

# Think Possible



## Intel International Science and Engineering Fair 2015 Program

May 10–15, 2015  
Pittsburgh, Pennsylvania



## Intel International Science and Engineering Fair



### About the Intel ISEF

The Intel International Science and Engineering Fair (Intel ISEF), a program of Society for Science & the Public, is the world's largest international pre-college science competition. The Intel ISEF is the premier science competition in the world and provides a forum for approximately 1,700 high school students from more than 75 countries, regions and territories to showcase their independent research annually. Each year, millions of students worldwide compete in local science fairs; winners go on to participate in Intel ISEF-affiliated regional, state and national fairs to earn the opportunity to attend the Intel ISEF. Uniting these top young scientific minds, the Intel ISEF provides the opportunity to finalists to display their talent on an international stage, while enabling them to submit their work for judging by doctoral-level scientists. The Intel ISEF provides awards of about \$4 million in prizes and scholarships annually.

# Intel International Science and Engineering Fair 2015

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## Intel Corporation

### Wendy Hawkins

#### Executive Director, Intel Foundation

To Intel ISEF Finalists, Educators, Families, and Fair Directors:

On behalf of Intel Foundation, congratulations to all of you for all that you have accomplished in getting here to Pittsburgh and the Intel International Science and Engineering Fair, and welcome to what I hope – and fully expect – will be one of the most memorable weeks of your life. It will be a week of... CONNECTIONS

Here in Pittsburgh there are more bridges connecting one part of the city to another than in Venice, Italy – as you will probably hear many times over during your stay! The symbolism will be impossible to ignore during this week at Intel ISEF. Some of the connections I hope you will forge:

- **Human connections** between you and the other finalists, educators, or fair directors, who are here with exciting research projects, science programs, and competitions that you can learn from, ideas you can exchange. But first and foremost, simply people to meet and enjoy. Take the time to do exactly that.
- **Scientific connections** linking your research with that of others. The fresh perspectives from scientists in so many fields, from so many different environments will enrich your point of view in ways you can't imagine. Talk to people about ideas, even if it means struggling with a different language... *especially* if it means struggling with a different language. Those are moments you will remember most vividly.
- **International connections** forming the beginning of that global network of scientists you will share your ideas with and tap into for support and advice in years to come: visiting, collaborating, discussing, and challenging one another to push the boundaries of what is known. Don't limit yourself and your scientific possibilities by geographic boundaries – take full advantage of this early opportunity to explore the entire world of science and research.

One of the reasons we at Intel are so committed to sponsoring Intel ISEF is to build ever stronger connections for young engineers and scientists to the exciting challenges we see all around us. The engineers and scientists who are here with you this week as fair organizers, mentors and educators, and who will be speaking to you – scientist-to-scientist – as judges, are here for that reason as well.

On Thursday, you will have the opportunity to take the senior scientist role in that equation when we have several thousand young visitors from schools here in Pittsburgh. *They* are excited to meet you: celebrity scientists and engineers from around the world, the really cool young men and women that they would love to be themselves. Take the time to tell them about yourselves, your research, and your experiences as scientists and engineers. You have a chance to change the world, connecting with one 11- or 12-year old at a time.

So good luck, have a lot of fun, and make this the most memorable week possible for yourself and everyone you connect with.

Warm Regards,

Wendy Hawkins  
Executive Director  
Intel Foundation

# Society for Science & the Public

Maya Ajmera  
President and CEO  
Publisher, *Science News*



Welcome from the Society for Science & the Public

Welcome to the Intel International Science and Engineering Fair 2015!

While SSP has hosted this event since 1950, like many of you, this will be my first time attending Intel ISEF! I have been told there is really nothing like experiencing the fair first-hand and I am thrilled to be sharing the excitement of the week's activities with each of you. I plan to take full advantage of this wonderful opportunity to be surrounded by the top young researchers from around the world, and to learn about your fantastic research and your ideas for the future of science, technology, engineering, and mathematics (STEM). And I hope you do, too.

As a high school student I participated in science fairs too, so I know how rewarding it is to be surrounded by your peers and experts in the field who are as interested in STEM as you are. My request for you this week is to immerse yourself with your fellow finalists ... learn about their research, what inspires them, and how their vision for the future compares to yours. Then, stay in touch; because as a group our Intel ISEF 2015 alumni class will go on to do amazing things.

With my colleagues at the Society, I congratulate you on the hard work, dedication and resourcefulness it has taken you to get here. I hope that you will also enjoy the moment and the celebration.

I also encourage you to thank the people that helped you get here –the educators, parents and mentors who have supported you throughout the years. It takes a true community to develop and nurture talent like yours, and we deeply appreciate their efforts.

We also gratefully acknowledge the Intel Foundation and Intel Corporation for their continued most special partnership with SSP around the Intel ISEF. And we thank the many organizations that have provided support and awards for Intel ISEF 2015, as well as the nearly two thousand hard-working Intel ISEF volunteers and judges in Pittsburgh and around the country who truly make this event possible.

I hope all of you have a wonderful time at Intel ISEF 2015!

Sincerely,

A handwritten signature in dark ink that reads "Maya Ajmera". The script is fluid and cursive.

Maya Ajmera  
President & CEO, Society for Science & the Public  
Publisher, *Science News*



## State of Pennsylvania

Tom Wolf

Governor



COMMONWEALTH OF PENNSYLVANIA  
OFFICE OF THE GOVERNOR

### GREETINGS:

It is my pleasure to join with the Society for Science & the Public to welcome everyone to Pittsburgh for the Intel International Science and Engineering Fair.

Science and engineering have been cornerstones of the Commonwealth's economy for generations. Pittsburgh's very first bridges were constructed during the Revolutionary War; the coal, iron and steel industries thrived as the nation progressed into the 20<sup>th</sup> century; and today, Pennsylvania is home to world-class research universities. I commend these students for their outstanding achievements thus far. The opportunity to connect with other young scientific minds as well as doctoral-level scientists will undoubtedly create new and important relationships. As we navigate the 21<sup>st</sup> century economy, excellence in science and engineering is essential to our progress. I applaud the Society for Science & the Public and Intel for their dedication to advancing young people in the industry and inspiring the next generation of leaders. I am certain that the finalists will continue to have a positive impact across the Commonwealth, nation and world for many years to come.

As Governor, and on behalf of all citizens of the Commonwealth of Pennsylvania, I am delighted to offer congratulations and best wishes for continued success.



*Tom Wolf*  
TOM WOLF  
Governor

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City of Pittsburgh  
William Peduto  
Mayor



CITY OF PITTSBURGH

"AMERICA'S MOST LIVABLE CITY"

May 10, 2015

Dear Friends,

On behalf of the City of Pittsburgh, welcome! We are so pleased that the Society for Science & the Public is holding its 2015 Intel International Science and Engineering Fair in Pittsburgh.

It is fitting that Pittsburgh be the host city for this prestigious event: The Pittsburgh region has transformed itself with a balanced, innovation-driven economy based upon historic strengths in advanced manufacturing, information and communications technology, health care and life sciences, higher education and research, financial services and energy solutions.

I'm happy to say that Pittsburgh was named the "Smartest City in the United States," according to Motovo, an online real estate company that looked at universities and colleges per person, libraries per person, education levels, news media outlets, museums and public school rank. In fact, the Pittsburgh region is home to 22 outstanding universities, world-class medical facilities, a diverse economy and cutting-edge research and technology labs.

You'll find that the business sectors of technology, finance and industry are infused with a vibrant cultural scene that celebrates arts from around the world. I invite you to explore our beautiful city while you're here for this important event.

Venture out into our friendly neighborhoods. Take a ride on the historic inclines to see the breathtaking view from Mt. Washington – ranked among the most beautiful views in America. Visit our world-class museums, which offer everything from rare dinosaur bones to famous Andy Warhol paintings. See a performance in our Cultural District where spectacular shows and cutting-edge galleries can be enjoyed. Downtown, the heart of our City, offers unique dining and shopping experiences. Stroll through the historic Market Square – a newly designed, European-style plaza and then head to Point State Park, the only state park located in an urban setting.

As you experience Pittsburgh, you will find that it is a revitalized city that has been transformed through job creation, impressive neighborhood development, and a thriving and innovative high-tech economy. Pittsburgh today is a growing city, a younger city, and an educated city. Now is truly an exciting time to visit Pittsburgh!

I hope that you enjoy your stay in Pittsburgh – a city that keeps surprising people from all over the world. And, best wishes to all of you for the best Intel ISEF yet!

Sincerely,

William Peduto  
Mayor, City of Pittsburgh

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Phone: 412-255-2626 Fax: 412-255-2687



[pittsburghpa.gov](http://pittsburghpa.gov)

[facebook.com/TheNextPGH](https://www.facebook.com/TheNextPGH)

[@TheNextPGH](https://twitter.com/TheNextPGH)

[TheNextPittsburgh](https://www.youtube.com/user/TheNextPittsburgh)

Welcome from the Mayor of Pittsburgh





## Allegheny County Rich Fitzgerald County Executive



May 2015

Dear Friends:

On behalf of Allegheny County, it is my pleasure to welcome you to Allegheny County for the Intel International Science and Engineering Fair (Intel ISEF). I am excited that the Society for Science & the Public has once again selected Pittsburgh as the location for the Fair and hope that you enjoy your time in our community.

As an engineer myself, I am proud of the tremendous growth our region has experienced due in large part to technology. Our economy, while once known for our steel mills, has diversified to include many high-tech industries and medical and educational facilities, among many other industries. There are currently more than 800 firms and over 100,000 people involved in the advanced technology industry in the Allegheny County region. Additionally, our region has also seen a shift toward "green" technology and architecture. This summer, the Tower at PNC Plaza will open in downtown Pittsburgh and will be the world's greenest skyscraper.

A variety of activities and opportunities found in our area ensure that there is something that interests everyone who visits. Allegheny County offers both a taste of the city, through downtown Pittsburgh and its unique neighborhoods, as well as more rural areas, boasting beautiful landscapes and nature. This region has a well known cultural district, various museums, sports teams, parks, and historical sites. While you are here, I encourage you to fully embrace everything that our community has to offer.

Congratulations to each of the participants at the Intel ISEF. I wish you the best of luck as you participate in the world's largest pre-college science competition, and look forward to the many great things each of you will accomplish in the future.

Sincerely,

*Rich Fitzgerald*  
Rich Fitzgerald

### OFFICE OF THE COUNTY EXECUTIVE

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## About Pittsburgh

As authentic as it is awesome, the strength of Pittsburgh lies in the friendliness of its people and the beauty of its landscape. Add award-winning chefs, eclectic art galleries, one-of-a-kind venues and world-class attractions all conveniently located within walking distance of the David L. Lawrence Convention Center, and you'll find that Pittsburgh makes for one of the most ideal meeting destinations in the country.

It's no wonder that *Condé Nast Traveler* named Pittsburgh among the top three places in the world to go to in 2015. A safe, walkable downtown allows for convenient free-time options. Delegates can see a show at any of the nine Cultural District theaters, shop in unique boutiques, wander through art galleries and be amazed at The Andy Warhol Museum.

Yes, Pittsburgh is packed with possibilities — and boasts 200-plus restaurants all within easy walking distance of the Convention Center. Attendees will also appreciate the spacious public parks, and the warm, friendly feeling they'll get as visitors and residents stroll through city streets that are known for public art and incredible architecture.

Nightlife features easily walkable hot spots in Market Square, the North Shore. Jazz joints bob to the beat of world-class musicians. And, nationally acclaimed chefs are plating creative, hand-crafted dishes at award-winning restaurants.

The new Pittsburgh is “a world away from its dirty industrial past, [the city] has transformed itself into a top travel destination,” reports *Travel + Escape* magazine.

Pittsburgh's rolling hills, shimmering rivers and stunning skyline will delight. “The Pittsburgh skyline is a scene right out of a Hollywood movie,” said *Travel Adventures*. For an invigorating jog, walk or bike, just select any starting point along the city's 24 miles of scenic riverfront trails.

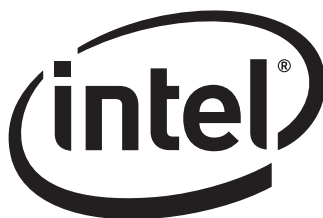
The David L. Lawrence Convention Center makes sustainable meetings a reality. It's the first—and only—Gold and Platinum LEED-certified convention center in the United States. The Convention Center is functional as well as beautiful, too. On the cutting edge of design, this innovative structure by Rafael Viñoly Architects connects the urban city to the waterfront overlooking the Allegheny River. The architecturally stunning building symbolizes this region's commitment to sustainable development and environmental awareness.

No question. Pittsburgh is an ideal place to visit. For more details, go to [visitpittsburgh.com](http://visitpittsburgh.com).

Society for Science & the Public (SSP)  
acknowledges with gratitude

**Intel Corporation**  
and  
**Intel Foundation**

for their support of the Intel ISEF 2015.



In the last decade, Intel has invested more than \$1 billion, and Intel employees have donated over four million volunteer hours, to improve education in more than 75 countries, regions and territories.

Intel is actively involved in education programs, advocacy, and technology access to help tomorrow's innovators.

Intel is proud to serve as the title sponsor of the Intel International Science and Engineering Fair through 2019.



## Gordon E. Moore Award

Gordon E. Moore co-founded Intel Corporation in 1968, serving as president and CEO as well as Chairman of the Board before his retirement in 1997. With degrees in chemistry and physics from University of California, Berkeley (B.S.) and Caltech (Ph.D.), Moore is widely known for “Moore’s Law,” the driving pulse of the semiconductor industry. He and his wife, Betty Moore, have created the Gordon & Betty Moore Foundation and are among the world’s most generous philanthropists. He is widely admired for his technical leadership and his role as one of the creators of today’s Silicon Valley, as well as for his ongoing philanthropic role supporting environmental efforts and science education and research.

The Gordon E. Moore Award recognizes the best of the Best of Category among the outstanding students from around the world who participate in the Intel International Science and Engineering Fair. The winning project is selected on the basis of outstanding and innovative research, as well as on the work’s potential in the winner’s field and on the world at large.

This year, on the 50th anniversary of Moore’s law, Intel Foundation is proud to present the Gordon E. Moore Award, as well as a prize of \$75,000, to the Intel International Science and Engineering Fair 2015 winner.

As a result of their excellent performance at an Intel ISEF-affiliated fair at a local, regional, or national level this year, approximately 1,700 students earned finalist status at the Intel ISEF 2015 in Pittsburgh.

Finalists will compete for more than \$5 million in awards and prizes, will be judged on their creative ability and scientific thought, as well as the thoroughness, skill and clarity shown in their projects.

## **2015 Grand Awards include:**

### **Gordon E. Moore Award**

Intel and SSP are pleased to present an award of \$75,000 to the top Best of Category project.

The Gordon E. Moore Award recognizes the Best of the Best among the outstanding students from around the world who participate in Intel ISEF. The winning project is selected on the basis of outstanding and innovative research, as well as on the potential impact of the work—in the field and on the world at large.

### **Intel Foundation Young Scientist Award**

Intel and SSP will present \$50,000 to two Best of Category projects. These finalists will be selected for their commitment to innovation in tackling challenging scientific questions, using authentic research practices, and creating solutions to the problems of tomorrow.

### **Intel Foundation Cultural and Scientific Visit to China Award**

The Intel Foundation is partnering with China Adolescents for Science and Technology (CAST) to award a trip to the Chinese cities of Beijing, Chengdu and Hong Kong. Winners will attend the CAST Innovation Contest, the largest national science competition in China, and have the opportunity to visit the Chengdu Panda Research base as well as other science education institutes, research centers, middle schools and universities in China. Winners will exchange ideas with Chinese scientists and like-minded peers.

### **Dudley R. Herschbach SIYSS Award**

Three finalists will win an all-expense-paid trip to attend the Stockholm International Youth Science Seminar (SIYSS), which includes attendance at the Nobel Prize ceremonies, in Stockholm, Sweden. This award is named for Dudley R. Herschbach, Harvard Professor and 1986 Nobel Laureate in Chemistry. He is Board Chairman Emeritus of Society for Science & the Public.

### **Intel and Indo-US Science & Technology Forum Visit to India Award**

In partnership with the Indo-U.S. Science and Technology Forum, Intel is pleased to award a scientific and cultural exchange visit to India. Winners will showcase their research projects at the National Fair of India—Initiative in Research and Innovation in Science (IRIS). In addition to participation at IRIS, the students will receive an opportunity to visit research institutions and universities and interact with the key scientific leadership in India.

### **European Union Contest for Young Scientists Award**

An all-expense-paid trip enables attendance at the European Union Contest for Young Scientists to be held in Milan, Italy in 2015.

### **Innovation Exploration Award**

Jet Propulsion Laboratory (JPL) was established in 1944 by Caltech, one of the world's premier scientific and technical universities whose mission is to expand human knowledge and benefit society through research integrated with education. Students will be a part of a behind-the-scenes visit to JPL in Pasadena, California, and visit world renowned California Institute of Technology (Caltech), meet with scientists, present their own work and see what is next in space exploration.

### **London International Youth Science Forum – Philip V. Streich Memorial Award**

The Philip V. Streich Memorial Award offers an opportunity for student participation in the London International Youth Science Forum, an international event that attracts science students from around the world.

### **Massachusetts Institute of Technology – Lincoln Laboratory, Ceres Connection**

The names of first and second place category award winners at Intel ISEF will be submitted to the International Astronomical Union (IAU) for a once in a lifetime naming of a minor planet. All minor planets in the Ceres Connection have been discovered by the Lincoln Near Earth Asteroid Research (LINEAR) program, operated by MIT's Lincoln Laboratory.

### **Intel ISEF Best of Category Award**

Intel will present Best of Category project winners with \$5,000. Additionally, a \$1,000 grant will be given to the finalist's school and the Intel ISEF-affiliated fair they represent.

### **Intel ISEF Grand Award**

Presented in each of the 20 Intel ISEF categories, Grand Awards are given for:

- 1st Place—\$3,000 cash award
- 2nd Place—\$1,500 cash award
- 3rd Place—\$1,000 cash award
- 4th Place—\$500 cash award

*Monetary awards are allocated by project, not by number of finalists winning the award. For example, a three-person team project that wins first place will win \$3,000, to be split evenly among the team members.*

SSP and Intel thank the following organizations for their generous support of the Intel ISEF 2015 Education Outreach Program to be attended by more than 4,000 local middle and high school students and their teachers.

**Alcoa Foundation**  
**Bayer USA Foundation**  
**Broadcom Foundation**  
**The Buhl Foundation**  
**Expil**  
**GoDaddy**  
**The Grable Foundation**  
**The Heinz Endowments**  
**Hillman Family Foundations**  
**Kennametal Inc.**  
**PPG Industries Foundation**  
**Ricoh Americas Corporation**  
**United States Steel Corporation**  
**Dr. Nelson Ying**

The sponsors are proud to support students and hope their participation will inspire them and their teachers, parents, scientists and others.







# THE FUTURE IS BRIGHT

Congratulations to past winners of the Intel International Science and Engineering Fair (Intel ISEF), a program of Society for Science and the Public. Finalists have gone on to do amazing things, start nonprofits around the world, win awards such as the MacArthur “Genius” award, start successful companies, and become professors at major universities.

Intel's commitment to education ranges from science competitions that encourage young thinkers, scientists, and entrepreneurs, to collaborative programs with educational and governmental organizations.



By empowering students around the world, Intel isn't just enabling them to succeed in the global economy—we're creating the next great wave of world-changing innovators.

See what's happening at Intel ISEF: [intel.com/innovators](http://intel.com/innovators)

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Intel ISEF 2015 Special Award Organizations provide education scholarships, cash awards, summer internships, scientific field trips, and equipment grants. Intel and SSP thank the following organizations for their support of the Intel ISEF.

Acoustical Society of America  
 ADA Foundation  
 Alcoa Foundation  
 American Association of Pharmaceutical Scientists  
 American Chemical Society  
 American Committee for the Weizmann Institute of Science  
 American Geosciences Institute  
 American Intellectual Property Law Association  
 American Mathematical Society  
 American Meteorological Society  
 American Physiological Society  
 American Psychological Association  
 American Society for Horticultural Science  
 American Society for Microbiology  
 American Statistical Association  
 Arizona State University  
 Ashtavadhani Vidwan Ambati Subbaraya Chetty Foundation  
 Association for Computing Machinery  
 Association for the Advancement of Artificial Intelligence  
 Astronomical Society of the Pacific and the American Astronomical Society  
 ASU Rob and Melani Walton Sustainability Solutions Initiatives  
 Carnegie Mellon University Leonard Gelfand Center for Service Learning and Outreach  
 China Association for Science and Technology (CAST)  
 Coalition for Plasma Science (CPS)  
 Consortium for Ocean Leadership  
 Drexel University  
 European Organization for Nuclear Research-CERN  
 Florida Institute of Technology  
 Fondazione Bruno Kessler  
 GoDaddy

Google  
 IEEE Foundation  
 Intel Foundation  
 International Council on Systems Engineering - INCOSE  
 K. Soumyanath Memorial Award  
 K. T. Li Foundation Special Award  
 King Abdul-Aziz & his Companions Foundation for  
 Giftedness and Creativity  
 London International Youth Science Forum –  
 The Philip V. Streich Memorial Award  
 Monsanto Company  
 Mu Alpha Theta, National High School and Two-Year College  
 Mathematics Honor Society  
 National Aeronautics and Space Administration  
 National Anti-Vivisection Society  
 National Institute on Drug Abuse,  
 National Institutes of Health & the Friends of NIDA  
 National Oceanic and Atmospheric Administration - NOAA  
 NSA Research Directorate  
 Office of Naval Research on behalf of the  
 United States Navy and Marine Corps  
 Oracle Academy  
 Patent and Trademark Office Society  
 Psi Chi, The International Honor Society in Psychology  
 Ricoh Americas Corporation  
 Sigma Xi, The Scientific Research Society  
 Society for Experimental Mechanics, Inc.  
 Society of Experimental Test Pilots  
 Society of Exploration Geophysicists  
 Spectroscopy Society of Pittsburgh  
 SPIE, the international society for optics and photonics  
 Thirty Meter Telescope  
 U.S. Agency for International Development  
 United States Environmental Protection Agency  
 United States Steel Corporation  
 United Technologies Corporation  
 University of the Sciences in Philadelphia  
 West Virginia University  
 Wolfram Research, Inc.

All Intel ISEF 2015 events take place at the  
David L. Lawrence Convention Center  
unless otherwise noted.

Event/Group	Location	Day
Advisory Council Meeting	413/414	5/10–5/11, 5/13–5/14
AP Testing	CAPA, 111 9th St.	5/11–5/12
Excellence in Science & Technology Panel	Hall A	5/15
Finalist Resource Center	403/404	5/10–5/12
Grand Awards Ceremony	Hall A	5/18
Housing Information	Registration Complex	5/9–5/14
HUB (Center of Exhibit Hall)	Halls B, D/E	5/10–5/15
IB Testing	Westin–Cambria	5/11–5/15
Intel Lounge	2nd Floor, Concourse A	5/10–5/14
Intel Quad	3rd Floor, East Atrium	5/10–5/14
Intel ISEF 2015 EXPO	Ballroom B	5/11–5/12, 5/14
International/Volunteer Office	306	5/8–5/15
Locator Card Kiosk	Registration Complex	5/9–5/12
Lost and Found	HUB and Registration Complex	5/10–5/15
Medals and Certificates	Registration Complex	5/9–5/14
Official Party Registration	2nd Floor Concourse	5/9–5/15
Opening Dinner	Spirit of Pittsburgh Ballroom A	5/11
Opening Ceremony	Hall A	5/11
Press Room	333	5/10–5/15
Project Exhibits	Halls B, D/E	5/10–5/15
Public Visitation	Halls B, D/E	5/14
Retail Store	Lobby	5/9–5/15
Scientific Review Committee (SRC)	401/402	5/10–5/11
Society for Science & the Public Office	Registration Complex	5/9–5/14
Special Award Ceremony	Hall A	5/14
Student Observer Caucus	Westin – Allegheny 2&3	5/10
Student Pin Exchange ( <i>Finalist and Student Observers Only</i> )	Wyndham Grand Hotel – Kings Garden and Grand Ballroom	5/10
Symposia	403/404, 407–412	5/11–5/14
VisitPittsburgh Booth	2nd Floor Concourse	5/9–5/15

Visit [student.societyforscience.org/attendees](http://student.societyforscience.org/attendees) for schedule updates throughout the week.

## Open Daily

### Exhibit Halls and the HUB

Sunday (Project Set-up and D&S Inspections)	8:00 a.m.–8:00 p.m. ~OFP
Monday (Project Set-up and D&S Inspections)	8:00 a.m.–6:00 p.m. ~OFP
Tuesday	8:00 a.m.–9:30 a.m. ~Finalists with Infractions only 9:30 a.m.–11:30 a.m. ~Finalists only for Press/PR purposes
Wednesday	8:15 a.m.–11:45 a.m., 1:00 p.m.–3:45 p.m., 4:15 p.m.–6:00 p.m. ~Finalists & Judges only
Thursday	9:00 a.m.–9:00 p.m. ~Public Visitation Day
Friday	11:00 a.m.–2:00 p.m. ~OFP

### Finalist Resource Center

Sunday–Monday	403/404 8:00 a.m.–9:00 p.m.
Tuesday	8:00 a.m.–Noon

### Intel Lounge

Sunday	2nd Floor, Concourse A 10:00 a.m.–7:00 p.m.
Monday	8:00 a.m.–5:30 p.m.
Tuesday–Thursday	8:00 a.m.–6:00 p.m.

### Intel Quad

Sunday	3rd Floor, East Atrium 10:00 a.m.–7:00 p.m.
Monday	8:00 a.m.–5:30 p.m.
Tuesday–Thursday	8:00 a.m.–6:00 p.m.

### Intel ISEF 2015 EXPO–Exhibitor booths

Monday	Ballroom B 2:00 p.m.–6:00 p.m.
Tuesday	9:00 a.m.–5:00 p.m.
Thursday	8:00 a.m.–5:00 p.m.

### International/Volunteer Office

Friday	309 7:30 a.m.–5:00 p.m.
Saturday	7:30 a.m.–6:00 p.m.
Sunday	7:30 a.m.–9:00 p.m.
Monday–Tuesday	7:30 a.m.–10:00 p.m.
Wednesday	6:30 a.m.–7:00 p.m.
Thursday	7:00 a.m.–7:00 p.m.
Friday	7:00 a.m.–11:00 a.m.

### Official Party Registration

Saturday	2nd Floor Concourse 3:00 p.m.–6:00 p.m.
Sunday–Tuesday	8:00 a.m.–9:00 p.m.
Wednesday	7:00 a.m.–9:00 p.m.
Thursday	8:00 a.m.–7:00 p.m.
Friday	7:00 a.m.–9:00 a.m.

### Retail Store

Saturday	Lobby 3:00 p.m.–6:00 p.m.
Sunday–Monday, Thursday	8:00 a.m.–7:00 p.m.
Tuesday–Wednesday	8:00 a.m.–6:00 p.m.
Friday	8:00 a.m.–2:00 p.m.

### VisitPittsburgh Information Booth/Tours

Saturday	2nd Floor Concourse 2:00 p.m.–6:00 p.m.
Sunday–Tuesday	8:00 a.m.–7:00 p.m.
Wednesday–Thursday	8:00 a.m.–5:00 p.m.
Friday	Noon–2:00 p.m.

### Auditorium Safety

Sticks and large flags are prohibited during the awards ceremonies. Please do not bring flags or state symbols on stage during the presentation of awards. Sticks from flags will be confiscated at the door.

### Hotel Safety

- Do not answer the door in a hotel room without verifying who it is. If a person claims to be an employee, call the front desk and ask if someone from their staff is supposed to have access to your room and for what purpose.
- Always walk in groups.
- Use hotel main entrance when returning to your hotel late in the evening.
- Be observant and look around before entering parking lots.
- Close the door securely whenever you are in your hotel room and use the locks.
- Don't needlessly display guestroom keys or convention badges in public.
- Do not carry large amounts of cash or expensive jewelry.
- Do not invite strangers to your hotel room.
- Avoid bringing valuables to the Intel ISEF. Anything that is brought should be placed in the hotel's safe deposit box.
- Make sure sliding glass doors and any connecting room doors are locked.
- Report any suspicious activity to management.

### Hotels

Hotels	Address	Phone
Cambria Suites	1320 Center Avenue	(412) 381-6687
Courtyard Pittsburgh	945 Penn Avenue	(412) 434-5551
Doubletree Hotel and Suites	One Bigelow Square	(412) 281-5800
Fairmont Pittsburgh	510 Market Street	(412) 773-8800
Hampton Inn and Suites	1247 Smallman Street	(412) 288-4350
Hotel Monaco	620 William Penn Place	(412) 471-1170
Hyatt Place North Shore	260 N. Shore Drive	(412) 321-3000
Omni William Penn	520 William Penn Place	(412) 281-7100
Pittsburgh Marriott City Center	112 Washington Place	(412) 471-4000
Renaissance Pittsburgh	107 6th Street	(412) 562-1200
Residence Inn North Shore	574 W. General Robinson	(412) 321-2099
Sheraton Station Square	300 W. Station Square Drive	(412) 261-2000
SpringHill Suites North Shore	223 Federal Street	(412) 323-9005
Westin Convention Center	1000 Penn Avenue	(412) 281-3700
Wyndham Grand	600 Commonwealth Place	(412) 391-4600

### About the David L. Lawrence Convention Center

Intel ISEF participants must wear their name badges to participate in fair activities and events. Admission to the David L. Lawrence Convention Center is restricted to persons wearing an Intel ISEF name badge.

The Convention Center is a smoke-free environment. Outside food and beverages are prohibited in the Convention Center.

**By entering the Intel International Science and Engineering Fair 2015 (Intel ISEF), you agree that you may be filmed or photographed for use in various promotional materials.**

**Please do not provide handouts or other materials at Intel ISEF, unless authorized in writing by SSP.**



# EPA SCIENCE



## ***Are you using science & engineering to solve environmental problems?***

If your Intel ISEF project demonstrates a commitment to sustainability & environmental stewardship, you might be our 2015 Patrick H. Hurd Sustainability Award winner!

