 2006-2008)**



# EXHIBITORS

## STUDENTS IN THE JUNIOR FAIR

### BEHAVIORAL AND SOCIAL SCIENCES

M101	Black Dog Syndrome - Myth or Reality	Maddie Zalewski	HCS
M102	Face to Voice Matching	Reynald Oliveria	AGM
		Peter Holland	AGM
		Gabriel Ramirez	AGM
M103	Water, Water Everywhere!	Marie Paxton	HCS
M104	The Effect of Colors in Education	Josephine Koelsch	AGM
		Alison Neirotti	AGM
M105	What Would You Do?	Jan Haro	HCS
M106	Can Eye Trust You	Maddie Ewers	HCS
M107	Using Daphnia to Test Water Quality	Daria Chen	RCM
M108	The Effect of Pesticides on Harvester Ants and Their Social Behavior	Meili Gupta	TPM
		Cassia Williams-Rogers	TPM
M109	Crazy for Caffeine	Saran Kaur	PLM
M110	Is Availability of Healthy Food Related to Diabetes in Maryland?	Varsha Krishnan	CJM
M111	Early vs Late Arrivals - Who Breaks Morning Safety Rules More Often?	Mira Thomas	SAA
M112	SMART Tattoo - Stress Management for Autism with Reusable Technology	Ameya Deshmukh	RFM
		Priyanka Madhavan	LPM
		Reethi Padmanabhan	TPM
M113	Modeling the Impacts and Perceptions of Sustainable Farming on Water Quality Conditions in the Chesapeake Bay	Allie Battista	TPM
		Rebecca Wessel	TPM

### BIOLOGY

M201	How Does the Color of Light Affect Plant Growth?	Aadity Jha	PLM
M202	Acidity and Plant Growth	Cristina Jimenez	PLM
M203	How Does the Color of the Light Affect the Growth of A Plant?	Rakshan Joshi	RCM
M204	Yeast vs the World	Toma Kamara	PLM
M205	Exploring Cancer	Ashna Bhatia	AGM
M206	Is Your Money Going Down the Drain?	Layan Keller	PLM
M207	Algae vs. Fertilizer	Jessica Kingsley	PLM
M208	The Effect of Sunlight on Plant Growth	Carter Rodia	HCS
M209	Deoxyribonucleic Acid Extraction	Medha Kotti	RCM
M210	Why Do We Look the Way We Do? Effect of Climate on Physicalities	Sophia Weng	TPM
		Victoria Xin	TPM
M211	Microwaving Microorganisms	Amisha Kunvar	PLM
M212	The Effect of Laundry Detergent on Plants	Holly Lam	RCM
M213	Who Killed the Good Bacteria?	Alana McCarthy Light	PLM
M214	The Effect of Laundry Detergents on the Environment	Liang Lin	TPM
M215	How Does Salinity Affect Brine Shrimp?	Sienna Williams	RCM
M216	The Effect of Homemade Fertilizer on Plant Growth	Daniel Lopez	AGM
M217	Algae Village	Clarissa Mata	PLM
M218	Time to Choose: Chemical or Organic fertilizer	Devansh Mishra	PLM