## **After Intel ISEF keep the scientific conversation going!**

Follow us on Twitter: [@EPAresearch](https://twitter.com/EPAresearch) 

Like us on Facebook: [www.facebook.com/EPAresearch](https://www.facebook.com/EPAresearch) 

Comment on our It All Starts with Science blog: [blog.epa.gov/science](http://blog.epa.gov/science)

**U.S. Environmental Protection Agency • Office of Research & Development • [www.epa.gov/research](http://www.epa.gov/research)**

## **Visit the Intel ISEF 2015 EXPO David L. Lawrence Convention Center Spirit of Pittsburgh Ballroom B**



Join us at the Intel ISEF EXPO to interact and engage with industry, academic and community organizations.



We encourage you to stop by the EXPO in Spirit of Pittsburgh Ballroom B:

Monday, May 11	2:00 p.m. – 6:00 p.m.
Tuesday, May 12	9:00 a.m. – 5:00 p.m.
Free refreshments served	9:00 a.m. – 11:00 a.m.
Thursday, May 14	8:00 a.m. – 5:00 p.m.



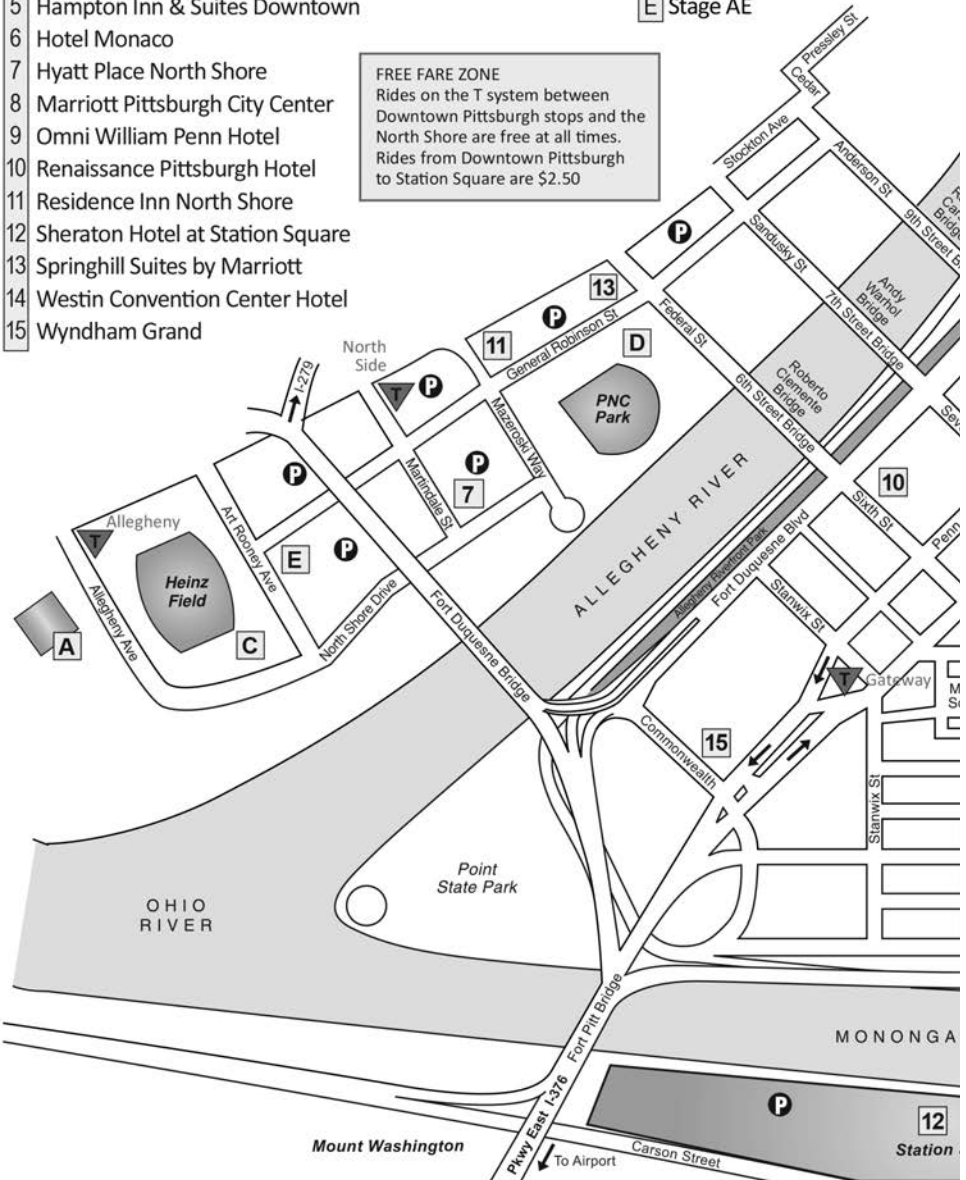
# DOWNTOWN PITTSBURGH HOTELS

- 1 Cambria Suites at CONSOL Energy Center
- 2 Courtyard by Marriott
- 3 Doubletree by Hilton Hotel & Suites
- 4 Fairmont Pittsburgh
- 5 Hampton Inn & Suites Downtown
- 6 Hotel Monaco
- 7 Hyatt Place North Shore
- 8 Marriott Pittsburgh City Center
- 9 Omni William Penn Hotel
- 10 Renaissance Pittsburgh Hotel
- 11 Residence Inn North Shore
- 12 Sheraton Hotel at Station Square
- 13 Springhill Suites by Marriott
- 14 Westin Convention Center Hotel
- 15 Wyndham Grand

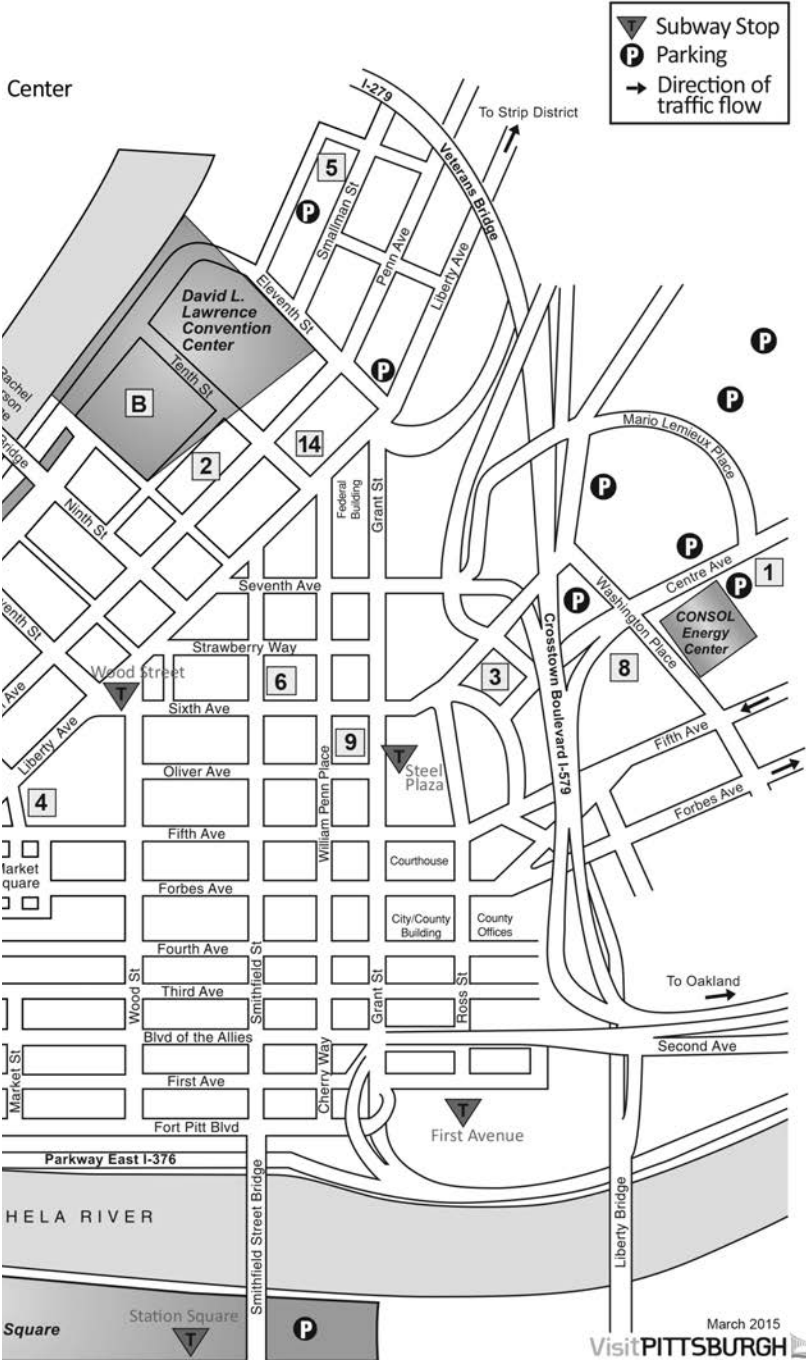
# FACILITIES

- A Carnegie Science Center
- B David L. Lawrence Convention
- C Heinz Field
- D PNC Park
- E Stage AE

**FREE FARE ZONE**  
Rides on the T system between Downtown Pittsburgh stops and the North Shore are free at all times. Rides from Downtown Pittsburgh to Station Square are \$2.50



# Pittsburgh City Map



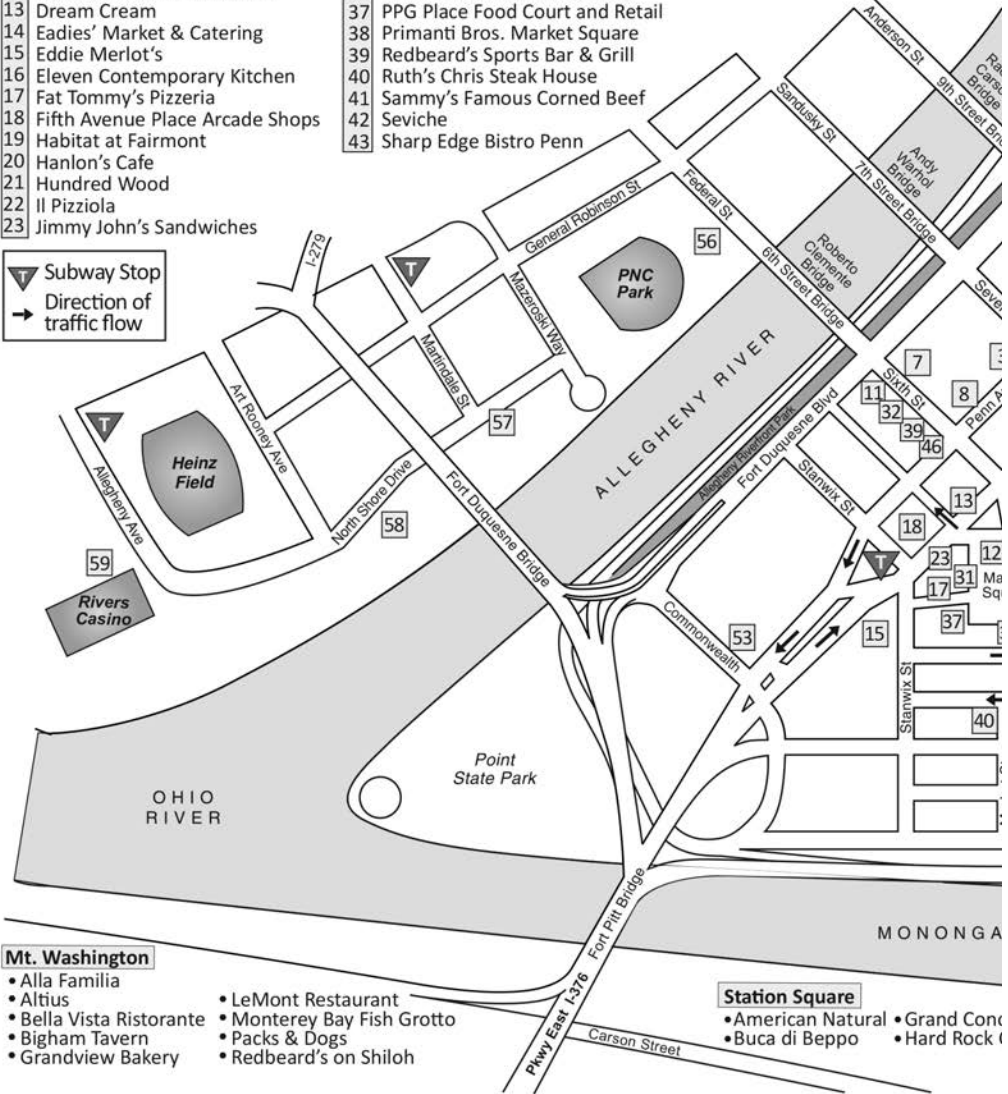
Walkable Dining Options from Pittsburgh's David L. Lawrence Convention Center

Downtown

- 1 Andys at Fairmont
- 2 August Henry's City Saloon
- 3 Backstage Bar at Theater Square
- 4 Bigelow Grille at Doubletree
- 5 Bill's Bar & Burger
- 6 Blue Line Grille
- 7 Braddock's American Brasserie
- 8 Bravo Franco
- 9 Capital Grille of Pittsburgh
- 10 Carlton Restaurant
- 11 Christos Mediterranean Grille
- 12 Diamond Market Bar & Grill
- 13 Dream Cream
- 14 Eadies' Market & Catering
- 15 Eddie Merlot's
- 16 Eleven Contemporary Kitchen
- 17 Fat Tommy's Pizzeria
- 18 Fifth Avenue Place Arcade Shops
- 19 Habitat at Fairmont
- 20 Hanlon's Cafe
- 21 Hundred Wood
- 22 Il Pizziola
- 23 Jimmy John's Sandwiches

- 24 Lidia's Pittsburgh
- 25 McCormick & Schmick's Seafood
- 26 Moe's Southwest Grill
- 27 Monte Cello's Pizza
- 28 Morton's The Steakhouse
- 29 Nicky's Thai Kitchen
- 30 Nine on Nine
- 31 NOLA on the Square
- 32 Olive or Twist
- 33 Original Oyster House
- 34 Palm Court at Omni
- 35 Penn City Grille at Westin
- 36 Penn Station East Coast Subs
- 37 PPG Place Food Court and Retail
- 38 Primanti Bros. Market Square
- 39 Redbeard's Sports Bar & Grill
- 40 Ruth's Chris Steak House
- 41 Sammy's Famous Corned Beef
- 42 Sevice
- 43 Sharp Edge Bistro Penn

- 44 Sienna Mercato
- 45 Sinful Sweets Chocolate
- 46 Six Penn Kitchen
- 47 Sonoma Grille
- 48 Steelhead Brasserie & Wine Bar
- 49 Subway Restaurant
- 50 Tap/Terrace Room at Omni
- 51 Ten Penny
- 52 The Commoner
- 53 Three Rivers Restaurant
- 54 Tonic Bar & Grill
- 55 Vallozzi's Pittsburgh





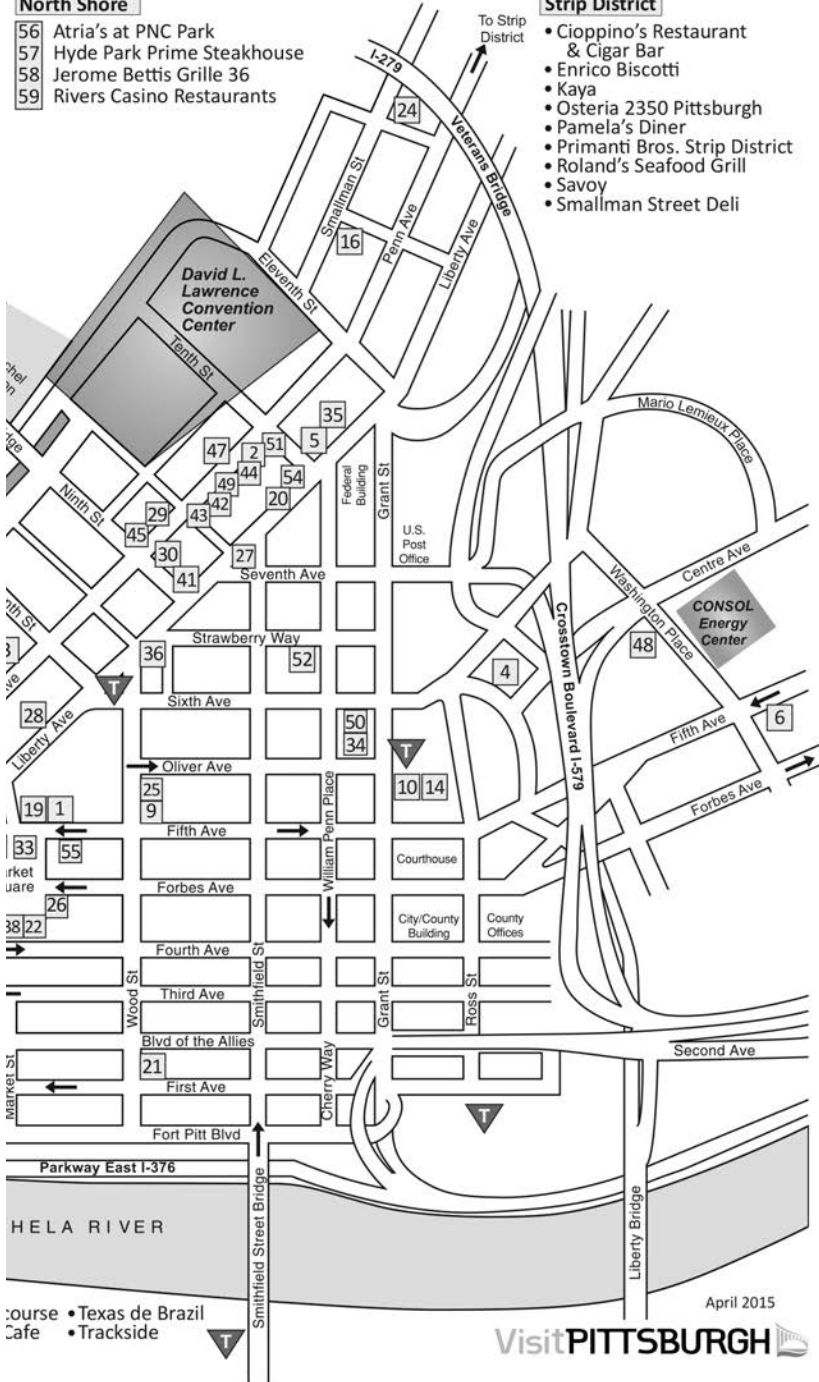
# Pittsburgh City Map — Restaurants

## North Shore

- 56 Atria's at PNC Park
- 57 Hyde Park Prime Steakhouse
- 58 Jerome Bettis Grille 36
- 59 Rivers Casino Restaurants

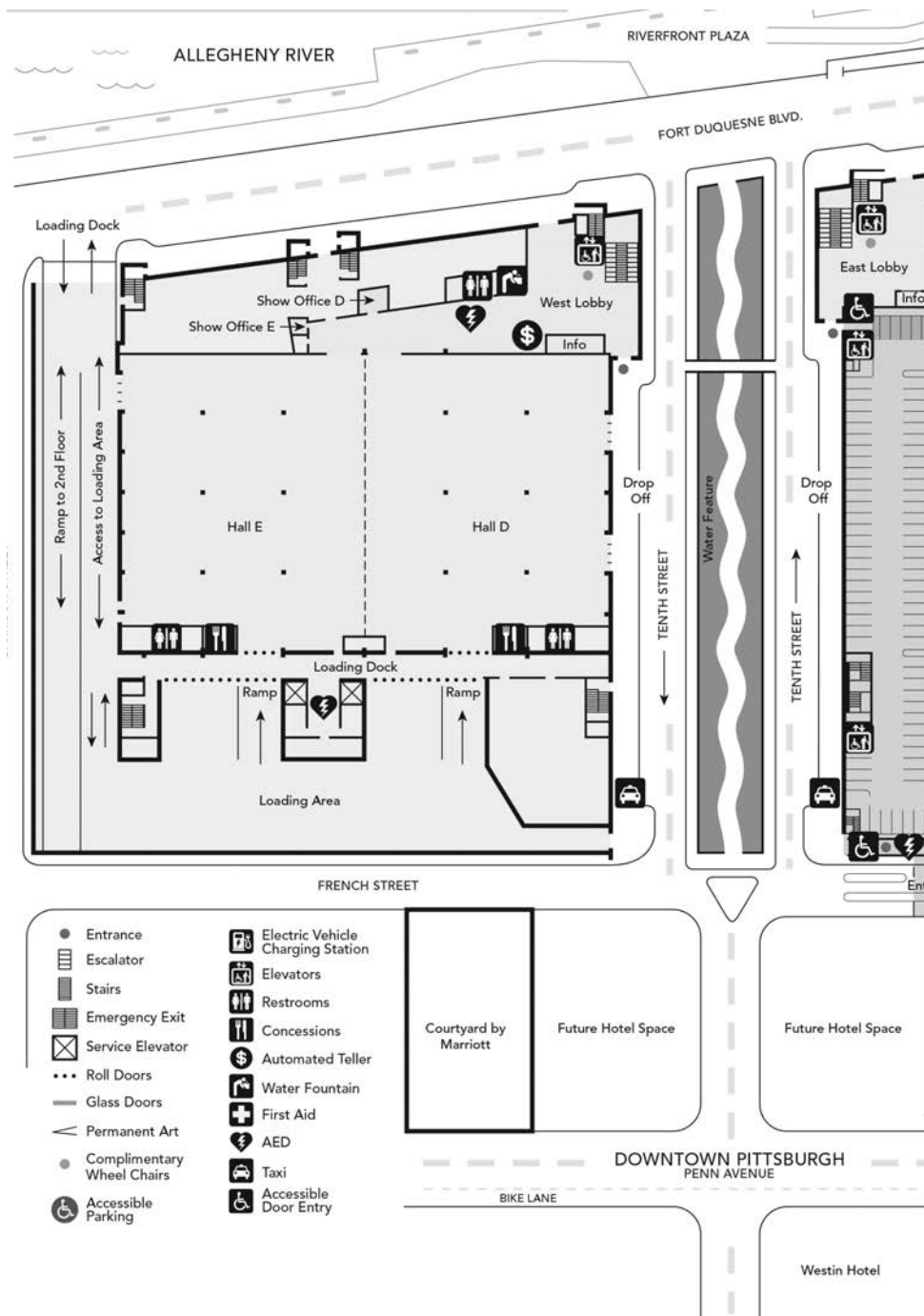
## Strip District

- Cioppino's Restaurant & Cigar Bar
- Enrico Biscotti
- Kaya
- Osteria 2350 Pittsburgh
- Pamela's Diner
- Primanti Bros. Strip District
- Roland's Seafood Grill
- Savoy
- Smallman Street Deli



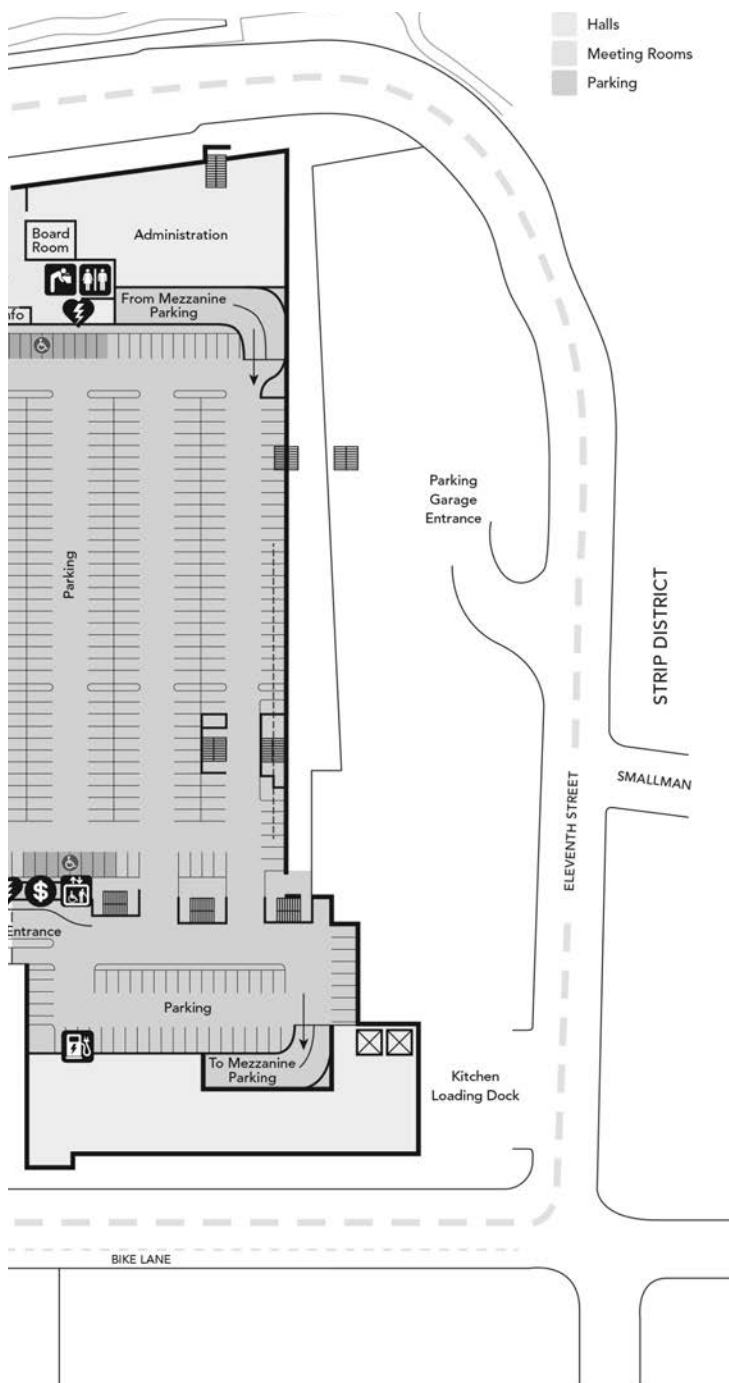
• Texas de Brazil  
 • Trakside

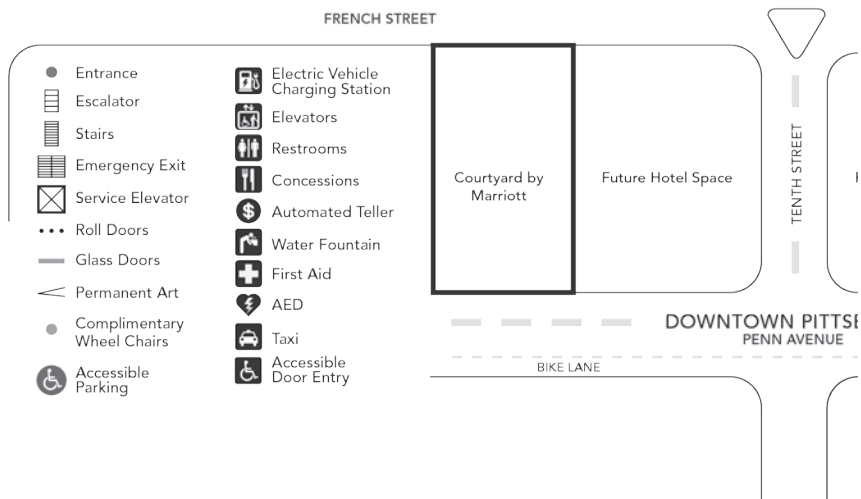
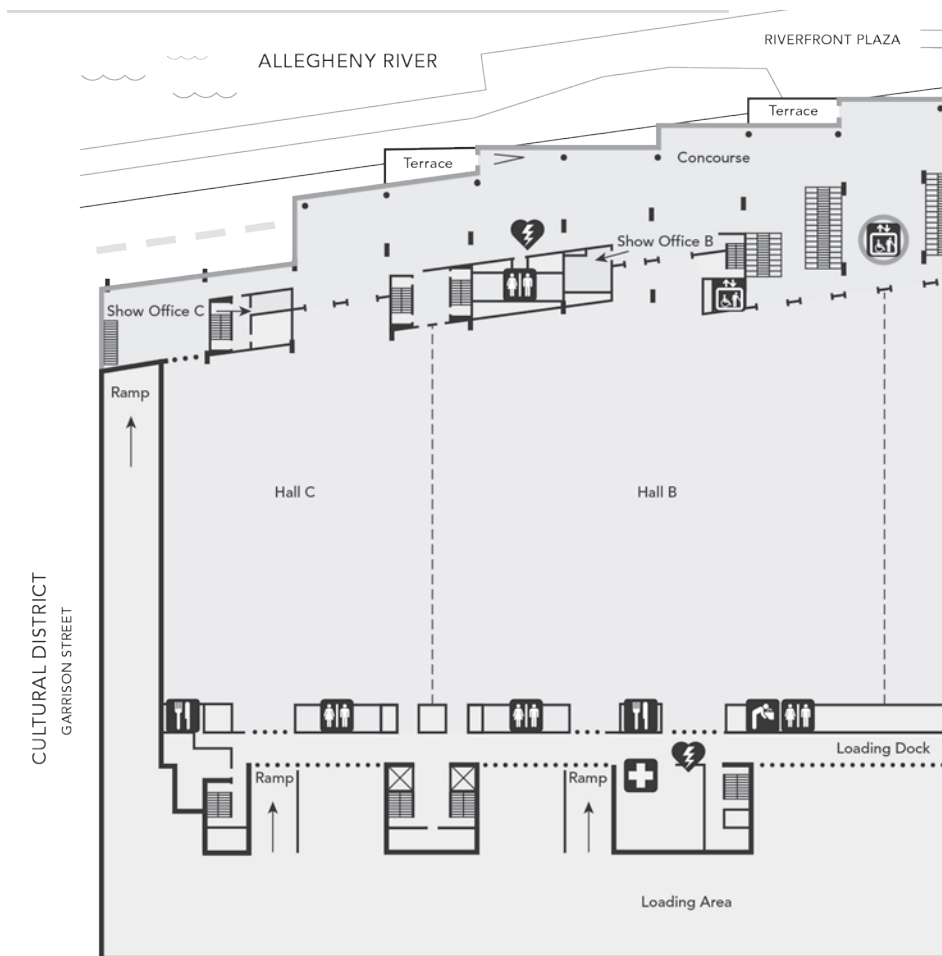
VisitPITTSBURGH