M219	The Grease Test: How Healthy are Your Potato Chips?	Ipsa Mittra	JWM
M220	Decay Delay - Here's the Trick	Melody Zeng	NBM
M221	Growing Plants with Homeopathic (Holistic) Remedy "Cinchona officialis"	Moe Kirmani	HCS
M222	Gross, But Tasty	Adiat Muyeen	PLM
M223	Health Effect of Cell Tower Radiation	Samarth Nayak	RCM
M224	Soil vs. Oil	Clarissa Ng	RCM
M225	Extrasensory Perception and its Effect on Alpha Brainwaves	Mohammed Niyas	PLM
M226	Effects of Hydrogen Peroxide on Seed Germination	Melody Zhang	RCM
		Miranda Liu	RCM
M227	Hydration Sweat Test	Michael O'Reilly	HCS
M228	A Bioinformatics Approach to Ebola	Jonathan Odim	TPM
		Alex Sherwin	TPM
		Daniel Yang	TPM
M229	Toxic Turg	Anne Paxton	HCS
M230	Effect of MiracleGro Fertilizer on Plant Growth	Christine Zhou	RCM
M231	Colors of the Light	Evelyn Reeder	PLM
M232	Using Patterns of Mutation Identify Unannotated Human Protein Domains	Daniel Schaffer	TPM
M233	Growing with Gravity	Evelyn Scott	LPM
M234	Which Substances (Such as Foods) Have Antioxidant Activity and Why?	Anagha Shastry	RCM
M235	Bacteria Around Us	Justin Ma	RCM
		Orrin Ni	RCM
M236	Fridge Life: Organic Versus Non-Organic	Isabella Sivali	AGM
M237	The Effect of Differing Light Bulbs on the Rate of Growth in Plants	Tom Stoughton	RCM
M238	How Does Yeast Metabolism Differ Based on Whether or Not It Is Aerated?	Ananya Tadikonda	RCM
M239	Colored Flowers	Megha Tummalapalli	RCM
M240	The Effects of the Amounts of Anticoagulants on Blood Clots	Zach Teselko	RCM
M241	Music's Effect on Blood Pressure	Sohan Ganatra	RCM
M242	How Does the pH of Water Affect Plant Growth?	Heerod Asadi	PLM
M243	Antibiotic Resistance For Bacteria	Sourabh Vellala	RCM
M244	How Does the Amount of Fertilizer Affect Plant Growth	Joy Wang	RCM
M245	Ebola Protective Gear and Bacteria	Melika Sizar	MCS
M246	Endorphins & Exercise	Hunter Bergstrom	RCM
M247	Wild Water	Maya Wolf	PLM
M248	Left-Sided, or Right?	Crystal Ubadiniru	AGM
		Nomso Ashiogwu	AGM
M249	Save the Meat	Anikka Bingcang	PLM
M250	Natural Fruit Fly Pesticide	Eyosiyas Workneh	PLM
M251	Do Thicker Oil Spills Affect the Amount of Dissolved Oxygen in Freshwater Habitats More?	Kate Chen	RCM
M252	Most Bacteria-Infested Place in an Average Public Restroom	Aneesh Acharya	RCM
M253	The Effect of De-Icing Agents on the Environment	Eric Yi	RCM
M254	The Effect of the Allium Family on the Microbes in Yogurt	Luckshika Arudchandran	PLM
M255	Laundry Detergent vs Stains	Stephanie Claire	PLM
M256	Berry Excited for Strawberries	Sophia Costa	SAA
M257	Problems Require Solutions	Eugene Domrachev	RCM



M258	Which Method of Cleaning Works Best with Getting Rid of Bacteria	Anish Kodan	PLM
M259	Cleaners and Grape Juice Stains	Meili Bowden	PLM
M260	A World of Bacteria and No Cure?	Alexa Gourdain	PLM
M261	The Flower Food Competition	Maximilian Howard	SAA
M262	Effect of UV Radiation on Yeast	Brendan Bock	PLM
M263	Red Hair, Blue Eyes, Blond Hair, Will They Become Extinct?	Garrett Gularson	RCM
M264	Aquaculture vs. Soil: Battle of the Pots!	Rony Garcia-Vivas	PLM
M265	Effects of Batteries on the Growth of Plants	Edward Bian	RCM
M266	Growth of Plants Under Different Lights/Light Levels	Matthew Garay	RCM
M267	Plants and Our Changing Climate	Tejas Guha	RCM
M268	How Does Electromagnetic Radiation Affect Plant Growth	Michael Pan	RCM
M269	Pass the Salt	Hannah Chujor	PLM

### CHEMISTRY

M301	Capillary Action in Plants	Christine Gong	RCM
M302	Lighter or Darker Veggies?	Grace Kim	RCM
M303	Secret Colors of M&Ms	Hae Rin Kim	TPM
M304	Unraveling Molecules	Varunaa Sri Hemanth Kumar	PLM
M305	How Much Calories are Stored in Foods?	George Kuzhikat	AGM
		Salim Muhammed	AGM

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M306	The Effect of Sugar on Yeast	Michelle Ling	RCM
M307	Speed of Light	Adhvayith Sriram	RCM
M308	How Earthworms Impact Phosphates and Nitrates in Soil, and How That Affects Plant Growth	Kevin Liu	RCM
M309	Soils Capillarity	Alan Tong	RCM
		Bhavesk Kemburu	RCM
M310	The Newest Highlights	Isha Katyal	AGM
		Tiaret Mitchell	AGM
M311	Aspirin Synthesis: Organic Acids vs. Corrosive Acids	Mahnaz Habib	PLM
M312	Electrified Electrolytes	Jeffrey Tran	RCM
M313	Electrolysis	Ryan Halli	AGM
M314	Type of Homemade Battery and Liquid Used vs Volatge	Pershawn Hamidi	PLM
M315	Global Warming, Is It The Reason Glaciers Are Melting?	Nata Assad	PLM
M316	Gas Station Pollution	Shabarish Nair	RCM
M317	Solid State Batteries	Marshall Nambiar	RCM
M318	Clean Teeth Means Clean Smile	Janet Truong	PLM
M319	The Effect of Different Substances on the Rate Which Ice Melts	Emmanuel Ojamo	TPM
M320	The Mpemba Effect on Water	Nafisat Uddin	AGM
		Lina Mitiku	AGM
M321	Nailed It!	Monica Orrego	PLM
M323	Strength in Colors	Mihika Peshwa	RCM
M324	The Iodine Clock	Josephine Prickett	FCMS
M325	Muffin Expansion	Megan Tsai	PLM
M326	Effects of Different Substances on the Freezing Point of Water	Shishir Velma	RCM
M327	Cleaning Up Oil with Plants	Jennifer Moy	PLM
M328	Burning Oils	Luke Mitchell	HCS
M329	Which Type of Disposable Spoon Decomposes Best	Nadia Roghani	MCS
M330	pH and Teeth	Duane Sedgwick	AGM
		Neeraj Shrestha	AGM
		Kobe Borda	AGM
M332	Crystal Race	Josephine Crucillo	RCM
M333	Various Acids' Effect On Time Metallic Objects Take To Dissolve	Marco Di Pietro	RCM
M334	Affects of Salt Concentration on Corrosion	Kelsey Folley	PLM
M335	Factors Affecting the Freezing Point of Water	Kush Savsani	RCM
M336	Crazy Corrosion	Rithik Sebastian	RCM
M337	Why Do Apples and Other Fruit Become Brown?	Chamila Sedara	PLM
M338	Chromatography	Chloe Marie Thomas	SAA
		Katherine Vaca	SAA
M339	Which Fruit Contains the Most Vitamin C?	Michelle Zhao	ESM
M340	Oil Spill	Sivani Sundaram	RCM
M341	Casein Plastic Strength	Alexander Makori	RCM
M342	Can Impurities Affect a Soulution	Monieya Maynor	PLM
M343	Rainbow Fire	Autumn Wang	RCM
		Michelle Zheng	RCM
M344	What Will Melt Ice the Fastest: White Vinegar, Baking Soda, or Sugar?	Danny Tabaa	RCM



M345	Electrolytes In Drinks	Steven Tan	RCM
M346	Uprising of the Muffins	Mikal Tedros	PLM
M347	The Effect of Tempering on the Properties of Chocolate	Stephanie Wang	TPM
		Katherine Lei	TPM
M348	Impurities of Soft Drinks	William Xu	RCM
M349	How Does Temperature Affect the Rate of Chemical Reactions	Jack Yang	RCM
M350	Comparing the Amount of Electrolytes in Orange Juice and a Sport Drink (Gatorade)	Michael Gan	RCM
M351	The Corrosive Properties of Coke and Orange Juice Compared to Water	Suraj Ratnam	RCM
M352	The Effect of Sugar on the Amount of Glucose	Suveena Sreenilayam	TPM
		Mary Chang	TPM
M353	What Makes Ice Melt Fastest?	Arman Bolouri	RCM
M354	Experiment on Faraday's Law of Electrolysis	Claire Brizzolara	NBM
M355	Dangerous Drinks	Nathaniel Harley	PLM
M356	The Power of Alka Seltzer	Justin Hung	RCM
M357	Effects of Water Conditions On Electric Current	Elias Izmirlian	RCM
M358	Cell Stains to Dye For	Joshua Starost	RCM
M359	Effects of Temperature on the Effectiveness of Catalase	Tanaya Jha	RCM
M360	What Makes Ice Melt Fastest?	Hamza Khan	PLM
M361	The Corrosion of Different Metals	Kile Scott	RCM
M362	The Freezing Point of Different Solutions	Ishita Chatterjee	RCM
M363	The Effect of Salts on Ice	Brianna Frost	AGM
		Kayla Taylor	AGM
M364	Exothermic Emergency	Dilan Gangopadhyay	PYM
M365	Vitamin C: Fruits vs. their Juices	Yashvi Shah	AGM
M366	Going With the Flow	Mariam Shamim	PLM
M367	Effect of Aspirin on Plant Growth	Tiago Silva	PLM
M368	Battery Gets Power Boost from Architectural Design of Electrodes	Sonia Stan	RCM
		Sabrina Su	RCM