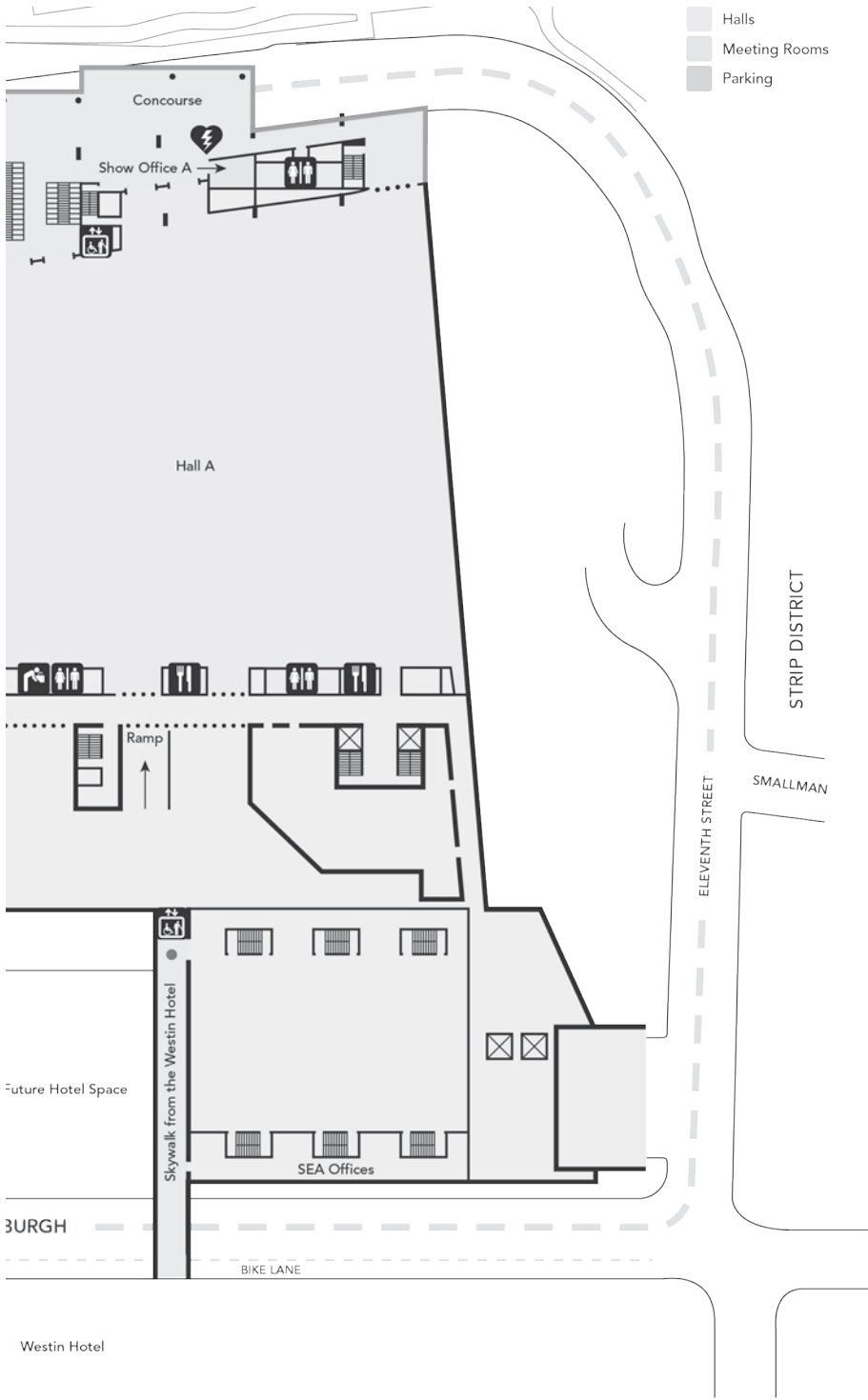


# David L. Lawrence Convention Center – First Floor



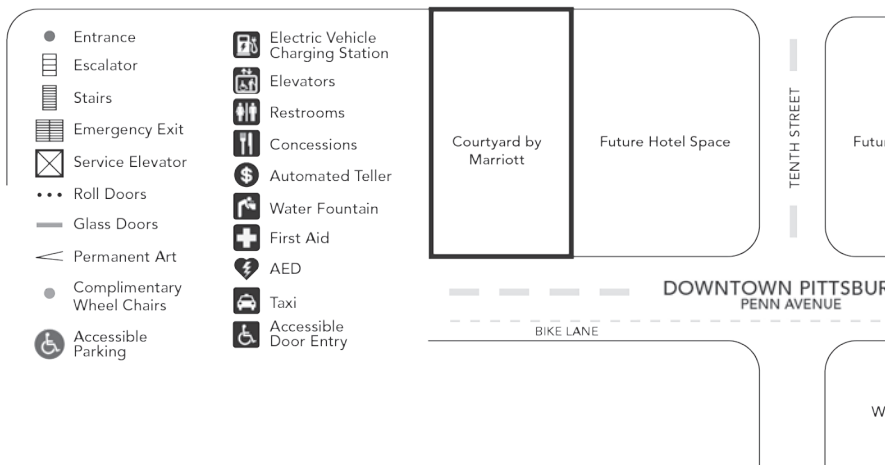


# David L. Lawrence Convention Center – Second Floor

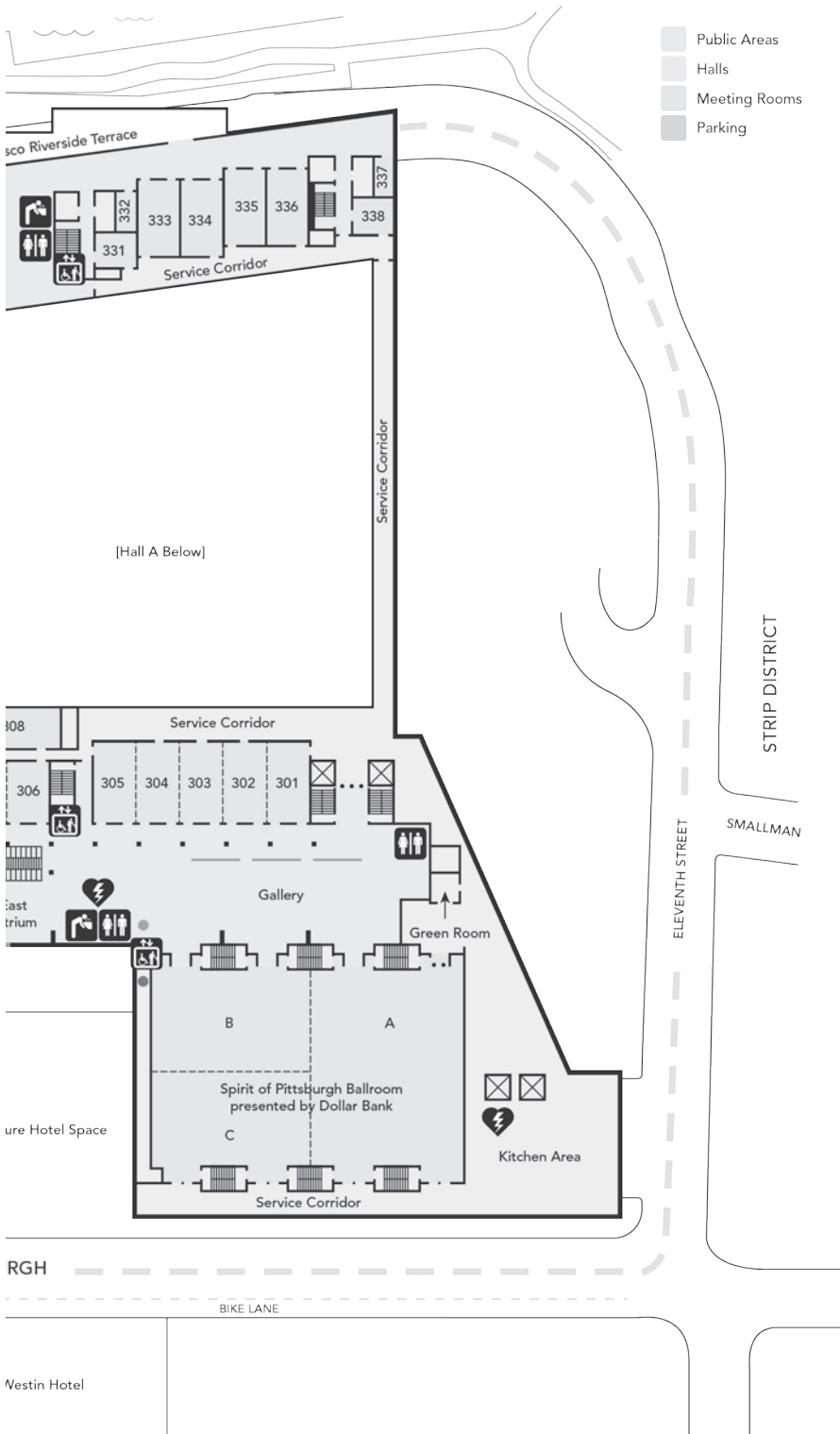


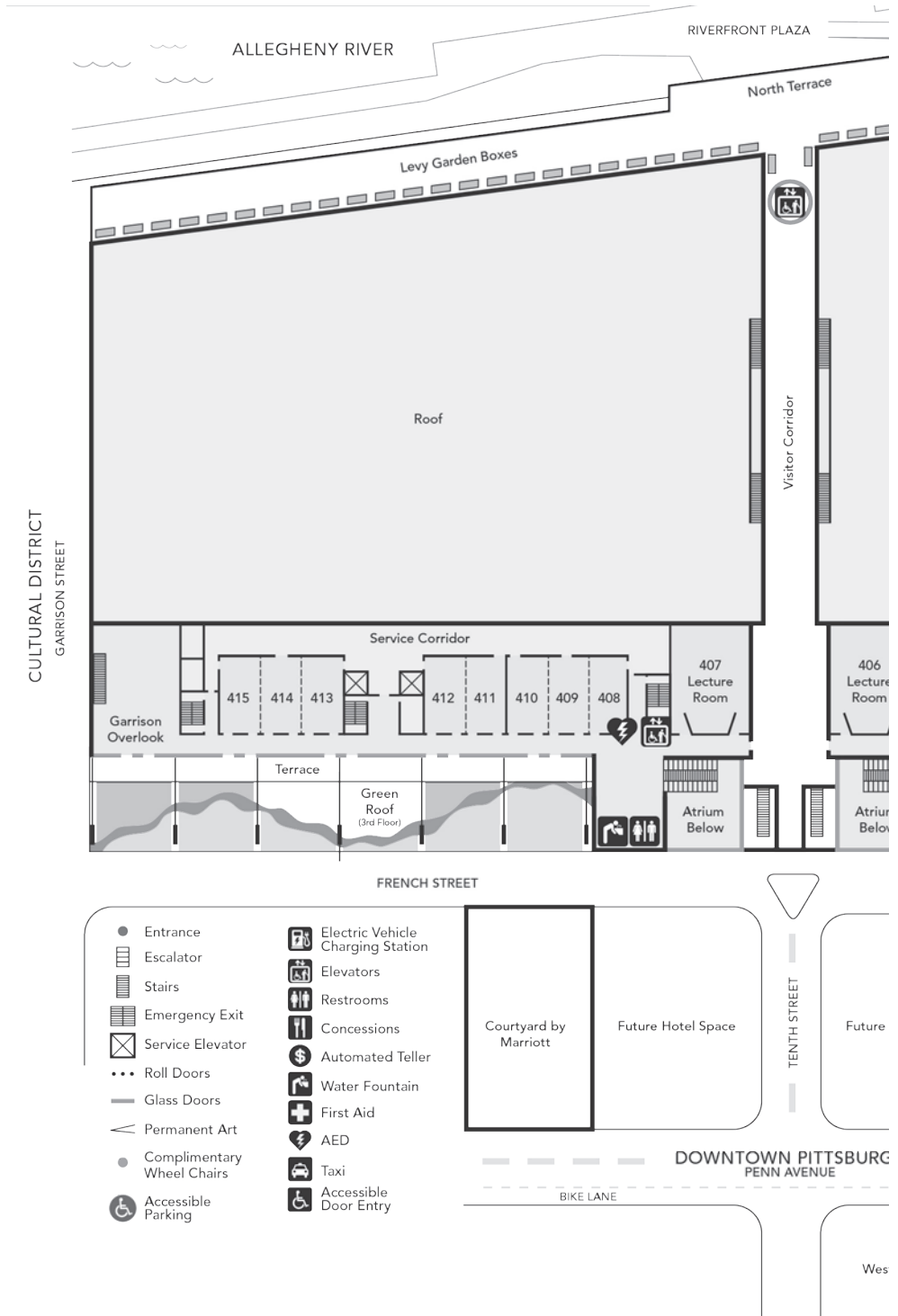
# CULTURAL DISTRICT

GARRISON STREET



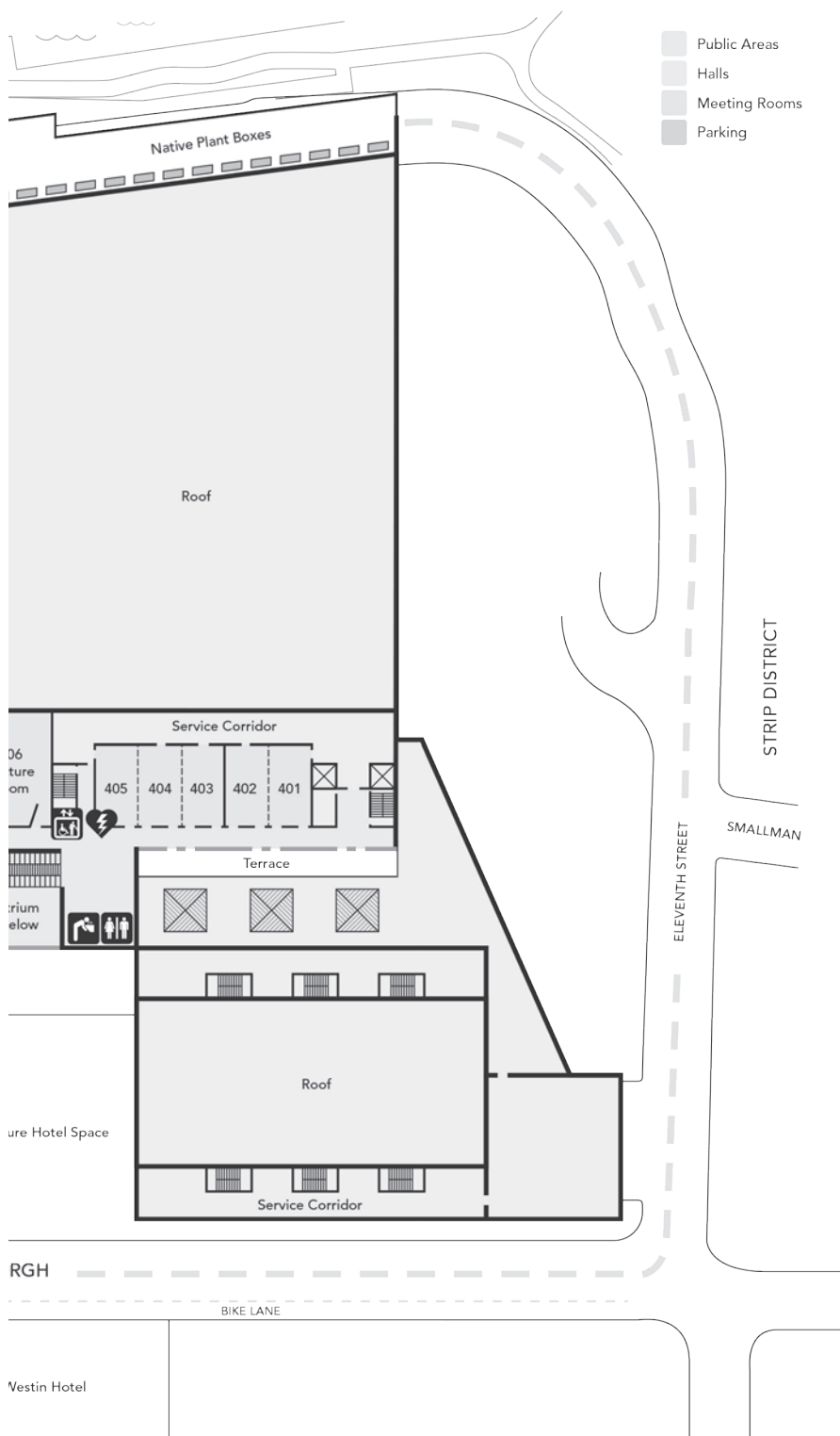
# David L. Lawrence Convention Center – Third Floor







# David L. Lawrence Convention Center – Fourth Floor



## Sunday, May 10

See page 16–17 for hours and locations of daily recurring events and resources. All events take place in the David L. Lawrence Convention Center (DLCC) unless otherwise noted.

<b>8:00 a.m.–5:00 p.m.</b> (Afterwards by appt.)	<b>Project Drop–Off</b> Finalists transporting their own projects may unload them only if registered. Each item must be clearly marked with finalist's name, address, and fair ID number. Only Fair Officials are permitted on the floor before 8:00 a.m. Sunday.	<b>DLCC Loading Dock</b>
<b>8:00 a.m.–8:00 p.m.</b>	<b>Setup of Projects/ Display &amp; Safety Inspections</b>	<b>Halls B, D/E</b>
<b>8:00 a.m.–8:00 p.m.</b>	<b>Scientific Review Committee Interviews</b> Projects must be reviewed and cleared by the Scientific Review Committee (SRC) before they may be set up. An SRC project infraction list will be posted Saturday, May 9 at <a href="http://student.societyforscience.org/intel-isef/attendee">student.societyforscience.org/intel-isef/attendee</a> .	<b>401–402</b>
<b>10:00 a.m.–7:00 p.m.</b>	<b>Intel Lounge</b> The outside has come inside in the new Intel Lounge. The Intel Lounge is a cool place to hang out where you can access the internet with Intel® mobile technology based Ultrabooks, tablets and All-in-Ones. Take a break in our rock garden area or catch up with friends and enjoy the view!	<b>2nd Floor, Concourse A</b>
<b>10:00 a.m.–7:00 p.m.</b>	<b>Intel Quad</b> The Intel Quad provides a fun, interactive environment to connect and get hands-on with some of the latest Intel technology. Challenge your fellow finalists to a drone race, create memories in the Intel ISEF photo booth or try your hand at Intel® Real Sense™ Technology-powered games.	<b>3rd Floor, East Atrium</b>
<b>7:00 p.m.–9:00 p.m.</b>	<b>Student Pin Exchange</b> This icebreaker event is for finalists and student observers, who are invited to trade pins and to meet new friends. There will be food, music, and good times for all.	<b>Wyndham Grand Hotel Kings Garden and Grand Ballroom</b>

## Monday, May 11

<b>8:00 a.m.–Noon</b>	<b>Scientific Review Committee Interviews</b> Only for finalists whose projects have not been cleared.	<b>401–402</b>
<b>8:00 a.m.–6:00 p.m.</b>	<b>Project Setup/ Display &amp; Safety Inspection</b> Finalists transporting their own projects may unload them only if registered. Each item must be clearly marked with finalist's name, address and fair ID number.	<b>Halls B, D/E</b>

# Opening Ceremony

Monday, May 11

David L. Lawrence Convention Center  
Hall A



Luis von Ahn

Co-creator of reCAPTCHA

Co-founder and CEO Duolingo

Associate Professor, Computer Science Department  
Carnegie Mellon University

Your week at Intel ISEF 2015 kicks off with the Opening Ceremony. This high-energy event will be led by co-host Ashley Dougherty, meteorologist for WTAE-TV in Pittsburgh. This year's keynote speaker, Luis von Ahn, is regarded as one of the founders of crowdsourcing. von Ahn is a co-creator of reCAPTCHA, a tool that protects websites from spam and abuse, that was sold to Google in 2009. Currently, von Ahn is Co-Founder and CEO of Duolingo, which has been named Apple's iPhone App of the Year and Google Play's Best of the Best for 2013 and 2014.

Born and raised in Guatemala, von Ahn graduated from the American School of Guatemala. Upon graduating, he went on to Duke University to obtain a B.S. in mathematics followed by a Ph.D. from Carnegie Mellon University where he now serves as an Associate Professor in the Computer Science Department.

In 2006, von Ahn was awarded a MacArthur Fellowship and has been named one of the top 50 Best Brains in Science by *Discover* magazine.

**Be part of the show!**  
You are invited to  
participate in the keynote  
by tweeting questions  
with #IntelISEF.

Questions will be selected  
and asked after the keynote.  
**Start tweeting now!**

8:00 a.m.–5:30 p.m.	Intel Lounge	2nd Floor, Concourse A
8:00 a.m.–5:30 p.m.	Intel Quad	3rd Floor, East Atrium
9:00 a.m.–3:30 p.m.	<b>Symposia</b> See full schedule on pages 40–46.	407–412
2:00 p.m.–6:00 p.m.	<b>Intel ISEF 2015 EXPO</b> <b>Spirit of Pittsburgh Ballroom B</b> All Intel ISEF 2015 participants are welcomed and encouraged to visit this year's exhibits. Organizations with a science and education focus, including educational institutions, agencies, corporations and other sponsors will be on-hand.	
3:30 p.m.–6:30 p.m.	<b>Opening Ceremony Dinner</b> <b>Spirit of Pittsburgh Ballroom</b> All registered attendees are welcome. Intel ISEF name badges are required to enter.	
6:30 p.m.–7:00 p.m.	<b>Opening Ceremony Pre-Show</b> <b>Hall A</b> Casual Attire — Doors open at 6:00 p.m.	
7:00 p.m.–8:30 p.m.	<b>Opening Ceremony</b> <b>Hall A</b> Sponsored by Intel Corporation Keynote Speaker: Luis von Ahn The Intel ISEF Opening Ceremony officially kicks off the week of events for 2015. You will have the opportunity to ask questions during the event through Twitter, so make sure you have your Twitter account set up and include the hash tag #IntelISEF to tweet your questions.	
8:00 p.m.	<b>Final Project Infractions List</b> Posted at Registration, outside of Exhibit Halls, and on <a href="http://student.societyforscience.org/intel-isef/attendee">student.societyforscience.org/intel-isef/attendee</a> .	

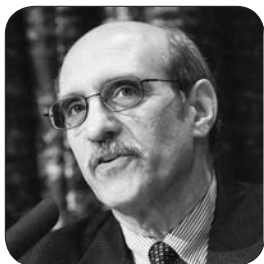
## Tuesday, May 12

8:00 a.m.–9:30 a.m.	<b>Project Infraction Clearance</b> <b>Halls B, D/E</b> Both the Scientific Review Committee and Display & Safety Committee will have conducted a final review of all projects by Monday afternoon. If any problems with a project are identified during review, the finalist's booth number will be posted outside the Exhibit Hall on Monday, May 11. Only those finalists with infractions will be permitted in the Exhibit Halls beginning at 8:00 a.m. A project cannot be judged unless it has been cleared by the SRC or D&S by 9:30 a.m., Tuesday, May 12.	
8:00 a.m.–6:00 p.m.	Intel Lounge	2nd Floor, Concourse A
8:00 a.m.–6:00 p.m.	Intel Quad	3rd Floor, East Atrium

Don't miss the

# Excellence in Science and Technology Discussion Panel

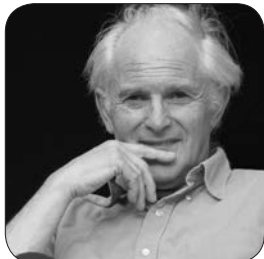
Tuesday, May 12, 2:00 p.m.  
David L. Lawrence Convention Center, Hall A



Martin Chalfie  
Columbia University  
Nobel Prize – Chemistry  
2008



H. Robert Horvitz  
Massachusetts Institute  
of Technology  
Nobel Prize – Physiology or  
Medicine  
2002



Sir Harold Kroto  
Florida State University  
Nobel Prize – Chemistry  
1996



John Mather  
NASA Goddard  
Space Flight Center  
Nobel Prize — Physics  
2006



Joe Palca  
Science Correspondent, NPR  
Moderator

presented by  
**Intel Corporation**

9:00 a.m.–5:00 p.m.	<b>Symposia</b> See full schedule on pages 40–46.	<b>407-412</b>
9:00 a.m.–5:00 p.m.	<b>Intel ISEF 2015 EXPO</b> <b>Spirit of Pittsburgh Ballroom B</b> Free refreshments will be served from 9:00 a.m.–11:00 a.m.	
9:30 a.m.–11:30 a.m.	<b>Press/Public Relations Time with Finalists</b> <b>Halls B, D/E</b> All finalists have the opportunity to come to the Exhibit Hall for scheduled press interviews, be available for impromptu visits from visiting sponsors and dignitaries and check their booth area.	
2:00 p.m.–4:00 p.m.	<b>Excellence in Science and Technology Panel</b> <b>Hall A</b> <i>Presented by Intel Corporation — Casual Attire</i> All attendees are invited to a conversation with Nobel Laureates. Panelists are: Martin Chalfie, H. Robert Horvitz, John Mather, and Harry Kroto. The panel will be moderated by NPR Science Correspondent and SSP Trustee Joe Palca.	
7:00 p.m.—9:00 p.m.	<b>Intel ISEF Mixer Event — Students only at AE Stage; Adults only at Heinz Field</b> All registered Official Party members are invited to this fun night of mingling, dancing and dinner. Attendees should use Light Rail, known as the “T” in Pittsburgh, to get to and from the events. The service is free from downtown stops to the North Side stop, which attendees should use on Tuesday night. “T” stops are located near block hotels and are noted on the Pittsburgh map on pages 20–21. At AE Stage, finalists and observers will enjoy a DJ-hosted dance party and games. Heinz Field will host attendees who are over 21. Dinner will be served. Participants <b>MUST</b> wear their Intel ISEF badge to attend.	

## Wednesday, May 13

8:00 a.m.–11:45 a.m.	<b>Exhibit Hall Open</b> <b>Halls B, D/E</b> Finalists at Projects for Interviews — Professional Attire Finalists & Judges only	
8:00 a.m.–6:00 p.m.	<b>Intel Lounge</b> <b>2nd Floor, Concourse A</b>	
8:00 a.m.–6:00 p.m.	<b>Intel Quad</b> <b>3rd Floor, East Atrium</b>	
8:15 a.m.–1:00 p.m.	<b>Student Observer Program</b> <b>Westin Hotel – Allegheny Ballroom</b> For students registered as Student Observers with their Official Party and pre-registered for this event here: <a href="https://student.societyforscience.org/student-observer-experience-volunteer-opportunity">https://student.societyforscience.org/student-observer-experience-volunteer-opportunity</a>	
9:00 a.m.–3:30 p.m.	<b>Symposia</b> See full schedule on pages 40–46.	<b>407-412</b>



**11:45 a.m. – 1:00 p.m.**

## **Lunch Break**

Concession stands and additional seating will be available outside Hall C. No outside food may be brought into the Convention Center.

**1:15 p.m. – 5:00 p.m.**

## **Finalists at Projects for Interviews**

**Halls B, D/E**

Finalists and Judges only—Professional Attire

**7:00 p.m. – 11:00 p.m.**

## **Pittsburgh Welcome Night**

For one night, the Carnegie Science Center, SportsWorks and Heinz Field, home of the National Football League's Pittsburgh Steelers, belong to Intel ISEF. Attendees should use Light Rail, known as the T in Pittsburgh, to get to and from the event. The service is free from the downtown stops to the North Shore or Allegheny Stop, which attendees should utilize on Wednesday night. "T" stops are located near block hotels and are noted on the Pittsburgh map on pages 20-21. Guests will enjoy exclusive access to all venues throughout the night. Dinner will be served stadium-style out of the concession stands at Heinz Field. While there, guests may sit in the stands and visit the FedEx Hall of Fame featuring Steelers memorabilia. There will also be live entertainment and a DJ. The Carnegie Science Center offers four floors of interactive exhibits, including Rangos Omnimax Theater, the biggest screen in Pittsburgh; roboworld™, the world's largest permanent robotics exhibit; the Buhl Planetarium; and SpacePlace, featuring a two-story, walk-in replica of the International Space Station. Dessert and beverages will be served throughout the Carnegie Science Center.

**U.S. GLOBAL  
DEVELOPMENT  
LAB** Powered by **USAID**

The U.S. Global Development Lab of USAID is pleased to announce:

## **GLOBAL DEVELOPMENT INNOVATION AWARDS**

at the 2015 Intel International Science and Engineering Fair

We will be offering four Innovation Awards of \$10,000 each in four broad categories:

- ◆ Alleviating Hunger and Providing Food Security
- ◆ Adaptation, Sustainability, and Resilience in the face of Global Climate Change
- ◆ Increasing Access to Energy
- ◆ Improving Global Health

Want to find out more?

Visit: <https://student.societyscience.org/special-awards-organizations>

Contact: LeighAnn McChesney, [lmcchesney@usaid.gov](mailto:lmcchesney@usaid.gov)

To learn more about the U.S. Global Development Lab, visit: <http://www.usaid.gov/GlobalDevLab>

## Thursday, May 14

8:00 a.m. – 5:00 p.m.	Intel ISEF 2015 EXPO	Spirit of Pittsburgh Ballroom B
8:00 a.m. – 6:00 p.m.	Intel Lounge	2nd Floor, Concourse A
8:00 a.m. – 6:00 p.m.	Intel Quad	3rd Floor, East Atrium
9:00 a.m. – 3:30 p.m.	Symposia See full schedule on pages 40–46.	407–412
9:00 a.m. – 9:00 p.m.	Public Visitation Day Finalists' exhibits are open to the public.	Halls B, D/E
10:00 a.m. – 2:00 p.m.	All Finalists Required at Projects Meal vouchers for concession stands in Halls B and D/E and in the Concourse outside Hall C will be provided to finalists for lunch. Finalists should note their lunch time on their voucher.	Halls B, D/E
7:00 p.m. – 10:00 p.m.	Special Awards Ceremony (Doors open at 6:30 p.m.)—Professional Attire Ceremony in which Special Award Organizations, academic institutions and government agencies give awards.	Hall A

## Friday, May 15

7:00 a.m. – 3:00 p.m.	Bag Storage Attendees who are leaving Pittsburgh immediately after the Awards Ceremony may store their bags/suitcases in Hall C. This service will be provided at no charge. Bags and suitcases are NOT permitted inside the Ceremony Hall or left in open areas in the Convention Center.	Hall C
9:00 a.m. – 11:30 a.m.	Grand Awards Ceremony Sponsored by Intel (Doors open at 8:30 a.m.)—Professional Attire All students are to be seated by 8:45 a.m. Awards Ceremony where winners from each category as well as the top overall winners for Intel ISEF 2015 are announced.	Hall A
Close of Awards Ceremony—2:00 p.m.	Exhibit Halls Open for Project Teardown Finalists take down and pack projects for return home. Any stored packing material will be at finalists' project booths. Finalists transporting their own projects will load them upon completion of packing. Projects being shipped via FedEx or GES/heavy freight must be packed and processed for shipping by 2:00 p.m. Intel ISEF 2015 nametags required at all times during dismantling - No exceptions.	Halls B, D/E



# 2015 INTEL ISEF

PITTSBURGH, PENNSYLVANIA

A P P A R E L



Purchase your Intel ISEF mementos and merchandise at the retail store

## STORE HOURS:

Saturday: 3:00 p.m. - 6:00 p.m.

Sunday - Monday: 8:00 a.m. - 7:00 p.m.

Tuesday - Wednesday: 8:00 a.m. - 6:00 p.m.

Thursday 8:00 a.m. - 7:00 p.m.

Friday 8:00 a.m. - 2:00 p.m.

APPAREL PROVIDED BY:



# GRAPHIC CONNECTION

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[www.gcspportswear.com](http://www.gcspportswear.com)

***Symposia sessions are an opportunity to share information with students, parents, teachers and fair directors, and do not imply endorsement by Society for Science & the Public. No fees have been paid.***

## **Monday, May 11**

9:00 a.m. – 10:00 a.m.

Room: 410

### **Statistics in Science: Basic to Advanced, through the Lens of Meta-Analysis**

Dr. Tom Short, John Carroll University, OH

We will review basic statistics, followed by an introduction to multivariate methods, in the research context of meta-analysis, which involves analyzing data from multiple studies.

Type: Workshop

Audience: Fair Directors, Teachers & Students

9:00 a.m. – 10:00 a.m.

Room: 411

### **Sharing Best Practices for Action Plan Implementation of a Research Course in High School**

Dr. Tina Gibson, Co-Chair, Intel ISEF Advisory Council, Outreach Committee

Members of the Advisory will help initiate an action plan for future implementation of a research class in high school/ public and private schools will be discussed.

Type: Workshop

Audience: Fair Directors, Teachers

10:00 a.m. – 11:00 a.m.

Room: 412

### **Arduino: Bringing Your Ideas to Life with Programmable Electronics**

Derek Runberg, Jeff Branson and Brian Huang, SparkFun Electronics, Niwot, CO

Come and spend an hour with SparkFun learning about the Arduino platform.

Be ready to program and hack your ideas after we get you started.

Note: (10:00 a.m. Monday–Thursday sessions limited to 40 participants each)

The room is available for open hacking: Monday and Wednesday 12 noon to 5:00 p.m., and Thursday from 12 noon–4:00 p.m.

Type: Workshop

Audience: Teachers, Students

10:30 a.m. – 11:30 a.m.

Room: 408/409

### **Intel ISEF “Telling Your Story”**

Dana Watson and Allison Kubota, North of Nine Communications, San Francisco, CA

Calling all Intel ISEF finalists! Want to feel more comfortable talking about your Intel ISEF project in simple terms to the general public and/or reporters? Join us for an interactive workshop, led by North of Nine Communications, which will help you develop and tell your Intel ISEF story.

Type: Workshop

Audience: Students

10:30 a.m. – 11:30 a.m.

Room: 410

### **Admissions 101: Pursuing Science and Engineering at Highly-Selective Universities**

Samantha Goldfarb, Admissions Officer, Columbia University, New York, NY

An overview of college education in STEM fields, especially at highly-selective universities like Columbia University, plus insight into finding the right “fit” for you as a prospective applicant.

Type: Presentation

Audience: Teachers, Students

10:30 a.m.–11:30 a.m.

Room: 411

**Fundraising 101: A Beginners Guide to Fundraising for Your Fair**

Kathleen Bethel, Intel ISEF Advisory Council, Fundraising Committee

Want to find better financial support for your local or regional fair, but don't know how to get started? We can help! We have been in your shoes and will give you practical ways that beginner fundraisers can use immediately. Resources will be provided.

Type: Presentation

Audience: Fair Directors

1:00 p.m.–2:00 p.m.

Room: 408/409

**Intel ISEF "Telling Your Story"**

Dana Watson and Allison Kubota, North of Nine Communications, San Francisco, CA

Calling all Intel ISEF finalists! Want to feel more comfortable talking about your Intel ISEF project in simple terms to the general public and/or reporters? Join us for an interactive workshop, led by North of Nine Communications, which will help you develop and tell your Intel ISEF story.

Type: Workshop

Audience: Students

1:00 p.m.–2:00 p.m.

Room: 411

**Divaneering Design Workshop: Rapunzel, Lift Up Your Hair Hon**

Shawna Stepp-Jones, Divaneering, Inc., c/o Patent and Trademark Office Society  
Like traditional bridge construction workshops, Rapunzel, Lift Up Your Hair Hon is a Divaneering Design workshop that exposes girls to the engineering design process as they design and build a beehive structure. Participants will work to build the tallest, strongest, and lightest beehive. (Limited to 30 students. Same session on Tuesday at 4:15 p.m.)

Type: Workshop

Audience: Students

2:15 p.m.–3:15 p.m.

Room: 410

**IP: What Is It and How Do I Protect It?; Patents, Trademarks, Copyrights and Trade Secrets**

Dr. Jorge Valdes and Tanaga Boozer, U.S. Patent and Trademark Office, Alexandria, VA  
Learn about intellectual property and how patents, trademarks, copyrights and trade secrets are essential tools to help you protect your work while creating value in the innovation process. (Same session on Wednesday at 9:15 a.m.)

Type: Workshop

Audience: Teachers, Students

2:30 p.m.–3:30 p.m.

Room: 411

**Hypothesis Generation in Science: A Science Teaching Challenge and Potential Solution**

Paul Strode, Fairview High School, Boulder, CO

Helping students understand and generate appropriate hypotheses and test their subsequent predictions in science should be at the core of teaching the nature of science.

Type: Presentation

Audience: Fair directors, Teachers &amp; Students

3:00 p.m.–4:00 p.m.

Room: 408/409

**Intel ISEF Judging**

Robert Yost, Intel ISEF Judging Ombudsman

Chuck Vukotich, Chair of Judging, Intel ISEF Pittsburgh 2015

Join us for a Question-and-Answer session about judging at Intel ISEF. Dr. Yost will explain his role to aid students during judging and provide a brief overview of the judging process for those new to the Intel ISEF.

Type: Presentation

Audience: Fair Directors, Teachers &amp; Students

**Tuesday, May 12**

9:00 a.m.–9:30 a.m.

Room: 410

**Technology Tips & Tricks**

Kris Clements, Caddo Parish Magnet High School, Shreveport, LA

Learn about technology tips and tricks that will improve your daily experiences.

Type: Presentation

Audience: Fair directors, Teachers &amp; Students

9:00 a.m.–10:00 a.m.

Room: 408/409

**Life After Science Fair–Leveraging Your Science Fair Experience into Life Success**

Bob Wisner, Alumnus, National Science Fair 1958 and 1959

Learn to leverage your Intel ISEF experience into academic and professional success in this panel discussion featuring Intel ISEF and science fair alumni.

Type: Panel Discussion

Audience: Fair directors, Teachers &amp; Students

9:00 a.m.–10:00 a.m.

Room: 411

**Creative Fundraising: Next Steps in Supporting Your Fair**

Kathleen Bethel, Intel ISEF Advisory Council, Fundraising Committee

Do you need new ideas on how to find financial support for your local or regional fair? We can help! Come meet with successful fundraisers who will provide creative ways to fundraise that you can use immediately. Resources will be provided.

Type: Presentation

Audience: Fair Directors

10:00 a.m.–11:00 a.m.

Room: 410

**Communicating Science**Janet Raloff, Editor, *Science News for Students*, SSP, Washington, DCEva Emerson, Editor in Chief, *Science News*, SSP, Washington, DC

Communicating science can be challenging. Attendees will go home with useful tips from some of the best science journalists in the business.

Type: Workshop

Audience: Students

10:00 a.m.–11:00 a.m.

Room: 412

**Arduino: Bringing Your Ideas to Life with Programmable Electronics**

Derek Runberg, Jeff Branson and Brian Huang, SparkFun Electronics, Niwot, CO

Come and spend an hour with SparkFun learning about the Arduino platform. Be ready to program and hack your ideas after we get you started.

Note: (10:00 a.m. Monday–Thursday sessions limited to 40 participants each)

The room is available for open hacking: Monday and Wednesday 12 noon to 5:00 p.m., and Thursday from 12 noon–4:00 p.m.

Type: Workshop

Audience: Teachers, Students

10:15 a.m.–10:45 a.m.

Room: 411

**Diffusion of Sustainability Innovation through Effective Education and Intervention Strategies**

Dr. Erin Redman, Program Manager, Arizona State University's Walton National Sustainability Teachers' Academy

Robert McGehee, Program Coordinator, Arizona State University's Walton National Sustainability Teachers' Academy

So what is sustainability anyway and why should engineers care? If you create something innovative and easy to use, people will just use it, right? Wrong.

Effective education and communication is necessary in spreading the use of new innovations.

Type: Workshop

Audience: Fair Directors, Teachers



10:45 a.m.–11:45 a.m.

Room: 408/409

**The \$200 Billion Problem: Innovating to Protect our Waterways**

Denice Shaw, U.S. Environmental Protection Agency, Washington, DC

Nutrient pollution is one of the nation's most difficult environmental challenges.

Join us to find out how students can help make a difference through data visualization.

Type: Workshop

Audience: Fair Directors, Teachers &amp; Students

11:00 a.m.–12 noon

Room: 411

**Simplistic Statistics for Secondary Students**

Patricia Zalo, Manatee High School, Bradenton, FL

Participants will enjoy M&amp;Ms while we review four inferential tests. Handouts will be available onsite and additional materials can be obtained by email.

Type: Workshop

Audience: Fair Directors, Teachers &amp; Students

11:30 a.m.–12 noon

Room: 410

**Sharing Your Science with the Internet**Bethany Brookshire, Science Education Writer, *Science News for Students*, SSP, Washington, DC

The Internet is a great outlet for communicating with the world about your science. This session can help you get started.

Type: Presentation

Audience: Teachers, Students

1:00 p.m.–2:00 p.m.

Room: 403/404; Finalist Resource Center

**Intel Science Talent Search Application Kick-off**

Caitlin Sullivan, Program Manager, Intel Science Talent Search, Washington, DC

Students can open applications and chat with recent alumni, while educators ask questions of the program manager in a round-table setting.

Type: Workshop

Audience: Fair Directors, Teachers &amp; Students

4:15 p.m.–5:15 p.m.

Room: 410

**Intel Science Talent Search Rules and Judging Overview**

Caitlin Sullivan, Program Manager, Intel Science Talent Search, Washington, DC

A summary of the Intel STS competition and a general overview of eligibility, rules, and the judging process.

Type: Presentation

Audience: Fair Directors, Teachers &amp; Students

4:15 p.m.–5:15 p.m.

Room: 408/409

**Funding and Financial Strategies to Take Your Project to the Next Level—Successful Commercialization**

David Woll, President, Woll Enterprises, Inc., Carmel, IN

Ever wonder if your science project could become commercial? Or if it could who would you contact? Come join us in this highly entertaining workshop to learn how.

Type: Workshop

Audience: Fair Directors, Teachers &amp; Students

4:15 p.m.–5:15 p.m.

Room: 411

**Divaneering Design Workshop: Rapunzel, Lift Up Your Hair Hon**

Shawna Stepp-Jones, Divaneering, Inc., c/o Patent and Trademark Office Society

Like traditional bridge construction workshops, Rapunzel, Lift Up Your Hair Hon is a Divaneering Design workshop that exposes girls to the engineering design process as they design and build a beehive structure. Participants will work to build the tallest, strongest, and lightest beehive. (Limited to 30 students)

Type: Workshop

Audience: Students

## Wednesday, May 13

9:15 a.m. – 10:15 a.m.

Room: 410

### **IP: What Is It and How Do I Protect It?; Patents, Trademarks, Copyrights and Trade Secrets**

Dr. Jorge Valdes and Tanaga Boozer, U.S. Patent and Trademark Office, Alexandria, VA  
Learn about intellectual property and how patents, trademarks, copyrights and trade secrets are essential tools to help you protect your work while creating value in the innovation process.

Type: Workshop

Audience: Teachers, Students

10:00 a.m. – 11:00 a.m.

Room: 412

### **Arduino: Bringing Your Ideas to Life with Programmable Electronics**

Derek Runberg, Jeff Branson and Brian Huang, SparkFun Electronics, Niwot, CO  
Come and spend an hour with SparkFun learning about the Arduino platform. Be ready to program and hack your ideas after we get you started. **Note:** (10:00 a.m. Monday–Thursday sessions limited to 40 participants each). The room is available for open hacking: Monday and Wednesday from noon to 5:00 p.m., and Thursday from noon–4:00 p.m.

Type: Workshop

Audience: Teachers, Students

10:00 a.m. – 11:30 a.m.

Room: 408/409

### **Scientific Review Committee–2016 Rules and Guidelines**

Nancy Aiello, Intel ISEF SRC Chair

Meet with members of the Intel ISEF SRC to learn of changes in the 2016 International Rules and Guidelines. After the presentation, there will be a Q & A period.

Type: Presentation

Audience: Fair Directors, Teachers & SRC members

10:30 a.m. – 11:00 a.m.

Room: 411

### **Human Power and Space Innovation**

Dr. Ana B. Heller, Vice President, Education and Outreach, Spacecialist, Raanana, Israel

Space projects lead by young students are increasingly attracting worldwide media attention. This paper examines the young workforce and their role in rejuvenating the space industry.

Type: Presentation

Audience: Fair Directors

1:00 p.m. – 2:00 p.m.

Room: 408/409

### **Intel ISEF Display & Safety Rules**

Diane Hecht, Intel ISEF Display & Safety, Chair

Join the Display & Safety Committee to discuss infractions encountered this year as well as changes to the rules and guidelines for 2016. Bring your questions and concerns for the Committee to answer.

Type: Panel Discussion

Audience: Fair Directors, Teachers

1:15 p.m. – 1:45 p.m.

Room: 410

### **How to Develop and Produce a STE@M Rap Battle for Your School and District**

Teri Barenborg, St. Lucie Public Schools, Fort Pierce, FL

See how STEM learning increased for thousands of students, through hip hop and rap education by creating a STE@M Rap Battle for students.

Type: Presentation

Audience: Teachers, Students

1:15 p.m.–2:15 p.m.

Room: 411

### **How to Run A Regional Science & Engineering Fair: Design Your Fair Management Plan**

Rosalie A. Richards, Stetson University, DeLand, FL

Catrena P. Lisse and Candace Morrow, Georgia College & State University, Milledgeville, GA

Leave this workshop with your management plan and a handbook aligned with Society for Science's Standards for Science Fairs: clear goals, mapped activities, governance/finance structures, assessments, and more.

Type: Workshop

Audience: Fair Directors

2:30 p.m.–4:00 p.m.

Room: 408/409

### **Scientific Review Committee 101–Review of Rules and Guidelines**

Nancy Aiello, Intel ISEF SRC Chair

The SRC will present an overview of all rules and guidelines. The presentation will be beneficial for fair directors and teachers who are new to science fairs or for veterans who want a quick rules review. After the presentation, there will be a Q & A period.

Type: Presentation

Audience: Fair Directors, Teachers

2:30 p.m.–4:00 p.m.

Room: 411

### **Intel ISEF Scientific Review Committee–SRC Project Review**

Chris Miller, Incoming Intel ISEF SRC Chair

Meet with members of the Intel ISEF Scientific Review Committee to discuss project review by local and regional SRC's. This session is limited to 25 participants who are members of local or regional SRC's. Must register online at <http://doodle.com/u4a9ssstfb8ty6yw> before Wednesday to attend.

Type: Workshop

Audience: Local & Regional SRC members

## **Thursday, May 14**

8:45 a.m.–9:45 a.m.

Room: 410

### **Admit Me!**

Jamilla Jamison, Harvey Mudd College, Associate Director of Admission, Claremont, CA

Chris Peterson, MIT, Assistant Director of Admission, Cambridge, MA

How to use your research in the college admission process.

Type: Presentation

Audience: Fair Directors, Teachers & Students

9:00 a.m.–11:00 a.m.

Room: 411

### **Intel ISEF SRC Office Hours**

Nancy Aiello, Intel ISEF SRC Chair

Sign up for a 15 minute one-on-one meeting to talk directly with the Intel ISEF SRC. Bring your specific fair questions and concerns and have the opportunity to address the issues and find solutions that work for your fair. Must register online at <http://doodle.com/8it442g8g6yb4ikt> before Thursday morning. Limited to 24 appointments.

Type: Individual Meeting

Audience: Fair Directors, SRC/IRB Chairs & Teachers

10:00 a.m. – 11:00 a.m.

Room: 412

**Arduino: Bringing Your Ideas to Life with Programmable Electronics**

Derek Runberg, Jeff Branson and Brian Huang, SparkFun Electronics, Niwot, CO  
 Come and spend an hour with SparkFun learning about the Arduino platform. Be ready to program and hack your ideas after we get you started. **Note:** (10:00 a.m. Monday–Thursday sessions limited to 40 participants each). The room is available for open hacking: Monday and Wednesday from noon to 5:00 p.m., and Thursday from noon–4:00 p.m.

Type: Workshop

Audience: Teachers, Students

11:15 a.m. – 11:45 a.m.

Room: 411

**Teaching about Save the Chimps through Digital Education**

Teri Barenborg, St. Lucie Public Schools, Fort Pierce, FL

Learn about Save the Chimps, the largest chimpanzee sanctuary in the world and how we created digital education through the use of student learning modules.

Type: Presentation

Audience: Teachers, Students

1:00 p.m. – 2:00 p.m.

Room: 410

**Adoption of 3D Printing Technologies in Education**

Ryan Hess, Senior Manager, Strategy Development for 3D Services, Ricoh Americas Corporation, Malvern, PA

Demand for student access to 3D printing is rising. We'll investigate how institutions are addressing current and future needs for 3D printing solutions.

Type: Presentation

Audience: Fair Directors, Teachers &amp; Students

1:15 p.m. – 2:15 p.m.

Room: 411

**Broadcom MASTERS: SSP's Middle School Competition**

Allie Stifel, Program Manager, Broadcom MASTERS, SSP, Washington, DC

Broadcom MASTERS, a program of Society for Science & the Public, is the premier science and engineering competition for 6<sup>th</sup>–8<sup>th</sup> grade students in the U.S.

Type: Presentation

Audience: Fair Directors, Teachers

2:45 p.m. – 3:45 p.m.

Room: 410

**So, You Want to Be an Astronaut?**

Mike Masucci, Astronaut Test Pilot, Virgin Galactic

Col. (Ret) Andre Gerner (moderator), The Society of Experimental Test Pilots, SETP Foundation

Mike Masucci relates his flight test experiences leading up to his current position as an astronaut test pilot of SpaceShipTwo with Virgin Galactic.

Type: Presentation

Audience: Fair Directors, Teachers &amp; Students

2:45 p.m. – 3:45 p.m.

Room: 411

**Probably about Probability**

Po-Shen Loh, Carnegie Mellon University, Mathematical Sciences, Pittsburgh, PA

As one of the most mysterious subjects, probability is the source of infamous apparent-paradoxes and gems. Come, and you'll probably be surprised!

Type: Presentation

Audience: Fair Directors, Teachers &amp; Students

## Pittsburgh Restaurants – Open for Breakfast

American Natural Gas Station	37 E Carson Street	(412) 471-1529
Bigelow Grille at Doubletree Hotel	Doubletree Hotel	(412) 281-5013
Blue Bird Kitchen	221 Forbes Avenue	(412) 642-4414
Braddock's American Brasserie	Renaissance Hotel	(412) 992-2005
Dunkin Donuts	28 Market Square	(412) 281-3195
Eadie's Market	500 Grant Street	(412) 391-3993
Enrico Biscotti	2022 Penn Avenue	(412) 281-2602
Fernando's Café/Peace Love and Little Donuts	963 Liberty Avenue	(412) 434-6378
Fifth Avenue Place Arcade Shops	120 Fifth Avenue	(412) 456-7800
Grandview Bakery	225 Shiloh Street	(412) 251-0811
Habitat at the Fairmont Hotel	510 Market Street	(412) 773-8848
Hanlon's Café	961 Liberty Avenue	(412) 394-3500
McDonald's Liberty Avenue	500 Liberty Avenue	(412) 391-5470
McDonald's Smithfield Street	505 Smithfield Street	(412) 281-1777
Pamela's Diner	60 21st Street	(412) 281-6366
Penn City Grille at Westin Hotel	Westin Convention Hotel	(412) 560-6374
PPG Place Food Court	Two PPG Place	(412) 434-1900
Primanti Bros. Strip District	46 18th Street	(412) 263-2142
Rivers Casino Restaurants	777 Casino Drive	(412) 231-7777
Smallman Street Deli	2840 Smallman Street	(412) 434-5800
Starbucks at the Omni Hotel	530 William Penn Place	(412) 201-2004
Steelhead Brasserie & Wine Bar	Marriott City Center	(412) 918-1340
Subway Restaurant	930 Penn Avenue	(412) 281-7335
The Terrace Room	Omni William Penn Hotel	(412) 281-7100
Trackside	Sheraton Station Square	(412) 803-3824

## ScienceNewsforStudents



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[sciencenewsforstudents.org](http://sciencenewsforstudents.org)

**Pittsburgh Restaurants—Open for Lunch**

August Henry's City Saloon	946 Penn Avenue	(412) 765-3270
American Natural	37 E Carson Street	(412) 471-1529
Atria's at PNC Park	103 Federal Street	(412) 322-1850
Bar Louie Station Square	240 Bessemer Court	(412) 394-0500
Bigham Tavern	321 Bigham Street	(412) 431-9313
Blue Line Grille	1014 Fifth Avenue	(412) 281-2583
Bigelow Grille at Doubletree Hotel	Doubletree Hotel	(412) 281-5013
Braddock's American Brasserie	Renaissance Hotel	(412) 992-2005
Bravo Franco	613 Penn Avenue	(412) 642-6677
Buca di Beppo	3 Station Square Drive	(412) 471-9463
Capital Grille of Pittsburgh	301 Fifth Avenue	(412) 338-9100
The Carlton	500 Grant Street	(412) 391-4152
Christos Mediterranean Grille	130 Sixth Street	(412) 261-6442
Diamond Bar and Grill	430 Market Street	(412) 325-2000
Blue Bird Kitchen	221 Forbes Avenue	(412) 642-4414
Eleven Contemporary Kitchen	1150 Smallman Street	(412) 201-5656
Enrico Biscotti	2022 Penn Avenue	(412) 281-2602
Dunkin Donuts	28 Market Square	(412) 281-3195
Eadie's Market	500 Grant Street	(412) 391-3993
Erins Fine Foods	210 6th Avenue	(412) 315-7952
Fifth Avenue Place Arcade Shops	120 Fifth Avenue	(412) 456-7800
Gateway Clipper Fleet	350 W. Station Square Drive	(412) 355-7980
Grille on Seventh	130 Seventh Street	(412) 391-1004
Grand Concourse/Gandy Dancer	100 W. Station Square Drive	(412) 261-1717
Habitat at the Fairmont Hotel	510 Market Street	(412) 773-8848
Hanlon's Café	961 Liberty Avenue	(412) 394-3500
Hard Rock Café	230 W. Station Square Drive	(412) 481-7625
Il Pizzaiolo	8 Market Square	(412) 575-5858
Jerome Bettis Grille 36	393 North Shore Drive	(412) 224-6287
Jimmy John's Gourmet Sandwiches	506 Liberty Avenue	(412) 697-0999
Kaya	2000 Smallman Street	(412) 261-6565
Lidia's Pittsburgh	1400 Smallman Street	(412) 552-0150
McCormick & Schmick's Seafood	301 Fifth Avenue	(412) 201-6992
McDonald's Liberty Avenue	500 Liberty Avenue	(412) 391-5470
McDonald's Smithfield Street	505 Smithfield Street	(412) 281-1777
McDonald's Wood Street	608 Wood Street	(412) 261-2281
Moe's Southwest Grill	210 Market Square	(412) 224-4422
Monte Cello's	305 Seventh Avenue	(412) 261-2080
Monterey Bay Fish Grotto	1411 Grandview Avenue	(412) 481-4414
Nicky's Thai Kitchen	903 Penn Avenue	(412) 471-8424
Nine on Nine	9th Street	(412) 338-6463
NOLA on the Square	24 Market Square	(412) 471-9100
Olive or Twist	140 6th Street	(412) 255-0524
Original Oyster House	20 Market Square	(412) 566-7925
Osteria 2350 Pittsburgh	2350 Railroad Street	(412) 281-6595
Packs & Dogs	223 Shiloh Street	(412) 231-1855
Pamela's Diner	60 21st Street	(412) 281-6366
Penn Brewery	800 Vinial Street	(412) 237-9400
Penn Station East Coast Subs	808 Liberty Avenue	(412) 803-7366
PPG Place Food Court	Two PPG Place	(412) 434-1900
Primanti Bros. Strip District	46 18th Street	(412) 263-2142
Primanti Bros. Market Square	2 S. Market Square	(412) 261-1599
Red Beard's on Shiloh	201 Shiloh Street	(412) 431-3730



Red Beard's Sports Bar and Grill	144 6th Street	(412) 261-2324
Rivers Casino Restaurants	777 Casino Drive	(412) 231-7777
Roland's Seafood Grill	1904 Penn Avenue	(412) 261-3401
Ruth's Chris Steak House	Six PPG Place	(412) 391-4800
Sammy's Famous Corned Beef	901 Liberty Avenue	(412) 765-2244
Savoy	2623 Penn Avenue	(412) 281-0660
Sharp Edge Bistro on Penn	922 Penn Avenue	(412) 338-2437
Sinful Sweets Chocolate	901 Penn Avenue	(412) 235-7865
Six Penn Kitchen	146 Sixth Street	(412) 566-7366
Sonoma Grille	947 Penn Avenue	(412) 697-1336
Simple Ingredients	801 Liberty Avenue	(412) 434-1122
Smallman Street Deli	2840 Smallman Street	(412) 434-5800
Soho	203 Federal Street	(412) 321-7646
Starbucks at the Omni Hotel	530 William Penn Place	(412) 201-2004
Steelhead Brasserie & Wine Bar	Marriott City Center	(412) 918-1340
Subway Restaurant	930 Penn Avenue	(412) 281-7335
Sushi Kim	1241 Penn Avenue	(412) 281-9956
Tap Room	Omni William Penn Hotel	(412) 281-7100
T.G.I. Friday's	1027 Fifth Avenue	(412) 471-1736
Ten Penny	960 Penn Avenue	(412) 318-8000
The Terrace Room	Omni William Penn Hotel	(412) 281-7100
Three Rivers Restaurant	Wyndham Grand Hotel	(412) 391-4600
Tonic Bar and Grill	971 Liberty Avenue	(412) 456-0460
Trackside	Sheraton Station Square	(412) 803-3824
Valozzi's Pittsburgh	220 Fifth Avenue	(412) 394-3400



**Pittsburgh Restaurants—Open for Dinner**

Altius	1230 Grandview	(412) 904-4442
American Natural	37 E Carson Street	(412) 471-1529
Andy's at Fairmont	510 Market Street	(412) 773-8884
Atria's at PNC Park	103 Federal Street	(412) 322-1850
August Henry's City Saloon	946 Penn Avenue	(412) 765-3270
Backstage Bar at Theater Square	655 Penn Avenue	(412) 325-6769
Bar Louie Station Square	240 Bessemer Court	(412) 394-0500
Bella Vista Ristorante Italiano	1204 Grandview Avenue	(412) 431-1660
Bigelow Grille at Doubletree Hotel	Doubletree Hotel	(412) 281-5013
Bigham Tavern	321 Bigham Street	(412) 431-9313
Blue Line Grille	1014 Fifth Avenue	(412) 281-2583
Braddock's American Brasserie	Renaissance Hotel	(412) 992-2005
Bravo Franco	613 Penn Avenue	(412) 642-6677
Buca di Beppo	3 Station Square Drive	(412) 471-9463
Capital Grille of Pittsburgh	301 Fifth Avenue	(412) 338-9100
The Carlton	500 Grant Street	(412) 391-4152
Christos Mediterranean Grille	130 Sixth Street	(412) 261-6442
Cioppino's Restaurant & Cigar Bar	2350 Railroad Street	(412) 281-6593
Diamond Bar and Grill	430 Market Street	(412) 325-2000
Dunkin' Donuts	28 Market Square	(412) 281-3195
Eleven Contemporary Kitchen	1150 Smallman Street	(412) 201-5656
Fifth Avenue Place Arcade Shops	120 Fifth Avenue	(412) 456-7800
Gateway Clipper Fleet	350 W. Station Square Drive	(412) 355-7980
Grand Concourse/Gandy Dancer	100 W. Station Square Drive	(412) 261-1717
Grille on Seventh	130 Seventh Street	(412) 391-1004
Habitat at the Fairmont Hotel	510 Market Street	(412) 773-8848
Hard Rock Café	230 W. Station Square Drive	(412) 481-7625
Hyde Park Prime Steakhouse	247 North Shore	(412) 222-4014
Il Pizzaiolo	8 Market Square	(412) 575-5858
Isabela on Grandview	1318 Grandview Avenue	(412) 531-4882
Jerome Bettis Grille 36	393 North Shore Drive	(412) 224-6287
Jimmy John's Gourmet Sandwiches	506 Liberty Avenue	(412) 697-0999
Kaya	2000 Smallman Street	(412) 261-6565
LeMont Restaurant	1114 Grandview Avenue	(412) 431-3100
Lidia's Pittsburgh	1400 Smallman Street	(412) 552-0150
McCormick & Schmick's Seafood	301 Fifth Avenue	(412) 201-6992
McDonald's Liberty Avenue	500 Liberty Avenue	(412) 391-5470
McDonald's Smithfield Street	505 Smithfield Street	(412) 281-1777
Melting Pot	125 W. Station Square Drive	(412) 261-3477
Moe's Southwest Grill	210 Market Square	(412) 224-4422
Monte Cello's	305 Seventh Avenue	(412) 261-2080
Monterey Bay Fish Grotto	1411 Grandview Avenue	(412) 481-4414
Morton's Steakhouse	625 Liberty Avenue	(412) 261-7141
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Penn Station East Coast Subs	808 Liberty Avenue	(412) 803-7366
PPG Place Food Court	Two PPG Place	(412) 434-1900