### COMPUTER SCIENCE AND MATHEMATICS

M401	Computer Power Usage	Jacob Whiteis	RCM
M402	Blocking the Wi-Fi	Varshini Selvadurai	RCM
M403	Predicting Percolating Predicaments	Orion Gangopadhyay	PYM
M404	Hack Proofing with Multi Factor Authentication	Basaam Malik	RCM
M405	Password Hacker	Sadia Nourin	AGM
		Vicky Ma	AGM
M406	How to Improve Your Internet Signal	Siobhan Light	PLM
M407	Modification Effect on Computer Speed	Daniel Miller	PLM
M408	Signalblock!	Owen Cochran	AGM
M409	Developing and Evaluating a Novel Pathfinding Algorithm for Square Grid Graphs	Steven Qu	TPM
		Naveen Durvasula	TPM
M410	Predicting Athletic Performance	Owen Hammer	SAA
M411	Diabetes Aid - Medical App to Help Manage Diabetes for a Healthy Life	Hirschel Nambiar	AGM
M412	Kinect-ing Gestures	Rha Overstreet	PLM



M413	Relationship Characterization Between Air Pollution and Cancer Rates	Michelle Tang	TPM
M414	Development of an Algorithm to Model the Eradication of Measles	Devin Hoover	RCM
M415	Measles Transmission: Random Walk Model	Valentina Simon	RFM
		Lennard Poliakov	SGM
M416	A Mathematical Approach Based Solution to Mitigate Allergies	Iris Gupta	RFM

**ENGINEERING**

M501	Using Sound Waves To Save Lives	Ben Ganelin	PLM
M502	How Do Airplanes Fly?	Joshua Carter	SBS
M503	Engineering the Perfect Egg Drop	Nishanth Alladi	RCM
M504	Comparing Maze Solving Algorithms	Dev Bhardwaj	RCM
M505	Propeller Efficiency and Power Output	John (Vanya) Gorbachev	PLM
M506	Does Temperature Affect the Life of a Battery?	Matthew Gu	RCM
M507	What Type of Propeller is the Most Efficient?	Dinal Gunaratne	RCM
M509	The Effect of Different Angled Diagonals on the Supported Weight of a Howe Truss	Gerardo Ballesteros	PLM
M510	Exploring Bridge Designs and Applications for a New American Legion Bridge	Scott Chapman	HTS
		Chris Barre	HTS
		Agustin Jauregui	HTS
M511	Frequencies: Impacting Us	Ijeoma Obi	TPM
M512	Solar S'mores	Olamide Oladiran	PLM
M513	Forces by RCs	Juan Orellana	PLM
M514	Bluetooth Controlled Robotic Arm	Sreedatta Kaligotla	RCM

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Sample & Assay Technologies



M515	Measuring Light Pollution in My Neighborhood: Determining the Effect of Lighting Schemes on Light Trespass, and the Effect of Different Locations on Skyglow and Visibility of Stars	Shreeya Khurana	TPM
M516	Building a Battery with Coins and Lemon Juice	Christian Kim	RCM
M517	Angle Effects on Truss Strength	Mary Kolbe	PLM
M518	How Does Water Affect Cement	Yu-Wei Kuo	PLM
M519	Bridges vs. Weight: Bridging the Gap	Adwin Paul	PLM
M520	Sorbents: How they Help Clean Up Marine Oil Spills	Jasmine Pham	RCM
M521	Duracell vs. Duracell Quantum	Anton Preslopsky	HCS
M522	Seas The Day	Ella Weaver	HCS
M523	Solar Food Cookers	Celina Wu	RCM
M524	How Much Height to Loop the Hoop	Kaitlyn Yang	RCM
M525	Domes and Arches	Miranda Yu	RCM
M526	Electronics: Friend or Foe?	Joshua Yu	RCM
M527	Submarine Submersion	Jonathon Yue	PLM
M528	Making SeaPerch More Efficient	Nithya Ramesh	PLM
M529	Shielding RFID Cards From No-Contact Pickpocketing	Safiullah Rifai	AGM
M530	The Effect of the Number of Blades on the Amount of Energy Produced by a Wind Turbine	Catherine Rodriguez	TPM
M531	The Effect of Different Designs on the Stability of Bridges	Dylan Snow	RCM
M532	Pulse Width Modulation (PWM) versus Constant Current - Effect on LED Efficacy	Sujay Swain	TPM
M533	Strength of Bridge Design Against Wind	Lansing Lee	PLM
M534	Building Sturdy Bridges	Daniel Li	RCM
		Franklin Choi	RCM
M535	Aerodynamics of House Roofs	Andrew Li	RCM
M536	Home Automation System Controlled By Raspberry Pi Web Server	Kevin Chen	RCM
M537	How Does the Pitch of the Angle of a Propeller Affect Thrust?	Hrishi Chintagumpala	PLM
M538	Cleaning Up Oil Spills	Amanda Chu	RCM
M539	Fallen Arches	Caroline Djakuduel	PLM
M540	Winglets: The Effect on Planes	Michael Tanner	AGM
		Huy Do	AGM
M541	Green vs. Efficiency - Is the Hybrid Rocket Engine More Fuel-Efficient Than the Conventional Solid/Liquid Rocket Engine?	Ethan Tang	TPM
M542	Crash-resistant Quadcopter to Help Characterize Natural Ecosystems	Ayush Varshney	TPM
M543	Projectile Angled Launches	Andrew Zhang	RCM
M544	Hoverboard Amazingness	Kyle Stevens-Donati	RCM
M545	Amplifications/Blocking of Wifi Signals	Daniel Zhu	RCM
		Liam McCue	RCM
M546	Can a Battery Powered Hovercraft Carry a Load on Land and Water: a More Efficient Form of Sustainable Transport	Aidan Douglas	RCM
M547	How Much Solar Power Will My Solar Panels Produce?	Aileen Foley	RCM
M548	Solar Tracking	Angela Mu	RCM
M549	Electrolysis of Liquids to Collect Hydrogen	Jerry Yang	RCM
		Connor O'Brien	RCM
M550	Lights, Camera, Science!	Daniel Baer	RCM
		Grant Yang	RCM