Primanti Bros. Market Square	2 S. Market Square	(412) 261-1599
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Red Beard's on Shiloh	201 Shiloh Street	(412) 431-3730
Red Beard's Sports Bar and Grill	144 6th Street	(412) 261-2324
Rivers Casino Restaurants	777 Casino Drive	(412) 231-7777
Ruth's Chris Steak House	Six PPG Place	(412) 391-4800
Savoy	2623 Penn Avenue	(412) 281-0660
Seviche	930 Penn Avenue	(412) 697-3120
Sharp Edge Bistro on Penn	922 Penn Avenue	(412) 338-2437
Simple Ingredients	801 Liberty Avenue	
Sinful Sweets Chocolate	901 Penn Avenue	(412) 235-7865
Six Penn Kitchen	146 Sixth Street	(412) 566-7366
Smallman Street Deli	2840 Smallman Street	(412) 434-5800
Soho	203 Federal Street	(412) 321-7646
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Tap Room	Omni William Penn Hotel	(412) 281-7100
Ten Penny	960 Penn Avenue	(412) 318-8000
The Terrace Room	Omni William Penn Hotel	(412) 281-7100
Texas de Brazil	240 W Station Square Drive	(412) 230-4001
Three Rivers Restaurant	Wyndham Grand Hotel	(412) 391-4600
Tin Angel	1200 Grandview Avenue	(412) 381-1919
Tonic Bar and Grill	971 Liberty Avenue	(412) 456-0460
Trackside	Sheraton Station Square	(412) 803-3824
Valozzi's Pittsburgh	220 Fifth Avenue	(412) 394-3400

#### Pittsburgh Restaurants—Open past 11:00 p.m.

American Natural	37 E Carson Street	(412) 471-1529
Andy's at Fairmont	510 Market Street	(412) 773-8884
Bar Louie Station Square	240 Bessemer Court	(412) 394-0500
Bigham Tavern	321 Bigham Street	(412) 431-9313
Blue Line Grille	1014 Fifth Avenue	(412) 281-2583
Bravo Franco	613 Penn Avenue	(412) 642-6677
Buckhead Saloon	225 W. Station Square Drive	(412) 232-3101
Cioppino's Restaurant & Cigar Bar	2350 Railroad Street	(412) 281-6593
Dunkin Donuts	28 Market Square	(412) 281-3195
Olive or Twist	140 6th Street	(412) 255-0524
Packs & Dogs	223 Shiloh Street	(412) 231-1855
Penn Brewery	800 Vinial Street	(412) 237-9400
Primanti Bros. Market Square	2 S. Market Square	(412) 261-1599
Primanti Bros. Strip District	46 18th Street	(412) 263-2142
Red Beard's on Shiloh	201 Shiloh Street	(412) 431-3730
Red Beard's Sports Bar and Grill	144 6th Street	(412) 261-2324
Rivers Casino Restaurants	777 Casino Drive	(412) 231-7777
Savoy	2623 Penn Avenue	(412) 281-0660
Seviche	930 Penn Avenue	(412) 697-3120
Sharp Edge Bistro on Penn	922 Penn Avenue	(412) 338-2437
Soho	203 Federal Street	(412) 321-7646
Sonoma Grille	947 Penn Avenue	(412) 697-1336
Tavern 245	245 4th Avenue	(412) 281-4345
Tonic Bar and Grill	971 Liberty Avenue	(412) 456-0460

## Attractions, Services, Medical Care, Entertainment

For all attractions, go to [www.visitpittsburgh.com/see-do/index.cfm](http://www.visitpittsburgh.com/see-do/index.cfm) and choose DOWNTOWN as your location.

### Banks

Citizen's Bank	525 William Penn Place	(412) 227-1558
Dollar Bank	225 Forbes Avenue	(412) 261-2343
	537 Smithfield Street	(412) 261-8400
	340 4th Avenue	(412) 261-7649
Fifth Third Bank	707 Grant Street, #2000	(412) 291-5555
First Niagara Bank	11 Stanwix Street	(412) 807-2900
	500 Grant Street	(412) 227-5053
PNC Bank	600 Grant Street	(412) 762-6120

### Copy and Mail Services

Copies For Less Printers	804 Penn Avenue	(412) 288-2525
Ditto Document Services, Inc.	610 Smithfield Street, Suite 200	(412) 434-6666
FedEx Office Print & Ship Center	960 Penn Avenue	(412) 391-2014
Minuteman Press	905 Liberty Avenue	(412) 471-5599

### Drugstores

CVS Pharmacy	610 Wood Street	(412) 471-9294
	226 6th at Liberty Street	(412) 281-0403
	429 Smithfield Street	(412) 261-4846
Rite-Aid	623 Smithfield Street	(412) 471-8882
	519 Penn Avenue	(412) 391-0969

### Grocery Store — *Outside food cannot be brought into the DLCC*

Giant Eagle North Side	318 Cedar Avenue	(412) 321-3551
Whole Foods	5880 Centre Avenue	(412) 441-7960
Giant Eagle South Side	2021 Wharton Street	(412) 488-1816

### Medical/Dental

#### Hospitals

Allegheny General Hospital	320 East North Avenue	(412) 359-3131
Children's Hospital of Pittsburgh	401 Penn Avenue	(412) 692-5325
Magee-Women's Hospital	300 Halket Street	1-866-MyMagee
UPMC Mercy Hospital	1400 Locust Street	(412) 232-8111

#### Urgent Care

Concentra Urgent Care	1600 West Carson Street	(412) 391-1137
MedExpress Urgent Care-Bloomfield	5201 Baum Boulevard	(412) 687-3627
UPMC Urgent Care-Shadyside	5231 Centre Avenue	(412) 623-4114

#### Dental Care

Emmert Dental Associates	433 Market Street, #3	(412) 434-6060
Sixth Street Dental	125 6th Street	(412) 338-0678

### Shopping

Macy's Downtown	400 5th Avenue	(412) 232-2000
Staples	6375 Penn Avenue	(412) 363-5148
SW Randall Toys	630 Smithfield Street	(412) 562-9252
Target	6231 Penn Avenue (East Liberty)	(412) 626-3288
Target	360 Waterfront Drive (Waterfront)	(412) 464-2522

Walmart	877 Freeport Road	(412) 782-4444
Walmart Supercenter	250 Summit Park Drive (Airport)	(412) 788-9079

**Movie Theatres**

SouthSide Works Cinema	425 Cinema Drive	(412) 381-7335
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**Shopping Malls**

Ross Park Mall	1000 Ross Park Mall Drive	(412) 369-4400
South Hills Village	301 S. Hills Village	(412) 831-8652

**Post Offices**

US Post Office	625 Stanwix Street	(412) 642-2168
UPS Store	3945 Forbes Avenue	(412) 621-6261

**Florists**

Wallace Floral	20 Fifth Avenue, Fifth Ave Place	(412) 471-7101
Jim Ludwig's Blumengarten	2650 Penn Avenue	(412) 281-3322

**Dry Cleaners**

Galardi's 30 Minute Cleaners	119 Forbes Avenue	(412) 471-7968
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**Society for Science & the Public thanks the dedicated  
members of the Pittsburgh Local Arrangements Committee  
who have worked hard in preparation for  
Intel ISEF 2015:**

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*We thank Nancy Aiello for her many years of service to SSP and Intel ISEF.*

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Society for Science & the Public, Intel and the Pittsburgh Local Arrangements Committee recognize with gratitude the judges, volunteers, parents, teachers and fair directors who make the Intel ISEF possible year after year. The following individuals, volunteers, and organizations are recognized for their special dedication to Intel ISEF.

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Inform. Educate. Inspire.

Society for Science & the Public (SSP), a nonprofit membership organization based in Washington, D.C., owns and has administered the ISEF since its inception in 1950. Through the Intel ISEF, SSP encourages students to apply their imagination to excel in the sciences while exploring their unique and personal visions of the future.

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Each # next to the finalist's name indicates previous Intel ISEF participation

An \* identifies non-competing projects

T: precedes the name of the Teacher-Sponsor of the Finalist

A T after the booth ID number indicates a Team Project

### AMERICAN SAMOA

Pago Pago, TEAS01, American Samoa Science Fair

**ANIM069I** **Testing Plant Extracts** *Barringtonia asiatica* and *Derris malaccensis* as **Alternative Population Control Methods for the Crown-of-Thorns Seastar (*Acanthaster planci*)**

# Tiara Marie Drabble, 17, Senior, South Pacific Academy, Pago Pago, American Samoa, T: Cecilia Tuionoula

**MCRO056I** **An Experimental Evaluation of Coliform and *E. coli* Bacteria in School Lunch Produce**

# Liana Gurr, 17, Senior, Tafuna High School, Pago Pago, American Samoa, T: Joserose Jyothibhavan

**PLNT056I** **Anthraxnose Disease Resistance by Turmeric (*Curcuma longa* L.) Induced Priming in Chinese Cabbage (*Brassica rapa* L.)**

# Charu Joserose, 16, Junior, Tafuna High School, Pago Pago, American Samoa, T: Joserose Jyothibhavan

### ARGENTINA

Ciudad de Buenos Aires, ARG001, National Science Fair of Argentina

**EGPH001T** **Use of Renewable Energy in Huiliches Department (in Neuquen, Patagonia, Argentina)**

Agustin Rodriguez Alvarez, 19, Senior; Cristian David Polizzi, 19, Senior, Escuela Provincial de Educacion Tecnica No 4, Junin de los Andes, Argentina, T: Enrique Garces Olsen

### AUSTRALIA

Melbourne, AUS003, BHP Billiton Science and Engineering Awards

**CHEM014I** **Understanding Antagonistic Interactions between Heartburn Drugs and the Effectiveness of Heartburn Drug Combinations**

Jackson Yi Zhou Huang, 18, Senior, Queensland Academy for Science, Mathematics and Technology, Brisbane, Australia, T: Jane Gorman

**EAEV021I** **Much Ado about Oil**

Melissa Rose Gerwin, 18, Senior, Hellyer College, Shorewell Park, Australia, T: Ann Burke

**EBED014I** **PROTEGO: Proactive Technology for Elderly on the Go**

Dhruv Siddharth Verma, 15, Freshman, Scotch College, Hawthorn, Australia, T: Siddharth Vinay Verma

**EGCH012I** **Integrating Technologies for the Production of Bioelectricity and Bioethanol**

Somya Mehra, 17, Senior, Balwyn High School, North Balwyn, Australia, T: Gemma Slussareff

**PHYS013I** **Have a Swingin' Time: Investigation into the Effects of Mass Distribution on a Pendulum's Motion to Model a Swing for Disabled Persons**

Benjamin Geoffrey Grace, 18, Senior, Trinity Anglican School, Cairns, Australia, T: Brian Springell

Sydney, AUS002, Young Scientist

**BEHA033I** **Stay Tuned! Comparing the Effects of Long and Short-Term Auditory Stimulation for Increasing the Sensitivity of a Person's Hearing**

Alexandra Zoe Garth, 16, Junior, Redeemer Baptist School, North Parramatta, Australia, T: Stuart Garth

- EAEV0431** **Breathe Easy: Developing an Automated Ventilation Cycle System to Regulate CO<sub>2</sub> Buildup in Vehicles**  
Chanum Bartolo Torres, 16, Junior, Redeemer Baptist School, North Parramatta, Australia, T: Stuart Garth
- EGCH0111** **The Effects of Various Surfactants on the Efficiency of the Convection Processes Occurring within Ferrofluid**  
Josie Alexandra Jakovac, 15, Sophomore, Hills Adventist College, Sydney, Australia, T: Alison Galia
- AUSTRIA**  
*Vienna, AUT001, Vienna International Science and Engineering Fair*
- CHEM058T** **PhosphorCycle: Thermochemical Phosphorus Recovery and Low-Cost Rapid Determination**  
Simon Moll, 19, Freshman; Hanna Franziska Weiss, 19, Freshman; Dominik Heinz Dorler, 20, Freshman, Hohere Technische Bundeslehr- und Versuchsanstalt Dornbirn, Dornbirn, Austria, T: Rudolf Sams
- CHEM059I** **No K.O.–Studies on Rapid Determination Methods of GHB and GBL in Different Party Drinks**  
Isabella Innerebner, 20, Freshman, Higher School of Technology Braunau, Braunau am Inn, Austria, T: Josef Wagner
- ENEV088T** **Oil Filter Recycling Plant**  
Alexander Nowak, 20, Senior; Alan Schwarz, 20, Senior, HTL1 Lastenstrasse, Klagenfurt, Austria; Hohere Technische Bundeslehranstalt, Klagenfurt, Austria, T: Florian Nowak
- ROBO019T** **Multi Robot Indoor System**  
Guenther Cwioro, 20, Senior; Peter Kohout, 20, Senior, Hohere technische Bundeslehr- und Versuchsanstalt Villach, Villach, Austria, T: Robert Hufsky
- AZERBAIJAN**  
*Baku, AZR001, Azerbaijan Science and Engineering Fair*
- CHEM015T** **Crowned Iron**  
Rana Hasanzade, 16, Sophomore; Laman Aliyeva, 15, Sophomore, Baku State University, Baku, Azerbaijan, T: Ulviyya Hasanova
- EGPH008T** **Limelight Energy (Application of Nanoparticles to the Optic Energy Cell)**  
Jamil Muradov #, 17, Senior; Rustam Muradov, 15, Freshman, Baku European Lyceum, Baku, Azerbaijan, T: Seadet Veysova
- EGPH033I** **E.F.E.W. (Electricity From Electromagnetic Waves)**  
Ikram Emil oglu Gabiyev, 13, Freshman, Ankara School Lyceum, Baku, Azerbaijan, T: Sevda Alizada
- PHYS014T** **Development of Advanced Superionic Conductors Based on Topological Nanorods Crystals**  
Nigar Nigar Sardarli, 16, Freshman; Madat Sardarli, 15, Freshman, Lyceum Named After Academician Zarifa Aliyeva, Baku, Azerbaijan, T: Aygun Azizova
- BELARUS**  
*Minsk, BLR001, BelISEF*
- ENEV014I** **Environmental Monitoring Probe Based on Intel Edison Platform**  
Ivan Saetchnikov, 17, Freshman, BSU Lyceum, Minsk, Belarus, T: Aleh Ilyutsenka
- ENMC015T** **Increasing Wing Lift for Safer Landing**  
Viktar Beliautsov, 17, Junior; Mikita Syrovatnikau, 17, Junior; Aleh Karabko, 17, Junior, Minsk State Regional Liceum, Minsk, Belarus; Gymnasia No. 40, Minsk, Belarus, T: Kanstantin Sechka
- ENMC016I** **Creation of the Multifunctional UAV**  
Dzmitry Kryvenchuk, 17, Junior, Pinsk Gymnasium No.1 named after F. Perets, Pinsk, Belarus, T: Nina Ramashka
- SOFT014I** **Artemis Web Security: Smart Security System for Websites with Constant Control**  
Uladzislau Hadalau, 15, Freshman, State Institution of Education Secondary School No. 11, Slutsk, Belarus, T: Uladzimir Zhuk



## BRAZIL

*Campinas, BRA003, Escola Americana De Campinas*

- CBIO0101** **Improving the Efficiency of Genome Variants Detection by the Parallelization of Its Computer Process**  
Lucas Lopes Cendes, 15, Sophomore, Escola Americana de Campinas, Campinas, Brazil, T: Mauricio Gozzi
- EAEV031T** **Comparative Analysis between Carboxymethyl Cellulose and Activated Carbon through Sedimentation and Ultrafiltration for the Removal of Metallic Ions from Industrial Wastewater**  
Santiago Maria Calderon Novoa, 17, Junior, Diana Marie Sieh, 16, Junior, Escola Americana de Campinas, Campinas, Brazil; Brazil, T: Mauricio Gozzi
- EGCH0131** **Alternative Fuel Vehicles: Hydrogen as a Viable Option**  
Gabriela Garcia Therezo, 14, Freshman, Escola Americana de Campinas, Campinas, Brazil, T: Stetson Johnson
- Novo Hamburgo, BRA001, International Fair of South America - MOSTRATEC*
- ANIM003T** **Environmental Impact of Artisanal Fishing**  
Afonso Bosse, 18, Junior; Mauricio Antonio Goetten, 18, Junior, Instituto Federal de Educacao, Ciéncia e Tecnologia de Santa Catarina (IFSC) - Campus Jaragua do Sul, Jaragua do Sul, Brazil, T: Mario Cesar Sedrez
- BMED0011** **Synergetic Action of a Natural Antiviral**  
Helyson Lucas Bezerra Braz, 19, Junior, Instituto Federal de Educacao, Ciencia e Tecnologia do Ceara - Campus Limoeiro do Norte, Limoeiro do Norte, Brazil, T: Renata Chastinet Braga
- CHEM008T** **Obtentio of Detergent Solution for Organ's Decellularization Process**  
Vitoria Muller Gerst, 17, Junior; Gabriela Bronca Lopes, 18, Junior, Fundacao Escola Tecnica Liberato Salzano da Cunha, Novo Hamburgo, Brazil, T: Schana Andreia da Silva
- EAEV001T** **SOS Drought: Seeding Life through Low Cost Catchment and Desalination Systems in Semi Arid Region**  
Maria Vanessa Oliveira Teodosio, 17, Junior; Fatima Natanna de Miranda, 17, Junior, Escola Estadual De Educacao Profissional Julio Franca, Bela Cruz, Brazil, T: Fernando Nunes de Vasconcelos
- EBED041T** **Agri-Weather: Meteorological Solutions for the Agribusiness**  
Pedro Otavio Liberato Rocha, 17, Junior; Eduardo da Silva Campos, 19, Junior; Lucas Moraes, 17, Junior, Instituto Federal de Educacao, Ciencia e Tecnologia de Mato Grosso do Sul, Campo Grande, Brazil; Escola Antonietta e Leon Feffer, Sao Paulo, Brazil, T: Jiyan Yari
- ENEV0011** **Transforming Buriti Waste in Swine Feed and Activated Carbon: Study of Economic and Social Viability and Reduction of Environmental Impacts**  
Mauricio Pantoja, 19, Junior, State School Manoel Antonio de Castro, Igarape-Miri, Brazil, T: Gilberto Luis Sousa Da Silva
- MATS001T** **Influence of the Use Eva-Poly (Ethylene-Vinyl Acetate) Waste as Lightweight Aggregate in Alkali-Activated Mortars**  
Lucas Engelmann Flores, 17, Junior; Rafael Flores, 17, Junior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Brazil, T: Schana Andreia da Silva
- PHYS0021** **ENCRYPTA: Chaos and Cryptography – A Software Based on the Logistic Map**  
Felipe Frid Buniac, 17, Junior, Escola Antonietta e Leon Feffer, Sao Paulo, Brazil, T: Thiago Nascimento Nogueira
- SOFT0071** **Narrativa Soft: Software to Work on Narrative Production**  
Bibiana da Costa Davila, 18, Junior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Brazil, T: Rafaela Janice Boeff de Vargas
- Sao Paulo, BRA002, FEBRACE - Feira Brasileira de Ciencias e Engenharia*
- BCHM0231** **Medicinal Potential, Phytochemical Composition and Identification of Bioactive Compounds in Corn Silks (*Zea mays L.*) Extracts**  
Matheus dos Santos Passo, 18, Senior, Instituto Federal de Educacao, Ciencia e Tecnologia do Maranhao - Unidade Imperatriz, Imperatriz, Brazil, T: Vanderlene Brasil Lucena

- BEHA034T** **Strengthening Black People and Quilombola Identities in Antonio Cardoso Town**  
Beatriz de Santana Pereira, 17, Senior; Thayna dos Santos Almeida, 16, Senior, Colegio Estadual Antonio Carlos Magalhaes, Antonio Cardoso, Brazil, T: Patricia Azevedo Cerqueira Peixoto
- BMED070I** **Development of a Bakery Product for Celiacs: A Novel Approach for Fiber Enrichment Using Agroindustrial Residues**  
Alessandro Hippler Roque, 18, Senior, Instituto Federal de Educacao, Ciencia e Tecnologia do Rio Grande do Sul – Campus Osorio, Osorio, Brazil, T: Flavia Santos Twardowski Pinto
- CBIO031I** **Development of a Low Cost Thermocycler with Sample Temperature Prediction Model**  
Luiz Fernando da Silva Borges, 16, Senior, Instituto Federal de Educacao, Ciencia e Tecnologia de Mato Grosso do Sul – Campus Aquidauana, Aquidauana, Brazil, T: Leandro de Jesus
- CELL027I** **Identification of Genes from Protein-Protein Network Analyses in Obsessive-Compulsive Disorder**  
Eric Grosman Radu Halpern, 17, Senior, Escola Antonietta e Leon Feffer, Sao Paulo, Brazil, T: Carolina Cappi
- CELL040I** **Search for New Ways to Improve Immune Response against Cancer: Modulation of FASL (CD95L) by Lipid Mediators on Lymphocytes**  
Giulia Maria Ramella, 16, Senior, Colegio Dante Alighieri, Sao Paulo, Brazil, T: Carolina Lavini Ramos
- EBED029T** **AutoGuardian: Monitoring of Automotive Data to Help Forensic Analysis**  
Mariana da Silva Chermont, 17, Senior; Bruna Luzia Almeida Rodrigues, 18, Senior, Instituto Federal de Mato Grosso do Sul – Campus Nova Andradina, Nova Andradina, Brazil, T: Rodrigo Silva Duran
- ENEV044T** **Polymeric System for Tanker Ships to Prevent Oil Pollution in the Sea**  
Gustavo Souza Bastos, 18, Senior; Felipe Rodrigues Galhardo, 17, Senior; Alex Vieira Alencar, 17, Senior, Centro Educacional SESI-397, Maua, Brazil, T: Adriel Fernandes Sartori
- PLNT037T** **Synthesis of Natural Herbicide and Study of Its Effects on Grain Seeds Germination and Microorganisms Growth**  
Juliana dos Santos Lopes Marinho, 20, Senior; Letícia Adão Gomes, 19, Senior; Marcus Vinicius Pinto Pereira, 18, Senior, Instituto Federal de Educacao Ciencia e Tecnologia do Rio de Janeiro, Rio de Janeiro, Brazil, T: Cleber Bomfim Barreto Junior
- BULGARIA**  
*Sofia, BGR001, Bulgarian Science and Innovation Fair*
- MATH046I** **Vector Parking Functions and Tree Inversions**  
Petar Milkov Gaydarov, 18, Senior, Model High School of Mathematics "Akad. Kiril Popov", Plovdiv, Bulgaria, T: Samuel Hopkins
- PHYS001I** **Analysis of the Liquids Composition by the Sound Produced by Their Heating**  
Grigori Dobri Matein, 19, Senior, 91. German Language High School "Prof. Konstantin Galabov", Sofia, Bulgaria, T: Asen Pashov
- SOFT001I** **Cryptographically Secure Detection of Mirror Worlds**  
Hristo Tsvetanov Stoyanov, 19, Senior, Sofia High School of Mathematics, Sofia, Bulgaria, T: Evgenia Sendova
- CANADA**  
*Canada, CAN002, Youth Science Canada – Team Canada*
- BMED072I** **Development of a Novel Oncolytic Virus for Cancer Treatment and Diagnosis**  
Aditya Anand Mohan, 18, Senior, Colonel By Secondary School, Ottawa, Canada, T: Jennifer Lee
- BMED073I** **miRNAs as Biomarkers of IAPP-induced Inflammation in Type 2 Diabetes**  
Janice Pang, 17, Junior, Pinetree Secondary School, Coquitlam, Canada, T: Yvonne Chan

<b>BMED0741</b>	<b>Development of a Nanoparticle for Targeted Antigen Delivery as a Therapeutic Vaccination Platform</b>
#	Amit Scheer, 16, Junior, Colonel By Secondary School, Ottawa, Canada, T: Leanne Houston
<b>BMED0751</b>	<b>Impact of Burst Exercise on Cardiometabolic Status of Newly Diagnosed Type 2 Diabetics</b>
#	Avinash Kumar Pandey, 17, Senior, Waterloo Collegiate Institute, Waterloo, Canada, T: Mark Menhennet
<b>BMED0821</b>	<b>Low-Cost Disposable Device for Point-of-Care Nucleic Acid Testing of HIV: Sample-to-Answer in 60 Minutes for Less than \$5.00</b>
#	Nicole Sabina Ticea, 16, Freshman, York House School, Vancouver, Canada, T: Dennise Dombroski
<b>CBIO0321</b>	<b>Picture This: A Novel Approach to Limb Donor Matching, Prosthetic Design and Bone Allografts</b>
	Daniel McInnis, 17, Senior, St. Francis Xavier Catholic High School, Ottawa, Canada, T: Ian Taylor
<b>EAEV0481</b>	<b>Patination of Raw Lithic Materials for Analysis of Prehistoric Artifacts</b>
	Emily Cross, 15, Freshman, Hammarskjold High School, Thunder Bay, Canada, T: Alexandra Kraft- Willson
<b>EGPH0461</b>	<b>The e-Drink: Capturing Electricity from Beverages</b>
#	Ann Makosinski, 17, Senior, Saint Michaels University School, Victoria, Canada, T: Michael Jackson
<b>ENMC0391</b>	<b>The FIRST Frame: Personalized Front Impact Reduction SysTem for Bicycles</b>
#	Duncan Bayard Stothers, 17, Senior, St. George's School, Vancouver, Canada, T: Walley Mackay
<b>ENMC0401</b>	<b>A Biomimetic Non-Planar Approach to Reducing Induced Drag from Trailing Vortices</b>
	Candace Rose Brooks-Da Silva, 15, Sophomore, Academie Ste. Cecile International School, Windsor, Canada, T: Jim Minello
<b>ENMC0431</b>	<b>Aircraft Cabin Airflow: Curbing Disease Transmission</b>
	Raymond Wang, 17, Junior, St. George's School, Vancouver, Canada, T: Wallace MacKay
<b>SOFT0351</b>	<b>Improving Crypto: A Novel Smartphone Based Entropy Generator</b>
#	Benjamin Friesen, 16, Junior, Grimsby Secondary School, Grimsby, Canada, T: Leanne Travis
<i>Hamilton, ON, CAN001, Bay Area Science and Engineering Fair</i>	
<b>BCHM0411</b>	<b>Measuring Membranes: Quantifying Cortisone Interactions through X-Ray Diffraction</b>
	Adree Khondker, 17, Senior, Westdale Secondary School, Hamilton, Canada, T: Emil Gadjanski
<b>BMED1351</b>	<b>The Pharmacological Potential of Apigenin and Diosmetin as a Novel Treatment for Chronic Lymphedema</b>
#	Catharine Bowman, 16, Junior, St. Mary Secondary School, Hamilton, Canada, T: Pierre Yves Von der Weid
<b>CELL0511</b>	<b>Identifying Compounds for Modulating N17 Phosphorylation of Mutant Huntingtin via High Content Screening</b>
	Samuel Han, 16, Junior, Abbey Park High School, Oakville, Canada, T: Julie Burr
<i>Montreal, CAN004, Montreal Regional Science and Technology Fair</i>	
<b>BMED1181</b>	<b>Lepto-my-Cells: Effect of Leptomycin-B on Human Embryonic Kidney Cancer Cell (HEK-293) Proliferation</b>
	Melissa Lu, 15, Sophomore, The Study, Westmount, Canada, T: Sarah Howard
<b>EBED0541</b>	<b>H.E.R.O.: A Novel Geographical Data-based Haptic Environment Response Operator for the Visually Impaired</b>
#	Wilfred Aldo Mason, 16, Sophomore, Laurier Senior High School, Laval, Quebec, Canada, T: Noura Helal
<b>ENEV0711</b>	<b>SUPER-DAM: A Multifunctional System that Effectively Extracts, Utilizes and Oxidises Greenhouse Gases via Methanotrophic Bacteria</b>
	Thomas Raimundo Ribeiro, 14, Freshman, Laurier Senior High School, Laval, Quebec, Canada, T: Noura Helal