**PHYSICS**

M701	Effects of Temperature on Magnets	Eric Zhong	RCM
M702	Electro magnet	Tyler Flores	AGM
M703	How Does the Medium Affect the Speed of Light?	Kasra Torshizi	RCM
M704	Lacrosse Mesh	Jack Gillick	PLM
M705	What Has a Bigger Effect on the Distance a Gauss Rifle Will Shoot, the Number of Stages or the Size of the Magnets?	Sresth Viswanathan	RCM
M706	Who's Weighing In?	Anthony Meza	RCM
M707	MagLev Cars	Ryan Simpson	SAA
		Daniel Patino	SAA
M708	Testing the Effectiveness of Sloping Using a Metric Based on Height Covered, Cost, and Effective Thickness	Brian Xu	TPM
		Kevin Sui	TPM
		Richard Zhao	TPM
M709	Effects of Moisture on the Structure on Earthen Layers Under Stress	Andrew Zhong	RCM
M710	The Effect of Different Sugar Concentrations on the Refraction of a Light	Srish Udayakumar	TPM
M711	What Wind Turbine Blade is the Most Efficient?	Benjamin Solomich	RCM
M712	How the Length of the Arm Affects How Far a Crossbow Fires	Justin Turbyfill	PLM
M713	Noise Reduction Using Household Materials	Lydia Ruan	RCM
M714	Using the SOHO Satellite to Measure and Identify Coronal Mass Ejections	Tete Narh-Mensah	AGM
		Khadeem Edwards	AGM
M715	How Does Temperature Affect the Strength of Magnets?	Saket Mishra	RCM
		Ricky Hong	RCM
M716	How Does the Launch Angle Affect How Far an Object Travels?	Jacqueline Nanas	PLM
M717	Correlation of Sunspot Cycles and Coronal Mass Ejection	Sareet Nayak	RCM
M718	May the [Electromagnetic] Force Be With You!	Kevin Nguyen	PLM
M719	An Array of Rays	Jesse Silverberg	TPM
M720	How Fast Can You Fall?	Alex Sena	RCM
M721	Conductivity and Resistance of Solutions	Jacob Palosky	TPM
M722	Fruit Battery Experiment	Preethi Prakash	RCM
M724	Building a Better Battery	Marzieh Kazemi	MCS
M725	Affect of Pivot Arm Length on Catapults	Jasmine Durgam	PLM
M726	Mirror, Mirror: Solving the Turned-Down Edge Optical Defect in Parabolic Reflecting Telescopes	Isaac Applebaum	ESM
		Elias Applebaum	ESM
M727	The Search for a Natural Power Plant: Sand, Soil, or Gravel	Mohammad Alam	FQM
M728	The Mpemba Effect: Can warmer water freeze faster than colder water?	Varun Gangadharan	RCM
M729	How Can I Make My Plane Flight Farther?	Kevin da Costa	RCM
M730	Batter Up!	Brendan Condron	HCS
M731	Sea Perch Material Testing	Albert Efremov	PLM
M732	Buoyancy Loss in Latex and Mylar Balloons	Michael Chu	TPM
M733	Freezing and the Mpemba Effect	Raven Devore	RCM
M735	How Thickness Effects Heat Insulation	Omer Diker	PLM
M736	Baby Safety	Ravindu Adiakrige	AGM
		Christian Marchello	AGM
M737	Analyzing Water Quality with Satellite Data	Matthew Kolodner	RCM
M738	Salty Signal Submarines	Brandon Hill	PLM



M739	Pitch Perfect	Anna Grover	PLM
M740	The Best Sound Barrier	Jason Juarez	PLM
M741	The Effect of Color on the Amount of Heat Absorbed	Sadhana Lolla	RCM
M742	The Effect of Liquid Type on Sound Produced by Wine Glasses	Evan Hu	RCM
M743	The Effect of the Type of Biofuel on Energy Efficiency	Anjali Gupta	TPM
		Sneha Ojha	TPM
M744	Elasticity vs. Temperature	Katheryn Huilca	PLM
M745	How Does Solar Cell Output Vary with Incident Light Intensity?	Dominic Manzella	AGM
M746	Effect of Solar Mass Loss on the Orbital Stability of Lagrangian Points L1, L2, L4 and L5 in Sun-Earth System	Kennedy Salamat	NBM
M747	Colorful Power	Maria Kutishcheva	RIM
M748	Effect of Wing Width on Flight of Paper Airplanes	Vincent Bian	RCM
M749	How Does Direction Affect Light Collected	Jacob Grossman	PLM

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& April 29, 2015  
Universities at Shady Grove,  
Rockville

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Rockville Science Center



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**STUDENTS IN THE SENIOR FAIR****BIOLOGY**

H201	Implementing the Methylcitrate Cycle into Eukaryotic Cells through Metabolic Pathway Reengineering	Connie Xu	BLH
H202	Personalized Risk Assessment for Obesity Based on Childhood Factors	Katherine Wu	BLH
H203	Development of Two Mouse Models of Kidney Dysfunction Observed in Diabetic and LCAT-Deficient Patients and the Evaluation of a New Approach for the Treatment of These Diseases	Clifford Sampson	NDH
H204	The Effect of Primary Murine Bone Marrow Endothelial Cells (mBMEC) on Bone Marrow (BM) Recovery from Ionizing Radiation	Siddharth Nayak	RMH
H205	Planaria: a Study of Animal Magnetism	Steven Lu Jonathan Huang	RMH RMH
H206	Efficiency of Ascorbic Acid vs. Tocopherol in the Retardation of Oxidative Discoloration in Haas Avocados	Michelle Fan	WHO
H207	Analyzing the Role of Endothelial Cells in Embryonic Liver Bud Formation Using Differential Gene Expression Data and Gene Ontology Analysis	Ethan Chen	BLH
H208	Effect of Cognitive Training on Memory Functioning	Sanyukta Deshmukh	WHO
H209	The Olfactory Receptor 65c Regulates Feeding Behavior and Lifespan in Fruit Fly <i>Drosophila</i>	Gerald Hou	CHH
H210	Drugs: Do They Always Hit Their Target or Sometimes Miss?	Vaishnavi Sesetty	POH
H211	Characterization of Antibodies Against a Novel Phosphorylation Site on ZAP-70	Prahlad Sarma	WHO
H212	Metabolic Profiling of the Different Subpopulations of Melanoma Cells	Ishaan Parikh	BLH
H213	Locating Novel Cancer Drug Targets Using Molecular Classification Algorithms and Network Analysis	Sanna Madan	POH
H214	Dominant Negative Inhibitors of Oncogenic STAT3 SH2 and Transactivation Domains	Jihoon Jang	POH
H215	Evaluation of Oxidative Stress Response Genes in FSHD Myoblasts	Nola Chen	BLH
H216	Investigating the CACCC Motif in Turnip Crinkle Virus Through Site-Directed Mutagenesis	Pamela Katali	BLH
H217	A Next-Generation Sequencing Approach to Single Cell Analysis of Metastatic Prostate Cancer: Identification of Androgen Receptor Splice Variants Driving Lethal Prostate Cancer	Katherine Mackall	WWH
H218	Risk Prediction Models for Breast Cancer and Testing Their Goodness-of-Fit	Shubham Chattopadhyay	BLH
H219	Developing a Novel, Cost Efficient Gene Gun	Shriyash Upadhyay	BLH
H220	Development of HTLV-1-based Gene Delivery Vehicle for Expression of Hemoglobin in Hematopoietic Stem Cells from Sickle Cell Patients	Andrew Wang	POH
H221	Computational and Topological Validation of Human Protein-Protein Interactions and Resultant Networks	Stephanie Rager	BLH
H222	Optimization of Serine Palmitoyltransferase Purification	Trishul Nagenalli	POH
H223	Reshaping the Vaccine Induced Immunity Using Live Attenuated <i>Leishmania donovani</i> Parasites	Tej Joshi Leyla Herbst	WHO CHH
H224	Creating a Customized Diet Plan for Patients with Hyperglycemia and Hypoglycemia by Determining and Analyzing Concentrations of Lactose, Sucrose, and Glucose	Divya Gandla	POH
H225	Effects of Exergaming on Energy Expenditure and Cognitive Function	Emma Walter	WJH



H226	Determining Changes in HuBChE Production Levels Based on Different Promoters Using Recombinant DNA Technology	Leslie Chen	BLH
H227	Prevention of Water-Body Eutrophication with Use of Denitrifying Bacteria	Desman Sumang Tremil Cain Gallienne Hack	BLH BLH BLH
H228	Constructing a Carcinogen Indicator Application Based on Statistical Analysis of Statewide Cancer Incidences in Relationship with Graphical Consumer Data	Yousuf Asfari Sarah Asfari	HS HS
H229	Association between Sleep Quality and Bedtime	Anne Li	WHO
H230	Tasting Shapes and Sounds: Does 'Synaesthetic' Messaging Differ in Obesity?	Kushi Ranganath Siri Ranganath	WHO WHO
H231	Mathematical Modeling and Brain Activations Characterize Differences in Human Pattern Recognition under Conditions of Ambiguous Feedback	Sreejan Kumar Parth Shah	POH Other

### CHEMISTRY

H301	The Effect of Applied Voltage on Electrolysis	Sriya Srikanth	POH
H302	Production, Isolation, and Purification of poly-N-acetylneuraminic Acid	Lauren Phillips	WWH
H303	Study of the Effect of pH on the Retention of Levo-Tetrahydropalmatine in Reversed-High Performance Liquid Chromatography	Danayt Alem	BLH
H304	Bacterial Nitrifying Efficiency	Binayak Bhattarai	BLH
H305	Infiltrate to Success	Shreya Khanna Thanushree Manjunath	POH POH
H306	Determination of Ascorbic Acid in Different Brands of Vitamin C Tablets	Mehana Daftary	BLH
H307	What Techniques are More Successful in Measuring the Sugar Content in Water?	Yash Atitkar Krishnan Guruvayurappan	NWH NWH
H308	Treatment Inducing Temperature Variant Permeability in Fabrics	Ameya Sampath	WHO