- MCRO054I**     **Magneto-Aerotaxis in Bacterial Microbots**  
 # #     Eunice Linh You, 19, Senior, Marianopolis College, Westmount, Canada,  
 T: Rocco Iafigliola
- CHILE**  
*Santiago, CHL001, EXPLORA National Youth Science Conference*
- ENEV015T**     **ECO-POT: Cooking Food for Thermal Insulation**  
 Matias Ignacio Luengo, 16, Junior; Javiera Paola Aedo, 15, Junior, Colegio Santa Teresa de los Andes, Puerto Aysen, Chile, T: Laura Carolina Vega
- MCRO019T**     **Yungay, Mars on Earth**  
 Benjamin Andres Cifuentes, 17, Junior; Manuel Eduardo Droguett, 15, Junior, Liceo Científico Humanista La Chimba B-33, Antofagasta, Chile,  
 T: Ivan Luis Castillo
- CHINA**  
*All of China, CHN001, China Adolescents Science and Technology Invention Contest*
- BCHM007I**     **Research on the Structures of Two Bunya Viruses' Transcription and Replication Complex of Nucleoprotein**  
 Jianzhao Yang, 18, Senior, Beijing No.4 High School, Beijing, China,  
 T: Xiaobin Han
- ANIM072T**     **The Expression of Two Important Sex-Related Genes in Response to Incubation Temperature in Reeves's Turtle (*Mauremys reevesii*)**  
 Wenqi Shen, 18, Senior; Ming Feng Wan, 18, Senior, Beijing No. 80 High School, Beijing, China, T: Hong Su, Hong Su
- BMED022I**     **Analysis of Home Health Care Needs of the Elderly and Smart Product Design**  
 Mengqi Liu, 16, Junior, Beijing No.4 High School, Beijing, China, T: Zeng Gao
- CHEM012I**     **An Insight into the Starch Coloration**  
 Haoran Qian, 15, Sophomore, Rui'an High School of Zhejiang Province, Wenzhou, China, T: Ying Yu
- CHEM013I**     **A Low Temperature Plasma-Assisted Cataluminescence Sensor for Ethylene Discrimination**  
 Guofu Liu, 17, Senior, Beijing No.8 High School, Beijing, China,  
 T: Chunlin Zhang
- EBED013I**     **The Study on the Expandable Shutter Release and Its Assorted Functional Modules**  
 Haozhou Xi, 16, Junior, Huayang Middle School of Chengdu, Chengdu, China,  
 T: Xiaorong Zhang
- EGPH029I**     **Research of Permanent Magnetic Regenerative Braking Device**  
 Xiangzhou Kong, 17, Junior, Fuzhou No.3 Middle School, Fuzhou, China,  
 T: Lizhen Wei
- ENEV009I**     **From Organic Wastes to Biochar: A High School Student's Practice**  
 Zhuorui Li, 17, Junior, Guandong Experimental High School, Guangzhou, China, T: Zhengyong Hu
- ENEV010I**     **A Computer Controlled Low Cost Indoor Airborne Formaldehyde Removing System by Electrolysis of Common Salt Water**  
 Taige Wang, 17, Junior, No.2 High School of East China Normal University, Shanghai, China, T: Weiyl Lou
- ENMC019I**     **The High-Speed General Aerodynamic Differential Cap-Sorting Machine**  
 Jianan Mu, 18, Senior, Xi'an Middle School of Shaanxi Province, Xi'an, China,  
 T: Jinpeng Zhao
- PHYS010T**     **Research and Analysis on Optoacoustic Phenomenon**  
 Yi Wei, 18, Senior; Yuji Chai, 17, Senior, Beijing No.5 High School, Beijing, China, T: Liuwan Zhang
- PHYS011T**     **A Simple Methodology to Measure Lunar Distance and Lunar Radius**  
 Zhuojun Chen, 18, Senior; Ankai Chen, 18, Senior, Hangzhou Senior High School, Hangzhou, China, T: Lan Lin
- PHYS012I**     **Optical Characteristics and Applications of Mirror-Like Cylinders Under Laser Beams**  
 Yaojia Chen, 17, Senior, Xiamen Foreign Language School, Xiamen, China,  
 T: Yongchang Qian

PHYS032I	<b>Physical Simulation Based on Bat's Pinna Structure and Its Deformation Binaural Sound Signal Measurement Experiment of Greater Horseshoe Bat</b> Ruochen Hao, 17, Senior, Shandong Experimental High School, Jinan, China, T: Qiao Zhuang
PLNT014I	<b>The System Establishment of Micro Grafting between <i>in vitro</i> Regeneration Buds and Seedling Rootstocks in Peony</b> Yu Wen, 15, Junior, Shanghai Qibao High School, Shanghai, China, T: Ming Pei
ROBO003I	<b>Wall-climbing Reconnaissance Robot Based on WiFi Technology</b> Kehan Yang, 17, Junior, Experimental High School Attached to Beijing Normal University, Beijing, China, T: Yongyun Gang
SOFT009I	<b>An Atmospheric Visibility Measurement System Using Smartphone</b> Jianing Lin, 16, Junior, The High School Affiliated to Renmin University of China, Beijing, China, T: Yingwei Luo
SOFT011I	<b>The Positioning in Multi-dimensional Grid Using Passive RFID of RSSI Feature Analysis</b> Yechen Hu, 17, Junior, High School Affiliated to Fudan University, Shanghai, China, T: Xiaoqun Hu
SOFT012I	<b>Research on the Bili Privacy Protection System Based on the 4-4-3 Protection Model</b> Houjun Huang, 17, Senior, Guangzhou No.2 High School, Guangzhou, China, T: Lijuan Yan
SOFT013I	<b>Local Interaction of Agents Leading to Global Cooperation in Multi-Robot Manipulation</b> Yiwen Yuan, 17, Junior, High School Affiliated to Shanghai Jiao Tong University, Shanghai, China, T: Yu Peng
<i>Chengdu, CHN008, Sichuan Science Fair</i>	
BEHA023T	<b>The Effect of Localized Vibrations on the Physiological Signs of Children</b> Siddharth Avi Chandra, 16, Junior; Anna Victoria Serbent, 17; Tiger Chen Lu, 17, Freshman, Shanghai American School Pudong, Shanghai, China; Shanghai American School, Shanghai, China, T: Alan Chan
CBIO019I	<b>Computer-Aided Diagnosis of Heart Allograft Rejection Using Graph-Based Features</b>
#	Ian Yiran Huang, 16, Junior, International School of Beijing, Beijing, China, T: Tao Wan
MCRO031T	<b>A Further Exploration of Bacterial Divisional Factors with Regards to Genome Size</b> Michael Scott #, 18, Senior; Jonathan Sims #, 18, Freshman, Chengdu International School, Chengdu, China, T: Glen Walenda
SOFT036I	<b>Low-Cost, Fun and Colorful Glove for 3D Hand Posture Estimation System</b> Chin Yeoh, 15, Sophomore, Chengdu International School, Chengdu, China, T: Glen Walenda

## CHINA, HONG KONG SPECIAL ADMINISTRATIVE REGION

*Hong Kong, HKG001, Hong Kong S&T Invention Contest*

CHEM064T	<b>Dye-sensitized Chlorophyll Solar Cells Using Crude Chlorophyll Extract Coupled with Natural Cysteine-assisted Ag/Ppy Ion Carriers and Water Electrolyte</b> Yat Ho Chu, 18, Senior; Tsz Fung Yip, 18, Senior; Shing Huk David Lu, 17, Senior, King's College, Central and Western District, China, Hong Kong Special Administrative Region, T: Bob Lui
EAEV065T	<b>Using Carminatives to Wipe Out Gas Bubbles Disease</b> Man Ying Chiu, 17, Senior; Ming Yan Timothy Tang, 18, Senior; Hok Tai Chan, 17, Senior, Carmel Pak U Secondary School, Hong Kong, China, Hong Kong Special Administrative Region, T: Yuen Yu Ip
ENEV058I	<b>Revolutionary Recycled &amp; Reusable Biodegradable Adhesive Tack (3R-BAT)</b> Hin Fung Chow, 16, Junior, Maryknoll Fathers' School, Hong Kong, China, Hong Kong Special Administrative Region, T: Yuen Man To

- ENEV059T** **Revolutionary Cooking Exhaust Removal System for Commercial Kitchens**  
Tsz Chung Hui, 17, Junior; Man Chung Tang, 17, Junior; Ka Shuen Connie Cheng, 16, Junior, Ju Ching Chu Secondary School (Yuen Long), Hong Kong, China, Hong Kong Special Administrative Region, T: Yuk Ling Alta Choi
- MATS014T** **Self-sanitizing Door Handle**  
Sum Ming Simon Wong, 17, Sophomore; Kin Pong Michael Li, 17, Senior, The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School, Tuen Mun, China, Hong Kong Special Administrative Region, T: Rebecca Ming Kei Chan

## CHINA, MACAO SPECIAL ADMINISTRATIVE REGION

*Macao, MAC001, Macao Region Science Fair*

- CBIO016I** **Smart Pants: Spinal Health and Human Activity Monitoring Wearable Device**  
Chi Hang Lao, 18, Senior, Instituto Salesiano, Macao, China, Macao Special Administrative Region, T: Chon Mou Lok
- EAEV030T** **The All In-House Recycling and Reusing System of Purified Water for Cleaning Purposes**  
Qing Wen Zhang, 17, Senior; Sio In Cheong, 18, Senior, Keang Peng School (Secondary Section), Macao, China, Macao Special Administrative Region, T: Kai Heng Lam
- ROBO012T** **Make-ROV, an Advanced System-Based Educational Outreach ROV**  
Hok Wai Chang #, 17, Senior; Chon Hou Leong, 15, Freshman; Chon Hin Ho, 16, Sophomore, Pui Ching Middle School Macau, Macau, China, Macao Special Administrative Region, T: Kun Wa Lao

## CHINESE TAIPEI

*Taipei, TWN001, Taiwan International Science Fair*

- BMED111I** **In vitro or in vivo Studies Disclosed the Antioxidant and Anticancer Activities of *Mikania micrantha*, an Invasive Alien Species in the World**  
Jhih-Hsuan Hseu, 18, Junior, Stella Matutina Girls' High School, Taichung City, Chinese Taipei, T: Tzong-Der Way
- CELL014I** **Mitochondrial Protein CYP11A1 Changes Mitochondrial Morphology**  
Siang-Yun Lee, 17, Senior, Taipei First Girls' High School, Taipei, Chinese Taipei, T: Bon-chu Chung
- CHEM022T** **Synthesis of  $\text{Cu}_2\text{O}/\text{CuO}$  Nanomaterials for Enzymeless Amperometric Detection of Glucose**  
Lin-Jia Wang, 17, Junior; I-Hsuan Lin, 16, Junior, Taipei First Girls High School, Taipei, Chinese Taipei, T: Huan-Zong Chang
- EAEV029I** **Impact of Eyjafjallajökull Volcano Eruption on Atmospheric Temperature in 2010**  
Tsai-Ju Yu, 18, Senior, National Lo-Tung Senior High School, Luodong Township, Yilan County, Chinese Taipei, T: Ching-Yi Su
- EBED018I** **Magnetic Positioning Sphere: A Single-Source 3D Positioning System Using Rotating Magnetic Fields**  
Wei-Tung Chen, 16, Sophomore, Taipei Municipal Jianguo High School, Taipei City, Chinese Taipei, T: Ting-Chung Wang
- ENEV023I** **Nanodiamond as a Novel Green Adsorbent for Heavy Metal Removal**  
Chih-Hau Shiah, 16, Junior, Taipei Municipal Jianguo High School, Taipei City, Chinese Taipei, T: Soofin Cheng
- MATH013I** **What Number Cannot Be Realized as the Number of Regions Divided by  $n$  Straight Lines?**  
Chia Hua Chang, 18, Senior, National Taichung Girls Senior High School, Taichung, Chinese Taipei, T: Lai Hsin Chih
- MATH014I** **Conservation in Dynamic Labeling of Polygons**  
Chia Chun Lee, 16, Junior, Taichung First Senior High School, Taichung, Chinese Taipei, T: Cheng Hua Tsai
- PHYS022T** **Discriminating the Dependence of Galaxy Color on Luminosity & Redshift Using Updated SDSS Survey**  
Yu-Yi Chiang, 18, Senior; Chih-Jung Ko, 18, Senior, Taipei First Girls High School, Taipei, Chinese Taipei, T: Hau-Yu Liu

## COLOMBIA

Medellin, COL001, Colombia Science & Engineering Fair

- EAEV085T Production of Activated Coal from Organic Material, for the Filtering of Water of the Stream "La Mosca" in the Municipality of Guarne, Antioquia, Colombia**  
Valentina Ossa Montoya, 16, Freshman; Angie Daniela Carvajal, 16, Freshman, Institucion Educativa Rural Romeral, Guarne, Colombia, T: Saudith Alvarez Escobar
- EBED038I Optimization of Communicative and Information Spreading Processes at the School Institution Educativa Angela Restrepo Moreno through the Development of an App**  
Carlos Andres Zuluaga, 18, Junior, Institucion Educativa Angela Restrepo Moreno, Medellin, Colombia, T: Jose David Villa Diaz
- EGPH054T Energy from Noise**  
Joseph Valencia Vera, 17, Junior; Juan Diego Rojas Eusse, 18, Junior; Nestor Santiago Osorio, 16, Sophomore, Liceo Francisco Restrepo Molina, Envigado, Colombia, T: Alexander Castañeda Restrepo
- ENEV083T Design of an Electronic Device to Measure Environmental Variables and Inform the Effects of Those Results on Health**  
Daniel Lopez Casafus, 17, Junior; Edison Villegas Villegas, 17, Junior, Institucion Educativa Colegio Loyola Para la Ciencia y la Innovacion, Medellin, Colombia, T: Clementina Buitrago Arboleda
- ENEV085T CO<sub>2</sub> Processing Machine**  
Maria Fernanda Montoya, 17, Junior; Mariana Perez Palacio, 17, Junior; Antonia Vasco Rivera, 17, Junior, Liceo Francisco Restrepo Molina, Envigado, Colombia, T: Alexander Castaneda Restrepo

## COSTA RICA

San Jose, CRI001, Feria Nacional de Ciencia y Tecnologia

- PLNT003T Extracts of the *Lecanicillium lecanii* Fungus as Biological Controller of Coffee Leaf Rust in Turrialba, Costa Rica**  
Daniel Alberto Gonzalez-Ramirez, 17, Junior; Glaver Antonio Rodriguez-Vega, 17, Junior, Colegio Interamericano de Ciencias Ambientales CATIE, Turrialba, Costa Rica, T: Angie Mata-Tencio

San Jose, CRI002, National Engineering Expo

- ENMC003T Creation of a Mechanical Material-Cutting System with Potential for Use in Low-Cost Nanotechnology**  
Isaac David Ovaes-Sandi, 18, Junior; Pablo Chacon-Morua, 17, Junior, Colegio Tecnico Profesional Vocacional Monsenor Sanabria, Desamparados, Costa Rica, T: Danilo Rojas-Chanto
- PLNT004I *Annona muricata* Extract for the Control of *Aedes aegypti* Mosquito**  
Karla Melissa Rojas\_Campos, 18, Junior, Colegio Tecnico Profesional Piedades Sur, San Ramon, Costa Rica, T: Arlette Orozco Munoz
- SOFT003I Image-to-sound Processing and Conversion System to Offer Environmental Perceptions to Visually-Impaired Individuals by Using an Alternative Acoustic Language**  
Kevin Stanley Alfaro-Vega, 19, Senior, Colegio Tecnico Profesional Regional de San Carlos, Quesada, Costa Rica, T: Gilberth Rodriguez-Guillen

## CZECH REPUBLIC

Plzen, CZE001, Students' Professional Activities (SPA)

- BMED003I More Efficient Cancer Treatment Using Novel Ferrocene and Titanocene Derivatives**  
Thi Thu Giang Tran, 19, Junior, Prvni Ceske Gymnazium v Karlovych Varech, Karlovy Vary, Czech Republic, T: Katerina Pavlasova
- CBIO001I The Effect of Cholesterol on Biological Membranes**  
Michaela Kajsova, 19, Junior, Gymnazium Zlin - Lesni Ctvrt, Zlin, Czech Republic, T: Jana Hrabikova
- SOFT005I MultiROM: The Multiboot Modification for Android Devices**  
Vojtech Bocek, 19, Senior, Stredni Prumyslova Skola a Vyssi Odborna Skola Technicka Brno, Sokolska 1, Brno, Czech Republic, T: Jaroslav Hodal



Prague, CZE002, AMAVET Czech Republic Science Fair

**EBED0111 Car Stabilization System - Modelation of ESP**

Martin Ptacek, 18, Junior, Gymnazium, trida Kapitana Jarose 14, Brno, Czech Republic, T: David Kubat

**ENEV0721 Biosorption of Copper Ions by Schizophyllum Commune**

Ondrej Hubalek, 19, Senior, Letohradske Soukrome Gymnazium, Letohrad, Czech Republic, T: Jitka Machackova

**DENMARK**

Copenhagen, DNK001, Unge Forskere

**EBED0311 A Functional, Inexpensive Bionic Hand with Feelings**

Emil Bulow Pedersen, 19, Senior, Hasseris Gymnasium, Aalborg, Denmark, T: Peter Eduard

**EGYPT**

Alexandria, EGY002, BA Science and Engineering Fair

**BEHA0431 Activating the Latent Energy for People with Visual Needs**

Amira Mahmoud Abdallahi, 16, Junior, El-Rahman Language School, Alexandria, Egypt, T: Eslam Elsayed Ramadan

**ENMC053T C.F.F.15 (Controlled Flying Forces) 2015**

Fares Essam Abdelkader #, 17, Junior; AbdElaziz Ahmed Elmasy #, 18, Senior, El Nasr Boys' School, Alexandria, Egypt; Elnasrya Secondary School, Alexandria, Egypt, T: Samer El kholly

**ROBO020T Automated Lip-Reading Technique for Speech Disabilities: A Novel Machine Learning Algorithm Using Microsoft Kinect Sensor and Hybrid Approach for Feature Extraction**

Ahmed Abdelaziz Mesbah, 17, Junior; Ahmed Abdelmaksoud Eltaiebany, 17, Junior, El Nasr Boys' School, Alexandria, Egypt, T: Marwan Torki

Cairo, EGY001, Cairo Science and Engineering Fair

**BMED077T NH Rapid Test for Detecting Breast Cancer at Home**

Heba Mostafa Ahmed, 16, Sophomore; Noorhan Kamal El-Bassyony, 17, Senior, Safia Zaghlol, Cairo, Egypt; El-Ahed El-geded, Cairo, Egypt, T: Hala Abd Aziz El-Son, Ahmed Ahmed Hanafy

**CBIO0331 Novel Potent Inhibitors for CIP2A with Mutational Classification Method**

# Mohammad Mansour Tarek, 19, Senior, Salman EL-Farisy High School, Cairo, Egypt, T: Tarek Mansour

**EAEV049I Rice Straw Power**

Yasmine Yehya Moustafa, 17, Junior, Maadi STEM School for Girls, Zahraa Elmaadi, Egypt, T: Alaa Moatamed

**ENEV039T Revolutionary Desalination System**

Asmaa Atef Sabsouba, 16, Junior; Noha Shokry Abouqara, 17, Junior, Maadi STEM School for Girls, Maadi, Egypt, T: Alaa Mohamed Mohamed

**MATS024T Using Pico-Nano Technology to Enhance the Effectiveness of Visible-Excited Charge Separation and Photo-catalytic Activity**

Kerolos Mousa Agaypi, 19, Senior; Rahaf Mohamed Kamel, 16, Junior, Mallawi Secondary School for Boys, Mallawi, Egypt; Maadi STEM School for Girls, Maadi, Egypt, T: Michel Morid Salib

**ESTONIA**

Tartu, EST001, Estonian Young Scientist Contest

**CHEM067I Antibacterial Effects of Photocatalytic Nanoparticulate TiO<sub>2</sub> Thin Films**

Markus Laars, 19, Senior, Tallinn Secondary Science School, Tallinn, Estonia, T: Andrus Kangro

**SOFT054I ADDIE: a Website for Simplifying Cryptocurrency Addresses**

Andri Soone, 18, Junior, Kadrina Secondary School, Kadrina, Estonia, T: Karl Meos

**FINLAND**

Helsinki, FIN001, Finland National Science & Engineering Fair

**MATS034I Eco-friendly Incubator Saves Nature**

Elnur Efendi, 17, Junior, Mikkelin Lukio, Mikkeli, Finland, T: Kirsi Idanpirtti

**SOFT037T**
**EppaBasic Programming Language**

Sami Petri Tapani Kalliomäki, 19, Senior; Henrik Eero Markus Lievonen, 18, Senior, Karkkilan lukio, Karkkila, Finland; Maunulan yhteiskoulu ja Helsingin Matematiikkalukio, Helsinki, Finland, T: Antti Laaksonen

**FRANCE**

Paris, FRA001, *Olympiades de Physique*

**PHYS033T**
**Detection of Cosmic Particles Using Balloons**

Maxime Horlaville, 18, Senior; Jeremiah Alexis Knockaert, 17, Senior; Quillere Manon, 16, Freshman, Lycee La Mennais, Guerande, France, T: Brigitte Blanchard

**GEORGIA**

Tbilisi, GEO001, *Georgian Science Project Olympiad*

**MATH049I**
**Direction Function and Its Use in Basic Mathematics**

Mariam Kanashvili, 14, Freshman, Georgian-American School, Tbilisi, Georgia, T: Ia Mebonia

Tbilisi, GEO002, *Leonardo da Vinci Fair*

**EBED004T**
**Arduino Meteo**

Irakli Kapanadze, 16, Sophomore; Karlo Khutsishvili, 16, Sophomore, #6 Public School of Akhaltsikhe, Akhaltsikhe, Georgia; Mzeqa Independent School, Kherkhemli Ltd., Akhaltsikhe, Georgia, T: Maka Geladze

**EBED005T**
**Smart Alarm**

Vakhtang Donadze, 17, Senior; Irakli Chkheidze, 17, Senior, "Gorda" Batumi Elite School, Batumi, Georgia; Gorda, Batumi, Georgia, T: Dimitri Beria

**ENMC004I**
**Using Nickel Titanium Alloy for Fixing Damaged High Pressure Pipes in Emergency Situations**

#

Nika Alavidze, 18, Senior, Physics Mathematics Public School #41 by Andria Razmadze, KUTAI, Georgia, T: Genadi Margvelashvili

**MATS002T**
**Study of Carbon Composites in Various Applications**

Temur Chichua #, 17, Senior; Nikoloz Minashvili, 18, Senior; Aleksandre Toidze, 18, Senior, Vladimer Komarovi Tbilisi Physics and Mathematics School, Tbilisi, Georgia, T: Vano Kvitchashvili

**GERMANY**

Kuenzelsau, DEU001, *Jugend Forscht*

**CHEM016I**
**Cavity: Analysis and Application of Nanostructures in Aluminumoxide**

Arne Hensel, 18, Senior, Bundespräsident Theodor-Heuss-Schule, Homburg/Efze, Germany

**CHEM017I**
**Improved, Ecofriendly Solid Propellants for Space Related Applications**

Saverio Nobbe, 19, Senior, Romain-Rolland-Oberschule, Berlin, Germany

**CHEM060T**
**From Greenhouse Gas to an Energy Source of the Future:**
**New Findings on Emission and Formation of Methane**

Antonia Hartmann, 19, Senior; Felicitas Kaplar, 18, Senior, Hanns-Seidel-Gymnasium, Hombach, Germany

**EBED042I**
**Gas Analysis Using Ultrasonic**

Niklas Fauth, 17, Senior, Friedrich-Schiller-Gymnasium, Marbach am Neckar, Germany

**ENMC056T**
**PGG 3-D Rotation Printer**

Lukas Hohne, 18, Senior; Lukas Grafner, 17, Senior, Paul-Gerhardt-Gymnasium, Grafenhainichen, Germany

**PHYS015I**
**Efficient Light Transport Simulation through Utilization of Temporal Coherence**

Lukas Stockner, 18, Senior, Maria-Ward-Gymnasium Altotting, Altotting, Germany

**PHYS016I**
**N-body Simulations Using the GPU**

Adrian Lenkeit, 15, Sophomore, St. Michael-Gymnasium, Bad Munstereifel, Germany

**PHYS017I**
**Feynmans Inverse Sprinkler**

Leonard Bauersfeld, 17, Senior, Hans Thoma Gymnasium, Lorrach, Germany

- PLNT049I** **Transmission Changes of Leaves after Light Irradiation**  
Felix Hoefer, 17, Junior, Gymnasium Othmarschen, Hamburg, Germany
- SOFT016I** **Modal Logic as a Programming Language**  
Nadine Theisen, 17, Senior, Max-Planck-Gymnasium Saarlouis, Saarlouis, Germany
- HUNGARY**  
*Budapest, HUN001, Innovation Contest for Young Scientists*
- MATS045I** **Research of Multi-walled Carbon Nanotube Composites' Photochemical Properties**  
Szabolcs Rozsnyik, 19, Senior, Bolyai Secondary Grammar School and Dormitory, Zenta, Republic of Serbia, T: Endre Szorad
- INDIA**  
*New Delhi, IND001, Initiative in Research and Innovation in Science*
- BMED040T** ***Paspalum scorbulatum* (Kodo Millet): A Potential Natural Drug for Diabetes**  
Upasana Dahiya, 17, Junior; Ria Sammi, 15, Sophomore, Salwan Public School, Gurgaon, Haryana, India, T: MS. Hemamalini Akundy
- BMED046I** **An Innovative Therapy to Combat Parkinson's Disease Using Arginine as an Inhibitor for Alpha-Synuclein Aggregation**  
Shrishti Asthana, 17, Senior, Sri Guru Harkrishan Model Senior Secondary School, Chandigarh, India, T: Ipsita Roy
- EBED019I** **Autoreader: A Wearable Assistant for the Visually Impaired**  
Aditya Ashish Bhople, 14, Freshman, Narayana Vidyalayam, Nagpur, India, T: Ashish Babarao Bhople
- EBED020I** **TALK – An AAC Device: Converting Breath into Speech for the Disabled**  
Arsh Shah Dilbagi, 17, Senior, DAV Public School, Panipat, India, T: Anu Maheshwari
- MATH017I** **A Generalisation of the Determinant to Rectangular Matrices: Implications in Gauge Theory**  
Abhimanyu Pallavi Sudhir, 15, Freshman, Dhirubhai Ambani International School, Mumbai, India, T: Malvika Deo
- MATS015I** **Plumeria Blooms for Organic Electronics!**  
Ravi Pradip, 17, Junior, Dayapuram Residential School, Kozhikode, India, T: Padmanabhan Predeep
- MATS029T** **Highly Sensitive Nano-Ferrite for Detection of Carbon Monoxide in Air**  
Aditya Bhargava, 16, Sophomore; Komal S, 16, Junior, Sharada Vidyanikethana Public School, Mangalore, India, T: Amit Ashok Vernekar
- MCRO027I** **Gamma-glutamyl Transpeptidase Inhibition: Combating Multi-Drug Resistance**  
# Vasudev Malyan, 17, Junior, Maharaja Agarsain Public School, Delhi, India, T: Ankur Malyan
- MCRO040T** **Novel Natural Solution to Control Oral Disease**  
Moha Nimishbhai Dholakia, 14, Freshman; Yesha Tusharbhai Masharu, 14, Freshman, Shree G.K. Dholakiya, Rajkot, India, T: Apeksha Joshi
- PLNT024T** **Effective Begonia: An Herbal Solution Towards Enterobiasis**  
Mansi Aggarwal, 17, Senior; Harshit Jindal, 14, Freshman, Maharaja Agarsain Public School, Delhi, India, T: Ritu Gupta
- PLNT040T** **Eco Friendly Antibacterial and Antifungal Cookware for Rice Cakes**  
Shrilakshmi Pai Nallur, 14, Freshman; Pratheeksha Suresh, 15, Freshman, Sri Ramakrishna High School, Puttur, Puttur, India, T: Vasanthi Kedila
- SOFT027I** **Image Processing Algorithms towards Optical Detection of 2D Nanomaterials**  
# # Onkar Singh Gujral, 18, Junior, La Martiniere for Boys, Kolkata, Kolkata, India, T: Shourjya Sanyal

## INDONESIA

*Jakarta, IDN001, Youth Science Competition*

- BEHA022T A Paradise in Crisis: The Eroding Cultural Values in Balinese Villages**  
Ni Nyoman Shinta Prasista Sari, 18, Senior; Ni Nyoman Oktaria Asmarani, 18, Senior, Denpasar 3rd State Senior High School, Denpasar, Indonesia, T: I Wayan Ananta Wijaya
- MATS019T Packed VolcASH: An Inorganic Nature of Heavy Metals Adsorbent**  
Luca Cada Lora, 18, Senior; Galih Ramadhan, 18, Senior, Surakarta 1st State Senior High School, Surakarta, Indonesia, T: Kurotu A'yun Kurotu A'yun
- MATS020T Ramie Fiber as a Novel Green Electric Double Layer Capacitor Materials**  
Regia Puspitasari, 18, Senior; Audie Rahmani Awali, 18, Senior, Malang 10th Senior High School, Malang, Indonesia, T: Prayuwati

*Jakarta, IDN002, Olimpiade Penelitian Siswa Indonesia*

- CHEM029T Bagasse-Based Activated Carbon as Effective Adsorbent for Heavy Metal Contamination from Industrial Activities (Case Study: Gold Mining Area in Mandor River, West Kalimantan)**  
Hansen Hartono, 17, Senior; Shinta Dewi, 18, Senior, SMA Katolik Gembala Baik, Pontianak, Indonesia, T: Winny Kurniawan
- ENEV029T The Production of Eco Ink Based on Leaves Waste**  
Bayu Satriya Mahadika, 17, Senior; Rizki Fajar Kurniawan, 18, Senior, SMA Negeri 3 Semarang, Semarang, Indonesia, T: Agus Priyatno
- MATH018T The Motifs Development of Gringsing Sarong**  
I Kadek Sudiarsana, 18, Senior; I Dewa Gede Ary Palguna, 18, Senior, SMAN Bali Mandara, Singaraja, Indonesia, T: I Wayan Agustiana

## IRAQ

*Erbil, IRQ001, INPO (Iraq National Project Olympiad)*

- EGPH057T Geo-Electricity**  
Ali Hussein Abdulwahhab Al-Ogaili, 18, Junior; Ahmad Abdulsalam Dawood Al-Naseri, 17, Junior, Ishik Boys College, Baghdad, Iraq, T: Ibrahim Yazici
- SOFT028T A Travel through the Solar System**  
Mustafa Hushyar Mohammed Ameen Kamala, 17, Junior; Mohammad Haval Asaad Asaad, 17, Junior, Erbil Ishik High School, Erbil, Iraq; T: Ersin Arslan

## IRELAND

*Dublin, IRL001, BT Young Scientist & Technology Exhibition*

- CHEM033T Measurement of Radon Emanation and Its Correlation with Indoor Radon Levels in Some Areas of Mallow**  
Caoimhe Marie Cronin, 15, Freshman; Shauna Murphy, 13, Freshman, Gallifrey Home High School, Keller, Ireland, T: Patrick Martin Timmons
- Local, Regional and National (Dublin), IRL002, SciFest*
- CBIO017I An Integrated Electronic Medical Dispensing, Diary and Locator Device to Support Memory Impaired Independent Living**  
Christopher Carragher, 18, Senior, Our Lady's Secondary School Castleblayney, Castleblayney, Ireland, T: Kathryn Higgins