### COMPUTER SCIENCE AND MATHEMATICS

H401	Development of an Authorship Identification Algorithm for Twitter using Stylometric Techniques	Cherry Zou	POH
H402	Researching Quantum Computers and Qubits	Helena Buarque de Macedo	WWH
H403	A Real-Time Dictionary Based Algorithm: Face Recognition In Video	Diwakar Ganesan	POH
H404	Using Kullback-Leibler Divergence to Study the Effects of Vocal Tract Length Normalization on Dialect Differences in Vowel Speech Samples	Harini Salgado	BLH
H405	Developing Supervised Machine Learning Methods for the Extraction of Bibliographic Citations from Free Text	Agam Mittal	BLH
H406	Optimizing Nearest Neighbor Search Methods in High Dimensions Using Volume Overlap	Sachin Pandey	BLH
H407	The Effect of Bridge Shuffling on the Number of High Cards Present	Jacqueline Deprey	WHO
H408	Cylindric Young Tableaux and Their Properties	Eric Neyman	BLH
H409	Benchmarking of Conventional, Probabilistic, and Number-Theoretic Primality Tests	Yash Somaiya Calvin Kinzie	POH POH
H410	Application of Mathematical Models And Geometric Formulas To Predict Possible Locations of A Plane That Lost Connection To Its Nearest Satellite	Anish Thakker Vijay Dey	WHO WHO
H411	A Probabilistic Approach to Covering Problems	Antares Chen	BLH
H412	Combining Customer System Data and Standard Test Data in Intrusion Detection Systems to Improve Accuracy	James Liao	BLH

**ENGINEERING**

H501	Investigation of Autonomous and Tele-Op Robot for Improved Movement Control and Lifting	Frederick Xu	RMH
H502	Building a Remote Control Robotic Arm	Jackson Douglas	SVH
H503	The Effect of Winglets on Plane Takeoff	Mohammadreza Salimi	MCS
H504	An Innovative Refrigeration System for Vaccine Transportation to Remote Locations	Anurudh Ganesan	CHS
H505	Automatic Detection of Vascular Lesions of the Retina Using a Localized Adaptive Thresholding Approach	Elina Kapoor	CHH
H506	Effects of Hearing Protection Device Attenuation on UAV Audio Signatures	Melissa Bezandry	BLH

**PHYSICS**

H701	The Effect of Humidity on Star Count	Doga Tasdemir	WHO
H702	The Effect of Relative Humidity on Solar Cell Efficiency	Anusha Dixit	POH
H703	Tracking Geomagnetic Storms	Sreya Vangara	POH
H704	Measuring the Superconducting Energy Gap in Tunnel Junctions through Capacitive Coupling	Jared Marx-Kuo	BLH
H705	An Exploration of Gaseous Electrical Breakdown Curves in Homogeneous Mixtures of Two Gases	Noah Singer Elliot Kienzle Theo Tosini	BLH BLH BLH
H706	Flight Test - Payload Effect on Rocket Altitude	Vivek Uppoor	RMH
H707	Universal Scaling of Hadronic Interactions in Quantum Chromodynamics at Large $N_c$ with Quarks in the Antisymmetric Representation	Qingning Fan	BLH
H708	Ferrying the Fluid	Shraeya Madhu	POH



***ScienceMONTGOMERY's***  
**Scientific Review Committee**  
**would like to thank the**  
**students, teachers, volunteers and**  
**all of the local IRBs and SRCs**  
**for their efforts**

## **INTERESTED IN NEXT YEAR'S SCIENCE FAIR?**

**Are you supporting students with projects?**

**Check out the Intel ISEF Document Library for 2016 Rules,  
Guidelines, and Resources!**

Documents are usually updated by the end of May for the coming year.

E-mail *ScienceMONTGOMERY's* Scientific Review Committee  
*src@sciencemontgomery.org* any time with questions,  
or to ask for comments on a proposed research plan.



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## Join *ScienceMONTGOMERY* The Montgomery Area Science Fair Association (MASFA)

The Montgomery Area Science Fair Association is the organizational vehicle for the annual county science fair, *ScienceMONTGOMERY*, for public, parochial, private, and home school 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, 59 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:**

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**I would like to support MASFA with a contribution of      \$ \_\_\_\_\_**

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**Address:** \_\_\_\_\_

**Email address:** \_\_\_\_\_

**Completed forms can be mailed to:**

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- 7 attendees for Awards Ceremony

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- 5 Attendees at Awards Ceremony

**Cu****\$500-\$999 Copper (Cu) Sponsor**

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