## ISRAEL

*Jerusalem, ISR001, The Israeli Young Scientists Contest*

- BEHA019I The Encoding of Predication in Topic-Prominent Languages**  
Kedem Snir, 17, Senior, Israel Arts and Science Academy, Jerusalem, Israel, T: Yael Justus-Segal
- BMED038T Pressure and Blood Flow Regulating System Inside an Orthopedic Cast**  
Betty Shamaev, 17, Senior; May Shoshan, 17, Senior, Ort Greenberg Kiryat Tivon, Kiryat Tivon, Israel, T: Oren Lamdan
- CELL031I The Role of Transcription Factor Pax6 in Maintenance of Pancreatic Beta Cell Identity**  
Noa Eden, 18, Senior, Mae Boyer High School, Jerusalem, Israel, T: Aviva Marx
- ENMC026I Duchifat-1: Life Saver Satellite**  
Yarden Aby Carmel, 18, Senior, Handasaim High School Herzliya Near Tel Aviv University, Herzliya, Israel, T: Ana Heller

**MATS0161 On the Growth and Relaxation of Viscous Fingering Structures**  
Noam Youngerman, 17, Senior, Israel Arts and Sciences Academy,  
Jerusalem, Israel, T: Dan Steinitz

## ITALY

*Milano, ITA001, I Giovani e le Scienze*

**BMED023T Rehabilitation Tool for People Suffering from Ataxia**  
Luca Molteni, 18, Senior; Luigi Ugge, 19, Senior, Liceo Scientifico G. Gandini,  
Lodi, Italy, T: Roberto Giudici

**CHEM009T Luminol and Silver Nanoparticles: A Brilliant Pair**  
Chiara Figazzolo, 18, Senior; Filippo Cotta Ramusino, 18, Senior, Istituto  
Superiore "Ascanio Sobrero", Casale Monferrato, Italy, T: Elisabetta Gaita

**EGCH006T Power from Algae**  
Chiara Sabrina Leali, 18, Senior; Elia Frignani, 19, Senior, IS "Enrico Fermi",  
Mantova, Italy, T: Mauro Grandi

## JAPAN

*Tokyo, JPN001, Japan Students Science Awards*

**ANIM021H Honeybees Build Their Comb Cells without Measuring the Angles**  
Yui Hirasaka, 16, Sophomore, Obayashi Sacred Heart High School,  
Takarazuka, Japan, T: Yoko Higashiguchi

**ANIM023T Mg Ions in the Skin Mucus of Anemone Fish Block Nematocyst Discharge of Sea Anemone to Its Symbionts**

Kaho Shigematsu, 16, Sophomore; Miho Yamamoto, 16, Sophomore, Ehime  
Prefectural Nagahama High School, Ohzu, Japan; T: Hiroshi Shigematsu

**BMED039I Reducing the Risk of Misdiagnosis Using New Visualized Method for ECG**  
Kaede Nagano, 16, Sophomore, Ogaki Higashi Senior High School of Gifu  
Prefecture, Ogaki, Japan, T: Namiko Yamamura

**CHEM024I Color Change of Copper Foil by Oxide Thin Layer Formation**  
Naohiro Kadoguchi, 16, Sophomore, Miyagi Sendai Daisan High School,  
Sendai, Japan, T: Yusuke Sugawara

**MCRO033T Enhancement of Antibacterial Activity by Starch Under Oligotrophic Culture Condition for an Actinomycetes Strain Isolated from Schoolyard Soil**

Aya Fujioka, 17, Junior; Rina Takeuchi, 17, Sophomore; Megumi Nara, 16,  
Sophomore, Kasukabe Girls' Senior High School, Kasukabe, Japan,  
T: Shoichi Fujie

*Tokyo, JPN002, Japan Science & Engineering Challenge*

**CHEM023T Simple and Inexpensive Method for Measuring Ozone Concentration Using Sodium Nitrite**

Takafumi Nishida, 18, Senior; Naoto Yamane, 18, Senior, Osaka Prefectural  
Senri Senior High School, Suita-city, Japan, T: Noriyuki Matsuura

**CHEM025I Reductions in Hydrogen Detonation Velocity and Range through the Addition of Incombustible Gases Composed of Polyatomic Molecules**  
Makoto Tsuchida, 17, Junior, Shibaura Institute of Technology Kashiwa  
Senior High School, Kashiwa-city, Japan, T: Kiichi Yamamoto

**CHEM026T Effect of Eggshell Membrane on Inhibiting Food Discoloration**  
Chika Matsui, 18, Senior; Chizumi Maeta, 17, Junior; Saori Tabara, 19, Senior,  
National Institute of Technology, Yonago College, Yonago-city, Japan,  
T: Naoki Tanifuji

**EAEV032I Landslide Forecasting: Contour Shape as a Major Factor in Slope Failure**  
Ihiro Endo, 17, Junior, Miyagi Prefectural Sendai Daini Senior High School,  
Sendai-city, Japan, T: Naoshi Watanabe

**ENMC027I Highly Precise Phase-Locked Loop DC Motor Control System with a Reduced Number of Parts**

Takahiro Ichige, 17, Sophomore, Chiba Municipal Chiba High School,  
Chiba-city, Japan, T: Takanobu Yoneya

**PLNT022I Weeds Never Die: Longitudinal Incisions of Dandelion Roots Adhere at the Xylem and Not at the Phloem**

Riki Kashimura, 17, Junior, Suijo High School, Mito-city, Japan,  
T: Toshiro Yokota

**PLNT023I The Role of Ethylene in Cotyledon Curling of Japanese Radish (*Raphanus sativus* var. *longipinnatus*)**

Yusuke Kubo, 17, Junior, Ibaraki Prefectural Namiki Secondary School, Tsukuba-city, Japan, T: Yuichiro Kogawa

**SOFT025I Colorization of Monochrome Photography without Coloring Samples**

Itsuki Ueda, 17, Junior, Nara Women's University Secondary School, Nara-city, Japan, T: Takahisa Komeda

**JORDAN**

Amman, JOR001, Science Fair of The Jordanian Ministry of Education

**BEHA024I Measuring Passive Smoking Effects on Children through Saliva Samples**

Shaima Lutfi Al-Sharif, 15, Sophomore, Dur Al-Manthur, Amman, Jordan, T: Manal Al-Rashdan

**CBIO020T Robotic System for Diagnosing Limp in Human Legs**

Ahmed Hesham Al Sharie, 16, Junior; Abdullah Omar Serhan, 16, Junior, King Abdullah Second School for Excellence, Irbid, Jordan, T: Hanan Abdel Razzaq Almadidi

**EBED021T Survivors Seeking Device**

Faisal Zaid Jayousi, 15, Sophomore; Hatem Adi Ghosheh, 15, Sophomore, Al Asriyya Schools, Amman, Jordan, T: Ali Sulaiman Salameh

**EGCH018T New Technology for Converting the Complex Carbohydrates in Corn Cobs into Simple Glucose that Can Be Used as a Source of Energy**

Sarah Riyad Al Atiyat, 17, Junior; Leen Wasfat Abu Aisheh, 17, Junior, Modern Montessori School, Amman, Jordan, T: Iman Asad

**EGPH018I Thermoelectric Generator**

Ismail Mohammad Aalramadani, 14, Freshman, Eureka, Amman, Jordan, T: Afnan Ali

**ENEV026T A New Design for an Air Conditioner with No Compressors and Cooling Gases and with Negligible Consumption of Electricity**

Mohamed Ahmed Alazzeah, 17, Junior; Basil Omar Kaissy, 16, Junior, Modern Montessori School, Amman, Jordan, T: Iman Asaad

**ENMC031T Braille Cell & Keyboard Device**

Rami Abdelkhaleq Al-Shboul, 16, Sophomore; Amer Abdelkhaleq Al-Shaboul, 15, Freshman, The Jubilee School, Amman, Jordan, T: Abdelkhaleq Badri Alshboul

**PHYS024I Space Debris Gripper (SDG): A Satellite that Captures Space Debris and Stores It to Decrease the Potential Threats on Important Space Missions**

Dana Yahia Arabiyat, 15, Sophomore, Alridwan Schools, Amman, Jordan, T: Basma Mahmoud Diab

**PHYS061T Use of Laser in Lenses Cutting (ULLC)**

Noor Hani Samara, 16, Sophomore; Mohammad Ahmad Alwahdaneh, 16, Junior, The Jubilee School, Amman, Jordan, T: Abdelkhaleq Alshboul

**KAZAKHSTAN**

Astana, KAZ001, DARYN National Junior Science Projects Competition

**ENMC058I Custom Designed Small Unmanned Aerial Vehicle**

Danila Sergeyevich Drozdov, 18, Junior, High School #15, Almaty, Kazakhstan, T: Zhylduz Muksulova

**SOFT048T Recognition of Human Emotions by Biometric Parameters**

Nijat Javadov, 17, Junior; Yesset Zhussupov, 17, Junior, Republican School in Physics and Math after Zhautykov, Almaty, Kazakhstan; T: Gulnar Aubakirova

**KENYA**

Nairobi, KEN001, Kenya Science and Engineering Fair

**BMED146T Cationic Peptides--Pardaxin: A Compound that Stimulates Phospholipase A2 Infused with Silver Nano-Particles Displays an Antiviral Activity on HIV-1 Replication and DNA Mutation**

Dulari Vinod Varsani, 15, Sophomore; Jaspreet Kaur Matharu, 15, Sophomore, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Indu Rani Jangra

- ENEV074T Biohydrometallurgy**  
Siddeeq Abdulrahim Parpia, 15, Sophomore; Jamaludin Hussein Mohammed, 15, Sophomore, Shree Cutchi Leva Patel Samaj School, Nairobi, Kenya, T: Indu Rani Jangra
- KUWAIT**  
*Kuwait, KWT001, Kuwait Science and Engineering Fair*
- CHEM038I Waste-water Treatment Using Nano-particles under Natural Solar Radiation**  
Heba Mubarak Alajmi, 18, Senior, Rawd Alsaleheen Bilingual School, Kuwait, Kuwait, T: Rasha Abu Baker
- ENMC045I Magnetic Field Affect on Streaming Current Measurements Flowing through the Pores of Rock Core Samples**  
Dalal Fahad Alajmi, 15, Sophomore, Umm Al-Alaa Al-Nasarrie High School, Hadyia, Kuwait, T: Eman Atef Salama
- ROBO008I Floating Lab**  
Ali Sabeeh Alwazzan, 17, Senior, Hamad Essa Alrujaib High School, Kuwait, Kuwait, T: Emad Zein Abdelmegeid
- LEBANON**  
*Beirut, LBN001, Lebanon Science Fair*
- BEHA062I Fall Detector**  
Serine Majed Darwish, 17, Senior, Iman Islamic School, Tripoli, Lebanon, T: Akram Affara
- ENMC079I Autocool**  
## Johnny Joseph Sawma Awad, 17, Senior, Antonine Sisters School Mar Elias, Ghazir, Lebanon, T: Toni Abou Atmeh
- LUXEMBOURG**  
*Luxembourg, LUX001, Concours Jeunes Scientifiques Luxembourg*
- EGCH041T Polypyrrole Based Dye-Sensitized Solar Cell**  
Armelle Vitali, 19, Senior; Tessy Prohaska, 19, Senior; Laila Franco, 18, Senior, Lycee Hubert Clement Esch, Esch, Alzette, Luxembourg, T: Francois Wilwers
- ENMC066T RAIN BAN: The Next Generation Windshield Wiper**  
Eric Breuer, 16, Junior; Florian Maly, 16, Junior, Ecole Privee Notre-Dame Sainte-Sophie, Luxembourg, Luxembourg; Ecole Privee Notre Dame Sainte Sophie, Luxembourg, Luxembourg, T: Markus Mertz
- MALAYSIA**  
*Federal Territory Putrajaya, MYS001, National Schools Science Innovation and Engineering Competition*
- BMED024I G G-PRO (As an Alternative to Reduce the Sugar Level in Blood)**  
Amira Aida Razduan, 16, Freshman, SMK Seri Kenangan, Segamat, Johor, Malaysia, T: Zulaiha Jani
- EAEV034I PUTRA-PLAST: Biodegradable Polymer from Recycled Plastic**  
Vanisa Sukhavudh Charun, 17, Junior, Tuanku Syed Putra Science Secondary School, Kangar, Malaysia, T: Noridah Yangman
- EAEV082T UV Schutz, Orange Peel Extract Used to Absorb UV**  
Nurul Najihah Ahmad, 16, Senior; Nur Liyana Nabihah Yusof, 16, Freshman, Kolej Tunku Kurshiah, Seremban, Malaysia, T: Norizan Mohd Darawi
- ENEV004I Biowaste to Biosorbent**  
Leslie Jia Le Chai, 18, Senior, Sekolah Menengah Kebangsaan Batu Lintang, Kuching, Malaysia, T: Yee Chuen Lim
- MATS023I Once Ignore Now Hero: Novelty Polymer from Palm Oil Waste**  
Ilya Natasha Binti Wahid, 16, Freshman, SM Sains Sultan Haji Ahmad Shah, Kuantan, Malaysia, T: Mohd Fakhruddin Bin Mahmood
- Kuala Lumpur, MYS002, MRS Young Scientist*
- EAEV050T Rice Husk: Vehicle CO<sub>2</sub> Reducer**  
Muhammad Hazim Bin Mohd Zaidi, 16, Junior; Ariff Bin Azmi, 17, Junior, MRSM Langkawi, Kuah, Langkawi, Malaysia, T: Mimi Syadzlina Binti Shabi



<b>ENEV027T</b>	<b>Cellulose Magnetic Membrane</b> Awang Daniel Nashrell Bin Awang Hisamudin, 17, Junior; Ahmad Azhan Bin Abdul Moes, 16, Junior, Maktab Rendah Sains Mara Muar, Muar, Malaysia, T: Amimah Binti Mohammad Ayub
<b>ENEV050T</b>	<b>Banscil: The Carbon Lead, Casing Wrapping Making in Pencil and Other Uses from Wasted Banana Peels</b> Riza Ruhulruzbihan Hassan Bin Abu Hassan, 16, Junior; Muhammad Hazim Bin Ab Halim, 16, Junior, Maktab Rendah Sains Mara Langkawi, Kuah, Langkawi, Malaysia, T: Mimi Syadzlina binti Shabi
<b>MEXICO</b> <i>Sinaloa, Guadalajara, Puebla, Estado de México, MEX001, Mexico Science and Engineering Fair</i>	
<b>BMED037I</b>	<b>TETEBENE: Effects of the Experimental Therapeutic Model Isolated Peptide Toxic-Prodrug in the Inhibition of Poly(ADP)Ribose Polymerase for Breast Cancer Treatment by the Use of Molecular Nanotransporters</b>
#	Demetrio Agustin Rodriguez Fajardo, 19, Senior, Centro de Enseñanza Tecnica Industrial Plantel Colomos, Guadalajara, Mexico, T: Cecilia Hernandez Caussor
<b>BMED042I</b>	<b>Perinatal Risk Factors for Developing Ischemic Heart Disease and Coronary Syndrome Associated with LBW</b>
	Mayra Martinez, 17, Senior, Preparatoria Oficial No. 109, Acambay, Mexico, T: Gregorio Plata
<b>BMED104I</b>	<b>In vitro Comparison of Methylene Bis (Thiocyanate) and FUBAORG as well as Their Impact on Human Health</b>
#	Adrian Alberto Contreras, 17, Senior, Instituto America, Sinaloa, Mexico, T: Clara Lamarque
<b>EAEV094T</b>	<b>Natural Insecticide</b>
	Esteban Osorio Cabanzo, 17, Sophomore; Nestor Sanchez Cortes, 18, Senior, EMSaD Puebla, Plantel Boca del Monte, Ajalpan, Mexico, T: Ambrosio Suarez Alva
<b>EBED017T</b>	<b>Feeling the Colors</b>
	Tania Ivette Alvarez Vazquez, 18, Senior; Andrea Juliana Sánchez Alva, 18, Freshman; Paola Lizzet Herrera Sanchez, 17, Senior, Annex School to the Normal High School of Teotihuacan, Estado de Mexico, Mexico, T: Victor Manuel Diaz Rodriguez
<b>EGCH016T</b>	<b>Production of Hydrogen, Methane and Ethanol by Fermentation under the Biorrefinery's Scheme</b>
	Maria Guadalupe Roque Salinas, 18, Senior; Carlos Humberto Torres Lopez, 18, Senior, Centro de Bachillerato Tecnológico Industrial y de Servicios No.172, Cortazar, Mexico, T: Miguel Angel Quintana Aguado
<b>EGCH030I</b>	<b>Bioethanol Production by Whey's Sugars Fermentation</b>
	Daniela Pinal, 18, Senior, Escuela Preparatoria Oficial No. 109, Acambay, Mexico, T: Gregorio Plata
<b>EGPH016T</b>	<b>Solar Cell with Organic Dye</b>
	Carlos Alberto Careaga Careaga, 17, Senior; Juan Roberto Toribio Valdes, 18, Senior; Carlos Antonio De Jesus Montoya, 17, Senior, Plantel Nezahualcoyotl de la Escuela Preparatoria de la UAEMex, Toluca, Mexico, T: Lourdes Najera Lopez
<b>EGPH019T</b>	<b>Cleaner Combustion</b>
	Miriam Valeria Silva Rivera, 17, Senior; Aranza Silva Rivera, 16, Freshman, Colegio de Bachilleres del Estado de Sinaloa, Mazatlan, Mexico, T: Melina Villanueva Aguirre
<b>ENEV025T</b>	<b>TINTAMIX (Tinta Mixteca Ecologica)</b>
	Angela Gonzalez Gomez #, 18, Freshman; Esteban Ochoa Corona, 17, Freshman, Colegio de Estudios Cientificos y Tecnologicos del Estado de Puebla, Plantel Tehuiztingo, Tehuiztingo, Mexico; T: Moises Guerrero
<b>SOFT024I</b>	<b>Dactylography Games</b>
	Jessica Rodriguez Diaz de Leon, 16, Junior, Centro de Bachillerato Tecnológico E Industrial y de Servicios No. 168 "Francisco I. Madero", Aguascalientes, Mexico, T: Antonio Diaz de Leon Gonzalez

## SOFT045I

### Take Change

Karla Valeria Vega Marquez, 17, Junior, CETIS 108, Guasave, Mexico,  
T: Claudia Patricia Marquez Soto

## NEW ZEALAND

Wellington, NZL001, *Genesis Energy Realise the Dream*

## EBED003I

### iDispense

Nathan William James, 16, Junior, Burnside High School, Christchurch,  
New Zealand, T: John Henry Ford Creighton

## NIGERIA

Benin City, NGA003, *Genius National Science Expo*

## EGPH039T

### Fuel-less Power Vehicle and Tractor

Oluwanifemi Oluwatomiwa Bolawole, 15, Junior; Oluwafisayomi Ewaoluwa  
Fatoye, 14, Junior, Doregos Private Academy, Lagos, Nigeria,  
T: Oluseyi Olaide Lawal

## EGPH056T

### Power Generation through Resonance

Emmanuel Oluwasegun Adegbile, 15, Junior; Abiola Latifat Omosowon, 15,  
Junior, Doregos Private Academy, Lagos, Nigeria, T: Oluseyi Olaide Lawal

## ENMC075T

### Design and Construction of a Water Sport Bicycle

Umar Bala, 17, Sophomore; Ahmad Auwal, 15, Junior, Government College  
Daywing Funtua, Funtua, Nigeria, T: Yazid Ahmed

## ROBO018I

### The Intelligent Traffic Control Light

Omogbolahan Charles Bruce, 15, Junior, Doregos Private Academy, Lagos,  
Nigeria, T: Oluseyi Olaide Lawal

## SOFT046T

### LagToilet Mobile App

Desola Kehinde Damola Okesiji, 14, Junior; Omotayo Kehinde Akinola, 15,  
Freshman, Doregos Private Academy, Lagos, Nigeria, T: Oluseyi Olaide Lawal

## NORTHERN IRELAND

Belfast, NFK001, *Sentinus Young Innovators*

## PLNT016I

### Aetiology of 'Bleeding Canker' Disease of Horse Chestnut Trees

Anna Maria McEvoy, 18, Senior, Our Lady's College, Drogheda, Ireland,  
T: Frances O'Regan

## NORTHERN MARIANA ISLANDS

Saipan, NMI001, *Northern Mariana Islands Science & Engineering Fair*

## CELL060I

### Sting Me Not! Inhibiting *Copula sivickisi* (Box Jellyfish) Stinging Cell Discharge

Maria Theresa Dela Rosa Dizon, 18, Freshman, Marianas High School, Saipan,  
Northern Mariana Islands, T: Roy Adsit

## NORWAY

Oslo, NOR001, *Norwegian Contest for Young Scientists*

## CHEM005I

### The Effect of the Temperature on the Cohesion between Water Molecules at the Water Surface

Katarzyna Jadwiga Kabulska, 19, Senior, International School of Stavanger,  
Stavanger, Norway, T: Simon Taylor

## PLNT050I

### Are the Natural Products Vitamin E Oil, Lemon Juice, Rosemary Extract, Bay Leaves, Birch Bark and Cinnamon, Successful in Delaying Mould Growth on Bread and Brie Cheese?

Benedicta Gibbs, 19, Senior, St. Olav Videregående Skole, Stavanger, Norway,  
T: Susan Joan Fenn

## OMAN

Muscat, OMN001, *The Omani National Science Faire*

## ENEV061T

### Life Supporting System on Mars

Shama Salam Altoobi, 16, Sophomore; Lujain Yaqoob Alruqaishi, 16,  
Freshman; Shoud Saif Alamri, 16, Sophomore, Um AlKhair Basic Education  
School, Izki, Oman, T: Badria Hilal Altobi

- ENEV062I** **Healthy Vacuum Cleaner**  
Alaa Mohammed Alaamri, 16, Junior, Baraka Bint Thalaba, Muscat, Oman,  
T: Fatma Mohammed Alajmi
- ENMC049I** **The Raine Sensitive High Way**  
Musab Moosa Alyousfi, 14, Freshman, Mnar Alelm Basic School, Muscat,  
Oman, T: Sulaiman Mohammed Alnasseri

## PAKISTAN

*Islamabad, PAK001, Intel Science Fair*

- BMED051I** **Life Without Mosquitoes Using Organic Garlic Spray**  
Shadab Rasool Buriro, 17, Senior, Pakturk International Schools and Colleges  
Khairpur Campus, Khairpur, Pakistan, T: Hakan Tokdemir
- EAEV035T** **Effects of Chicken Manure and Mineral Fertilizer (NPK) on Plant Grown in Lead Contaminated Soil**  
Amir Hussain Khan, 18, Senior; Ali Ahmed Khan, 18, Senior; Kiran Karim, 18,  
Senior, Aga Khan Higher Secondary School, Karachi, Karachi, Pakistan;  
T: Faiza Jawaid
- EBED046I** **External P.C. Ports Identity Card**  
# Muhammad Ahsan Nawaz, 18, Senior, Punjab Group of Colleges Mailsi  
Campus, Mailsi, Pakistan, T: Muhammad Faheem Shmad
- EGPH020T** **Power Car**  
Tohami Bin Shafiq, 17, Junior; Aurangzeb Ahmed, 17, Junior; Syed Ali Ahsen  
Muhammad Jafry, 17, Junior, Beaconhouse School System, Lahore, Pakistan,  
T: Hassaan Khan Niazi
- EGPH021I** **Multi Purpose Smart Solar Device**  
Habab Idress, 18, Senior, Dewaan Dayaraam Jethmal Sindh Govt Science  
College, Karachi, Pakistan, T: Abdul Rauf

## PALESTINE

*Ramallah, PSE001, Palestine Science and Technology Fair*

- EGPH042T** **My School Self-Powered**  
Raneem Hasan Alqwasmi, 15, Sophomore; Amal Hashim Ali, 15, Sophomore,  
Alawda Basic School for Girls, Bethlehem, Palestine,  
T: Shatha K. Darwish
- ENMC067I** **GPS Assisted Speed Control**  
Laila Yacoub Daher, 16, Sophomore, The Orthodox School of Bethany,  
Bethany, Palestine, T: Sana Sudki Jaber
- ENMC074T** **A Smart Safe Specialized Seat**  
Randa Abed-Alrahman Kharousha, 14, Freshman; Ola Isam Salhi, 14,  
Freshman, Asker Basic School for Girls, Nablus, Palestine;  
T: Jameela Sharif M. Khaled
- ROBO028I** **Safety Bracelet**  
Muath M. A. Amer, 15, Sophomore, Applied Nour Al-Huda School, Ramallah,  
Palestine, T: Fuad Shraiteh

## PANAMA

*Panama City, PAN001, Feria Cientifica del Ingenio Juvenil*

- MCRO050T** **Plants vs. Fungi**  
Alicia del Carmen Sanjur, 18, Senior; Wilken Hernan Guerra, 18, Freshman,  
Escuela Secundaria El Macano, Panama, Panama, T: Tina Hofmann

## PERU

*Lima, PER001, Peru Science and Engineering Fair*

- EAEV004T** **Drinking Water Quality in the Arequipa Districts of Alto Selva Alegre, Cayma, Jose Luis Bustamante and Rivero, Miraflores and Yanahuara and Its Impact on the Health of the Population in 2014**  
Viviana Victoria Diaz Ramos, 17, Freshman; Jhonatan Prisco Garate Obando,  
17, Freshman, Internacional Peruano Britanico, Arequipa, Peru,  
T: Miriam Monica Tovar Castillo

- EGCH002T Bio-Ethanol Production from Banana Peels**  
Leyla Suyin Gamonal Lizarbe, 15, Freshman; Alexandra Juneth Cordero Donaire, 15, Freshman, San Agustín, Lima, Peru,  
T: Ynes Eladia Sedano Murillo
- MCRO005I Determination of the Antimicrobial Activity of *Heliotropium arborescens* in Cultures of Bacteria that Cause Infection in the Respiratory Tract**  
Jeffrey Nathan Freidenson Bejar, 17, Freshman, Leon Pinelo, Lima, Peru,  
T: Maria Luz Rojas Bonilla
- PLNT001I The Use of *Coriandrum sativum* to Treat Heavy Metal Poisoning**  
Gaby Andrea Narvaez Antunez, 16, Freshman, San Jose Marelló, Huaraz, Peru, T: Antonio Mariano Minaya Quispe

## PHILIPPINES

Pasig City, PHL001, Philippines Science Fair

- ANIM024I Quantification and Characterization of Proteins from *Acanthaster planci* Skin and Spine: Its Latent Role in Marine and Human Pathogens and Blood Clotting Inhibitions (Potential Management of Coral Infestation)**  
Mary Carmelle Antonette Pedregosa Gindap, 16, Sophomore, Iloilo National High School, Iloilo City, Philippines, T: Ronilo Villan Aponte
- BMED052T Hypoxic-Ischemic Cerebral Cell Deaths & Locomotory-Cognitive Damage Mitigation Using Squid (*Thysanoteuthis rhombus*) Waste Integument Constituent: Simulated Non-Arrhythmia-Inducing Mortal Stroke Evolution Disruption**  
Kenneth Michael Angelo Natividad Antonio, 14, Freshman; Marian Romero Cabuntocan, 16, Freshman; Thea Marie Laquinta Tinaja, 15, Freshman, Bayugan National Comprehensive High School, Bayugan City, Philippines, T: Apple Grace Dapitan Aberia
- MATS025I One-Step Synthesis of Biomimetic Superhydrophobic Nanofibers Copper Stearate Film Electrodes via Electrochemical Deposition Method**  
# Angelo Gabriel Abundo Urag, 15, Freshman, Father Saturnino Urios University, Butuan City, Philippines, T: Maricris Iting Abuan
- PLNT026T Toxicological Effect of the Bioactive Compounds from Giant Taro (*Alocasia macrorrhizos*) against Coconut Scale Insects (*Aspidiotus destructor*)**  
Millene Ruth Rizaga Edradan, 15, Freshman; Armie Grace Reambonanza Pepino, 15, Freshman; Sam Jethro Labor Cudillo, 15, Freshman, Caraga Regional Science High School, Surigao City, Philippines,  
T: Maria Ruth Rizaga Edradan

## POLAND

Gdynia, PLD001, E(x)plory International Science Fair

- BCHM042I The Discovery of an Associate to hOXR1 Protein**  
Dalia Sara Gala, 19, Senior, University of Glasgow, Glasgow, United Kingdom, T: Magnar Bjoras
- BMED119I Clinical Impact of Chromosome 16 Short Arm Duplication in the Region 16p12.3p13.11**  
Magda Baranska, 18, Freshman, High School Number One Under the Patronage of Nicolas Copernicus, Lodz, Poland,  
T: Iwona Strobín-Pokrzewińska
- CBIO050I Towards Novel Anticancer Drug Design: Computational Study on the Inhibition of the Ribonucleotide Reductase by Trans-resveratrol, Trans-piceatannol and Hydroxyurea**  
Krzysztof Eder, 18, Senior, Generałowa Zamoyska and Helena Modrzejewska Lyceum No.2, Poznań, Poland, T: Damian Mikulski
- Warsaw, EUB001, European Union Contest for Young Scientists (EUCYS)
- ROBO031T Hexapod: Design and Programming of a Six-Legged Exploration Robot**  
Philipp Mandler, 19, Senior; Anselm Bernhard Peter Dewald, 19, Senior; Robin Braun, 19, Senior, Schulerforschungszentrum Nordhessen, Kassel, Germany; T: Jorg Steiper
- SOFT064T Genetic Algorithms for Foreign Exchange Trading**  
Vasil Georgiev Vasilev, 18, Senior; Marin Blagoev Shalamanov, 18, Senior, National High School of Mathematics and Natural Sciences "Acad. Luybomir Chakalov", Sofia, Bulgaria, T: Petar Plamenov Petrov

**PORTUGAL***Lisboa, PRT001, Portuguese Contest for Young Scientists***BEHA041T Science4All**

Francisco Limpo Serra dos Santos Dias, 18, Senior; Luis Paulo Leite Mota Almeida, 19, Senior; Francisco Almeida Tete Machado, 18, Senior, Colegio Cedros, Vila Nova de Gaia, Portugal, T: Nuno Miguel Gaspar da Silva Francisco

**EAEV091T IF–Intelligent Flow**

Eusebio da Conceicao Almeida, 19, Freshman; Joao Pedro Bronze Rodrigues, 17, Junior, Escola Profissional de Rio Maior, Rio Maior, Portugal, T: Maria Joao Maia

**PUERTO RICO***Arecibo, TEPR02, Arecibo Regional Science Fair***CELL034I Locomotor Analysis of *Drosophila* Mutants Affecting Neurotransmitter Release**

Jose E. Muniz Gomez, 18, Senior, Brigida Alvarez Rodriguez Mathematics and Science High School, Vega Baja, Puerto Rico, T: Hector Otano Vega

**EGPH034I Forms of Energy for the Levitation of a Magnetic Vehicle**

Felix Junior Morales, 15, Sophomore, Colegio Congregacion Mita, San Juan, Puerto Rico, T: Danna Ester Perez

**MATS041I 3rd Phase: The Effect of Paraffin Wax in the Impermeabilization**

Ian Emmanuel Colon Concepcion, 18, Senior, Brigida Alvarez Rodriguez Mathematics and Science High School, Vega Baja, Puerto Rico, T: Hector Otano Vega

*Bayamon, TEPR03, Bayamon Regional Science Fair I***EGPH035I Piezoelectric Template**

Carlos Gadiel Feliciano-Morales, 17, Senior, Jose Rojas-Cortes, Orocovis, Puerto Rico, T: Carol J. Morales

**MCRO064I Fungicide Effect of Chitosan on *Rhizopus stolonifer* Fungus**

Federico Luciano Ortiz-Rodriguez, 18, Senior, Escuela Superior Francisco Oller, Catano, Puerto Rico, T: Richard E. Fonseca

*Caguas, TEPR04, Caguas Regional Science Fair***EAEV060I *E. coli* as a Microbiological Indicator of the Water Quality in the Reservoirs of Patillas and Carite**

Ivonne Marie Santell Velazquez, 17, Junior, Natividad Rodriguez Gonzalez High School, Arroyo, Puerto Rico, T: Teresa Cordero Vélez

**ENEV081I Comparative Study of the Biodegrading Activity of *Pseudomona sp.* and *Penicillium sp.* in Marine and Coastal Ecosystems Contaminated with Hydrocarbons: Scale Simulator**

Cristina Marie Rivera, 18, Senior, Superior Vocacional Benjamin Harrison, Cayey, Puerto Rico, T: Carmen Joannie Del Toro

*Cayey, TEPR11, Radians Science & Engineering Fair***SOFT042I Asclepius**

Julian E. Soto-Camacho, 16, Junior, Radians School, Cayey, Puerto Rico, T: Jose L. Caballero

*Humacao, TEPR05, Humacao Regional Science Fair***BMED096I The Effect of MSN Plants Leaves as a Cure for "Herpes Zoster"**

Jan Carlos Quinones Gonzalez, 17, Senior, Petra Mercado Bougart, Humacao, Puerto Rico, T: Gilda S. Jimenez

**CELL061I Peptides with Antimicrobial Activity to Inhibit Pathogenic Bacteria and Yeast Growth**

# Bianca Caliris Cintron, 18, Senior, Petra Mercado Bougart, Humacao, Puerto Rico, T: Gilda Jimenez

*Mayaguez, TEPR08, Mayaguez Regional Science Fair***BCHM019T Poly(electrolyte) Microcapsules as Novel Vehicles for Macromolecular Crystallization**

Natasha Marie Ramos-Padilla, 17, Senior; Yadiel Varela-Soler, 17, Senior, CROEM, Mayaguez, Puerto Rico, T: Brenda Cabrera

- BMED050I** **Measuring the Concentration of FD & C Blue No.1 (Brilliant Blue FCF) in Different Beverages Using Resistance**  
Karla V. Torres-Casiano, 15, Sophomore, Escuela San German Interamericana, San German, Puerto Rico, T: Silvia I. Ruiz-Rivera  
*Mayaguez, TEPR10, SESO Regional Science Fair*
- ENEV011I** **Bioremediation Potential of NanoGeopolymer Pervious Concrete**  
Vincent Daamvin Hwang, 15, Sophomore, Southwestern Educational Society, Mayaguez, Puerto Rico, T: Evelyn Montalvo  
*Ponce, TEPR06, Ponce Regional Science Fair*
- BMED095I** ***Musa sapientum* and *Pryus malus L.* and Its Effect as Natural Relaxants against Depression Disorder**  
Jahaziel G. Almodovar, 17, Senior, Asuncion Rodriguez de Sala, Guayanilla, Puerto Rico, T: Gladys B. Vega
- CELL041I** **Induction of Apoptosis Evidenced by Caspase-3 in Lung Adenocarcinoma Cell (H1666 ATCC) through the Ethanol Extract of *Alpinia purpurata* Flower**  
Jenny Vega-Medina, 18, Junior, Specialized Science and Math Secondary School Thomas Armstrong Toro, Ponce, Puerto Rico, T: Ana I Homs-Rodriguez  
*San Juan, TEPR01, Puerto Rico Math Fair*
- MATH027I** **A Method to Calculate Exact Values of  $n$  th Power of the Irrational Number Phi**  
Josue Manuel Ramirez-Vargas, 18, Senior, Thomas Armstrong Toro, Ponce, Puerto Rico, T: Esperanza Soto-Rivera
- MATH028I** **Study of the Occurrence and Function Modeling of Prime Palindromes**  
# Patricia Romero Cruz, 17, Junior, Brígida Alvarez Rodriguez Mathematics and Science High School, Vega Baja, Puerto Rico, T: Hector Otano Vega
- MATH029I** **Fractal Dimension Applied to Radiographic Study of Nodules in the Breast**  
Sujes A Centeno, 17, Senior, Francisco Morales, Naranjito, Puerto Rico, T: Liza M. Rodriguez
- MATH030T** **Study of the Cubic Sum of Digits in Natural Numbers**  
Eugenio Sarritzu-Abreu, 18, Senior; Carlos Javier Lopez-Sierra #, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Eric Figueroa  
*San Juan, TEPR07, San Juan Archdiocesan Region Science Fair*
- EAEV059I** ***Rhizophora mangle* as a Marker of the Contamination of an Estuary System**  
Natalia Angelica Asenjo-Molina, 16, Junior, Academia Perpetuo Socorro, San Juan, Puerto Rico, T: Michele Ruiz
- ENEV056T** **The Effect of Different Water Volumes in the Tank of Passive Water Heaters**  
Eduardo Antonio Canto, 14, Freshman; Pablo Andres Morell, 15, Freshman, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, T: Nice Dagmar Zayas
- MCRO047I** **Detection of Bacteria *Helicobacter pylori* in Water: Possible Link with Gastric Cancer**  
Adriana Sofia Monzon, 15, Sophomore, Academia Perpetuo Socorro, San Juan, Puerto Rico, T: Michele Angueira
- PLNT044I** **The Effect of Electricity in Radishes (*Raphanus sativus*)**  
Ivan Mulero, 17, Senior, Colegio Beato Carlos Manuel Rodriguez, Bayamon, Puerto Rico, T: Nilka Yahaira Mulero  
*San Juan, TEPR09, San Juan Regional Science Fair*
- CHEM052I** **The Presence of Phthalates from Polyethylene and Polystyrene Polymers in Organic *Solanum lycopersicum* (Tomato)**  
Rachel Nichol Blundell-Aleman, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Frank Gregorio Torres-Velez  
*San Juan, TEPR12, Puerto Rico Metropolitan Science Fair*
- BMED126T** **Genetic Characterization of Pulmonary Fibrosis in Patients Who Suffer from Hermansky Pudlak Syndrome: An Autosomal Recessive Inherited Disease**  
Anais Eileen Gonzalez, 17, Junior; Yoliann Mojica, 17, Junior, Colegio San Vicente de Paul, San Juan, Puerto Rico, T: Isaura Camareno

- CBIO049I** **Wearable Technology Design for Stress Recognition: Device Capable of Recognizing Stress on Students Caused by Standardized Tests**  
Angelik Laboy-Torres, 15, Sophomore, Escuela Especializada en Ciencias, Matematicas y Tecnologia, Caguas, Puerto Rico, T: Shirley Martínez
- CELL043T** **Anti-Retroviral Activity of Coriolus Versicolor's Polysaccharide Peptide (PSP) in HIV-1 Infected Human Peripheral Blood Mononuclear Cells**  
Mailene Reyes, 18, Senior; Verónica Yvette Eguía, 18, Senior, Colegio Rosa-Bell, Guaynabo, Puerto Rico, T: Felix Marcel Torres
- EAEV070T** **Study of the Use of *Epipremnum aureum* in the Restoration of Water Quality Parameters**  
Natalia Crystal Del Valle - Rivera, 17, Junior; Bryan Karhu Castro-Vega, 16, Junior, Escuela Especializada en Ciencias, Matematicas y Tecnologia, Caguas, Puerto Rico, T: Shirley Martinez

## QATAR

Doha, QAT001, The National Student Research Fair

- BCHM051T** **Flavonoids and Tannins Phenols from Mangrove Plant: An Effective Solution against Gingivitis**  
Mohammed Al-Mannai , 15, Sophomore; Abdula Ahmad Alsolaiman , 16, Sophomore, Alshamal Secondary Independent School for Boys, Alshamal, Qatar; AlShamal Secondary Independent School For Boys, Alshamal, Qatar, T: Wael Sayed Elbially
- BEHA064I** **Social Media as a Gateway for Young Entrepreneurs in Qatar**  
Amna Mohd Al Mesallam, 16, Junior, Al Bayan Secondary High School for Girls, Doha, Qatar, T: Sara Zaied
- BEHA065T** **The Effects of Using Indirectly-Educational Games as a Tool for Education and Skill Improvement**  
Ghanim Ibrahim Al-Mansouri , 16, Junior; Hussam Aitelqadi , 16, Junior, Omar Bin Abdulaiz Independent Secondary School for Boys, Doha, Qatar; Omar Bin Abdulaziz Secondary High School For Boys, Doha, Qatar, T: Abdelhakim Zaghloul
- ENEV087T** **Biodegradable Plastic... Too Good to be True?**  
Zamzam Ali Al-Muhammad , 17, Junior; Lamia Mohammed Al-Numairy , 15, Junior, Al Bayan Secondary High School for Girls, Doha, Qatar; Al Bayan Secondary School For Girls, Doha, Qatar, T: Deepthy Joy
- PLNT070I** **The Feasibility of Integrated Pyramidal Agriculture System to Address Global Food Security Challenges**  
Mohammed Abusharida, 14, Freshman, Khalid Bin Awakened Independent School, Doha, Qatar, T: Ahmed Salah Aldeen Abdelbasset

## REPUBLIC OF MOLDOVA

Chisinau, MDA001, Moldova Science and Engineering Fair

- EGPH038T** **Regulation of Radiation Transmittance through Electro-Optic Technologies**  
Laurentiu Calancea, 17, Junior; Gleb Vizitiv, 17, Junior, Theoretical High School "Orizont, Durlesti", Chisinau, Republic of Moldova, T: Igor Evtodiev
- ROBO016T** **Gesture Recognition System (GRS)**  
Dumitru Savva #, 18, Senior; Diana Marusic #, 17, Junior, Orizont Lyceum, Durlesti, Republic of Moldova; "Ion Creanga" Theoretical Lyceum, Chisinau, Republic of Moldova, T: Andrei Bragarenco, Andrei Bragarenco

## ROMANIA

Suceava, ROM001, Romania Science and Engineering Fair

- EGPH002T** **The Energy Harvesting Cube**  
Corbeanu Dan Andrei, 16, Sophomore; Florescu Luca George, 17, Sophomore, National College Tudor Vianu, Bucharest, Romania, T: Ignat Mircea
- ENMC002I** **The Flexible Optics Model: Lenses and Mirrors with Variable Focal Length**  
Daniel Cosovanu, 19, Senior, Tomsa Voda Technological High School, Solca, Romania, T: Ilie Cosovanu



- SOFT002T**    **MobMall: The First Online Mall Platform**  
Mihai Alexandru Bercu, 18, Senior; Alexandru-Mihai Glontaru #, 19, Senior;  
Cristian-Alexandru Dragomir, 18, Senior, Tudor Vianu National High School  
of Computer Science, Bucharest, Romania, T: Mircea Ignat
- RUSSIAN FEDERATION**  
*Chernogolovka, RUS005, Avangard*
- CHEM030I**    **Nucleophilic Difluoromethylation of Arylidene Meldrum's Acid Derivatives**  
Alexey Trifonov, 17, Junior, Moscow Chemical Lyceum, Moscow, Russian  
Federation, T: Artyom Zemtsov
- MATH010T**    **Quivers of Some Classes of Group Algebras**  
Ivan Bogdanov, 17, Junior; Maksim Vagner, 16, Sophomore, School 564,  
Saint Petersburg, Russian Federation; Laboratory of Continuous Mathematical  
Education, Saint-Petersburg, Russian Federation, T: Anatolii Zaikovskii
- MATH016I**    **The Game with Stones and "Generalized Fibonacci Sequence"**  
Kira Kozlova, 17, Junior, Lyceum "Vtoraya Shkola", Moscow, Russian  
Federation, T: Alexander Kovaldji  
*Moscow, RUS002, Junior-I*
- CHEM032T**    **Synthesis and Radical Addition of Xanthates Bearing Oxime Functionality**  
Igor Gorin, 17, Junior; Vladimir Motornov, 16, Sophomore, Moscow Chemical  
Lyceum No. 1303, Moscow, Russian Federation; Moscow Chemical Lyceum  
1303, Moscow, Russian Federation, T: Andrey Tabolin
- CHEM068I**    **Poly(oximinoalkyl)amines as a New Type of Ligands for**  
**Copper-Accelerated Azide-Alkyne Cycloaddition**  
#    Daniil Agababyan, 17, Junior, Moscow Chemical Lyceum No. 1303, Moscow,  
Russian Federation, T: Artyom Semakin
- ENEV030T**    **Mobile Device for Radiation Measurements in Big Cities**  
Alexander Andreyevich Filatkin, 17, Junior; Vladimir Ivanovich Bocharov, 17,  
Junior, University Lyceum No.1511, Moscow, Russian Federation,  
T: Konstantin Yurin
- MATH019I**    **Fast Algorithm of Commutator Length Computing in Free Group**  
Danil Fialkovskiy, 17, Junior, School 564, Saint-Petersburg, Russian  
Federation, T: Sergey Ivanov
- MATH047I**    **The Tie Theorems**  
Roman Krutovskiy, 17, Junior, Gymnasium 1514, Moscow, Russian  
Federation, T: Fyodor Ivlev  
*Moscow, RUS006, Scientists of the Future Fair*
- BCHM011T**    **Synthesis of Ligand-Directed Polyethyleneimine-Binding Antitumor**  
**Trifluorothymidine Prodrug Bearing the Fluorescent Label**  
Darya Maximova #, 18, Junior; Andrei Kolesnikov, 17, Sophomore, Municipal  
Budget General Educational Institution "Lyceum No. 22 Nadezhda Sibiri",  
Novosibirsk, Russian Federation, T: Tatyana Godovikova
- EBED033I**    **Sign Language Glove**  
Maksim Igorevich Smirnov, 17, Junior, Secondary School No 1189, Moscow,  
Russian Federation, T: Alexander Maksimovich Voron
- MATS010I**    **The Formation, Properties and Application of Super-Long Nanochains**  
Pavel Provotorov, 16, Sophomore, Secondary School No. 82 Named After  
F.I. Dubovitskiy, Chernogolovka, Russian Federation, T: Nikolai Klassen
- SOFT018I**    **SCC: Reversible Multi-Translation of High-Level Programming**  
**Languages and a Platform for Performance-Controlled Execution**  
**in Multi-Agent Systems**  
# #    Danila Alexandrovich Baigushev, 17, Junior, Lyceum "Vtoraya Shkola",  
Moscow, Russian Federation, T: Ilya Rudolfovich Dedinsky  
*Nizhny Novgorod, RUS001, ROST*
- BMED004T**    **A New Rapid Diagnostic Method for Detecting Free-Radical Pathologies**  
Olga Smetanina, 16, Junior; Anastasiia Smirnova, 16, Junior, Lyceum #8,  
Nizhny Novgorod, Russian Federation; Gymnasia # 2, Sarov of Nizhny  
Novgorod Region, Russian Federation, T: Ekaterina Alexandrovna Borovkova,  
Violetta Stepanova

- EAEV002I** **River Tsunami and Safety of Population and Facilities Along the River Course**  
Anastasiia Voskoboinikova, 16, Junior, Municipal School # 45, Nizhny Novgorod, Russian Federation, T: Alexander Dmitrievich Martianov
- MATS003T** **Revolutionary Ligand for Spatial Modification of Biologically Active Nanoparticles**  
Gennady Vatkovskiy, 18, Junior; Timofei Iakhontov, 18, Junior, Lyceum # 2, Cheboksary, Russian Federation; Lyceum #3, Cheboksary, Russian Federation, T: Tamara Vasilievna Mikhailova, Elena Ivanovna Senkova  
*St. Petersburg, RUS004, Intel Baltic Science and Engineering Fair*
- BCHM010I** **Is It Possible to Treat *Klebsiella pneumoniae* Diseases by Non-Antibiotic Drugs?**  
Anastasiia Kasimova, 18, Junior, Moscow Chemical Lyceum No. 1303, Moscow, Russian Federation, T: Anna Shpirt
- CHEM019I** **BODIPY Based Fluorescent Molecular Rotors**  
Olga Vodyanova, 16, Junior, Municipal Budget Educational Institution "Secondary School No.4", Ivanovo, Russian Federation, T: Yuriy Marfin
- MATH001T** **Geometric Interpretation of Hadamard Matrix Operator**  
Ilia Alekseev, 16, Sophomore; Ilia Golygin, 15, Freshman, School 564, Saint-Petersburg, Russian Federation, T: Sergey Ivanov, Sergey Ivanov
- MATH002I** **On Uniform Non-Repeating Morphisms**  
# Boris Zolotov, 17, Junior, School 564, Saint-Petersburg, Russian Federation, T: Stanislav Kublanovskiy
- MATH003I** **Calculation of Homotopy Groups of Finite Complexes Using Finite Space Approximation**  
Gleb Novikov, 17, Sophomore, School 564, Saint-Petersburg, Russian Federation, T: Vladimir Sosnilo
- SAUDI ARABIA**  
*Riyadh, SAU001, Mawhiba Science & Engineering Fair*
- BCHM009I** **Developing a Stimuli Responsive Drug Delivery System Based on the Non-covalent Self Assembly of Phospholipid/Polymers on Single Walled Carbon Nanotubes**  
Saleh Abdullatif Alhamad, 15, Senior, Dhahran Private School, Dhahran, Saudi Arabia, T: Faye Al-Qdri
- BMED025I** **Inhibition of Human Mesenchymal Stem Cell Deacetylation via C-11 Novel Compound Enhanced Adipocytic Differentiation**  
Hassan Ali Alshammari, 18, Senior, Manarat Al-Riyadh, Riyadh, Saudi Arabia, T: Dalia Ayesah Ali
- BMED026I** **Investigating Memory T Cell Subtypes for the Regulation of Inflammatory Responses in Asthma Pathogenesis**  
Mohammed Khalid Altoyan, 18, Senior, Manarat AlRiyadh Schools, Riyadh, Saudi Arabia, T: Rabiha Halwani
- BMED053I** **Targeting the MCF-7 Breast Cancer Estrogen Receptor Cells via Silver Nano-Particle Linked Doxorubicin and Tamoxifen Drugs**  
Abdulaziz Yahya Alshahrani, 15, Freshman, Alareen School, Abha, Saudi Arabia, T: Yahya Mofareeh Asiri
- CBIO011I** **GVHD Prophylaxis: A Novel Approach for Using the HCMV Glycoproteins to Downregulate MHC Class I and Class II Antigen Presentation Pathways**  
Yasmeen Zaki Alsaif, 15, Sophomore, Dharan Schools, Dhahran, Saudi Arabia, T: Abdulhamid Liacini
- CELL008T** **Using Comparative Genomic Hybridization to Identify Unique Mutation in Duchenne Muscular Dystrophy Patients in Saudi Arabia**  
Refal Mowaffaq Bougis, 16, Junior; Renad Mowaffaqa Bougis, 17, Freshman, The 30th Secondary School, Maakkah, Saudi Arabia, T: Ahmed Mirza
- CELL009I** **A Novel Study for Elucidating the Molecular Mechanism of Flap Endonuclease-1**  
Rozan Adel Wali, 18, Senior, Dar Al-Fikr International Schools, Jeddah, Saudi Arabia, T: Samir Hamdan

- CELL010I** **Identifying a Role for Mesenchymal Stem Cells Conditioned Media on Cancer Cell's Survival**  
Mohammed Khalid Al Mohawes, 18, Senior, Manarat AlRiyadh Schools, Riyadh, Saudi Arabia, T: Mashael AlToub
- CHEM018I** **Improving the Catalytic Activity of Ruthenium in the Transfer Hydrogenation of Simple Ketones Using a Novel Diphenanthroline Amine Ligand**  
Yasmeen Shaker AlFaraj, 18, Senior, Dharran Schools, Dhahran, Saudi Arabia, T: Kuo-Wei Huang
- EBED015I** **Prototyping a Compact Multi-Format Optical Transmitter for Next Generation Regional and Long Haul Terabit Networks**  
Khalid Abdulalim Alzaid, 17, Junior, Manarat Al-Riyadh, Riyadh, Saudi Arabia, T: Amr Ragheb
- EGCH014I** **A Novel Research for Efficient MFCs Using Electroactive Bacteria from Mangrove Trees**  
Marya Emad Alkurdi, 18, Senior, AlTarbia AlIslamia Schools, Riyadh, Saudi Arabia, T: Noura Shehab
- EGPH010I** **Organic Solar Cells Optimization through Novel PBDDTT2F/PCE10 as Donors and PC70BM/ICBA as Acceptors in the Photoactive Layer**  
Ghanimah Nasser Abuhaimeed, 18, Senior, Alhussan Private School, Dammam, Saudi Arabia, T: Amal Miqdadi
- ENEV017I** **Using Novel Nano-Porous Triple-Bore Hollow Fiber Membranes for Air Dehumidification in Greenhouses**  
Noorah Ziad Alfaddagh, 17, Senior, Al-Faisaliah Islamic Schools, Alkhobar, Saudi Arabia, T: Suzana P. Nunes
- ENEV018I** **Producing a Biodegradable Plastic Using *Ralstnia eutopha* to Convert CO<sub>2</sub> into a PHB Biopolymer**  
Waleed Ramiz Alhindi, 18, Senior, Dhahran Schools, Dhahran, Saudi Arabia, T: Maheshwaran Balaraman
- ENMC017I** **Optimizing the Cooling System of a Cyclotron Krypton Target by Simulating the Heat Transfer Process**  
Saleh Fawzi Alqaryan, 17, Senior, Manarat AlRiyadh Schools, Riyadh, Saudi Arabia, T: Faisal AlRumayan
- PLNT017I** **The Effect of Single Wavelength Red and Blue Laser Lights on Growth of the *Arabidopsis thaliana* Plant**  
Lulwah Ziyad Alshiha, 17, Senior, Najd National Schools, Riyadh, Saudi Arabia, T: Fouad Lewtiri-chlieh
- PLNT018I** **Efficient Viral-Mediated Genome Editing Technique In *Tobacco noctiana* and *Arabidopsis thaliana* Model Plants Using CRISPR/Cas9**  
# Abdul Jabbar Abdulrazaq Alhumud, 18, Senior, Dhahran Schools, Dhahran, Saudi Arabia, T: Aala Abulfaraj
- SOFT017I** **#feels: Detecting and Visualizing Regional Sentiment from Cross-lingual Tweets for Specific Hashtags Using SVM and Naive Bayes Classifiers**  
Abdul Rahman Alhamdan, 18, Senior, Dar AlFikr Schools, Jeddah, Saudi Arabia, T: Ibrahim Alabdulmohsin
- SINGAPORE**  
*Singapore, SGP001, Singapore Science and Engineering Fair*
- BMED110I** **Ultrafast and Green Design of Luminescent Nanoclusters for Photodynamic Therapy**  
Preston Yi Jie Ching, 17, Senior, National Junior College, Singapore, Singapore, T: Adrian Sin Loy Loh
- CBIO046T** **Wearable LED Illumination for Skin Sensitivity Calibration**  
Madhumitha Shridharan, 17, Senior; Yuhua Ren, 17, Senior, NUS High School of Mathematics and Science, Singapore, Singapore, T: Yenny Wijaya
- CHEM061I** **Metal-free "Click" Chemistry for the Development of Peptide-based Biomaterials**  
Claudia Lee, 18, Senior, Raffles Institution, Singapore, Singapore, T: Guoxian Tan

- ENEV067T**     **Synthesis of Electrospun Nanosilver-Functionalized Nylon 6 Nanofibres for Membrane Water Purification**  
Yi Zhao Tan, 17, Junior; Zheng Theng Lim, 17, Junior; Benjamin Kye Jyn Tan, 16, Junior; Hwa Chong Institution, Singapore, Singapore, T: Yoke Keow Peh
- MCRO051I**     **Development and Optimisation of Novel Amine-based Antimicrobial Cationic Polymers**  
Tommy Zhi Xian Ong, 18, Senior, Raffles Institution, Singapore, Singapore, T: Guoxian Tan
- PHYS042I**     **Physical Analysis of the Rotating Saddle Trap: The Mechanical Analogue of the Quadrupole Ion Trap**  
Joel Shi Quan Tan, 17, Senior, NUS High School of Mathematics and Science, Singapore, Singapore, T: Boon Hor Poh

## SLOVAKIA

Bratislava, SVK002, AMAVET-Slovak Association for Youth, Science & Technology

- CELL001I**     **Cellular Response to Change in Mitochondrial DNA Levels in Yeast *Yarrowia lipolytica***  
Lukas Janosik, 19, Senior, The Secondary School of Ludovit Stur, Trencin, Slovakia, T: Bernarda Luptakova
- EBED002I**     **Nefrostat, Portable Diagnostics of Chronic Kidney Disease**  
Martin Holicky, 18, Senior, Skola Pre Mimoriadne Nadane Deti a Gymnazium, Bratislava, Slovakia, T: Anton Belan
- PLNT005I**     **Biosynthesis of Natural Products of German Camomile (*Matricaria recutita*) in Experimental Cultivation**  
Erik Schmotzer, 17, Junior, Secondary Vocational Medical School for Medical Technicians, Kosice, Slovakia, T: Petra Bujnakova
- SOFT004I**     **Computer Vision: Mapping and Orientation in 3-D Space**  
Daniel Zvara, 18, Senior, Gymnazium Velka Okruzna, Zilina, Slovakia, T: Lubomir Konrad

## SLOVENIA

Ljubljana, SVN001, Slovenia Science and Engineering Fair

- PHYS055T**     **High Frequency Resonant Transformer**  
Miha Gulic, 18, Junior; Klemen Ducman, 18, Senior, Srednja Gradbena Sola in Gimnazija Maribor, Maribor, Slovenia, T: Marko Jagodic

## SOUTH AFRICA

Boksburg, ZAF001, Expo for Young Scientists–South Africa

- CHEM001I**     **Investigation of Platinum Substitutes as an Effective Catalyst for Hydrogen Fuel Cells**  
Roland Jacob Dubb, 16, Junior, Herzlia High School, Cape Town, South Africa, T: Lance Job
- EBED001I**     **Autonomous and Configurable Energy Management System**  
Armand Duvenage, 17, Junior, Hoerskool Garsfontein, Pretoria, South Africa, T: Susanna Hester Trumpie
- EBED006I**     **An Innovative Alerting Mechanism for Mobility Assistive Devices**  
Nishka Ramkhelawan, 16, Junior, Ladysmith High School, Ladysmith, South Africa, T: Reine Conradie
- EGCH001I**     **Generating Electricity from Mud**  
Siyabonga Simphiwe Nkosi, 18, Senior, KiriyaSwane Secondary School, Secunda, South Africa, T: Ntibaleng Mpatlanyane
- EGCH003I**     **The Utilisation of Organic Chemical Dyes in the Production of Dye-Sensitised Solar Cells**  
Tyrique Byroo, 15, Sophomore, Star College Boys' High School, Durban, South Africa, T: Tahir Denli
- EGPH003T**     **Portable Sun Tracking Solar Power Kit**  
Fritz Jan Keyzer, 17, Senior; Josiah James Senior, 17, Senior, Pinelands High School, Cape Town, South Africa, T: Nicole Masureik

- MCRO001I** **Magnetotactic Bacteria with a Faraday Application**  
Bernard Adriaan Smit, 18, Senior, Hoerskool Waterkloof, Pretoria, South Africa, T: Carin De Beer
- PHYS003I** **An Easy Way to Measure a Sidereal Day**  
Iselle Van Den Heever, 16, Sophomore, Jim Fouche High School, Bloemfontein, South Africa, T: Cornelia Margaretha Van den Heever
- PLNT002I** **High Protein Fynbos Nuts: A New Superfood**  
Anna Illing Midgley, 16, Sophomore, Herschel Girl's School, Cape Town, South Africa, T: Michael Brasler
- PLNT034I** **Worm Tea: Environmentally-Friendly Alternative to Artificial Fertilisers**  
Avuyile Mbangatha, 17, Senior, Stirling High School, East London, South Africa, T: Ilse Kemp
- SOUTH KOREA**  
*Daejeon, KOR003, Korea Science Fair*
- BMED103I** **Study of Eggplant Peduncle for Cure Periodontal Disease and Remove Bad Breath in Countries Lacking Medical Supplies**  
Yong Su Kim, 18, Senior, Jeonnam Science High School, Naju-Si, South Korea, T: Il-ju Shin
- CHEM042T** **Statistical Analysis of 'Liquid Layer Popping Effect' and Its Application**  
Hae Kyun Bong, 16, Junior; Junseok Moon, 17, Junior, Gyeonggi Science High School for the Gifted, Suwonsi, Gyeonggido, South Korea, T: Soon Geun Kim
- EAEV052I** **Combating Jellyfish Blight: A Novel Usage of Chondroitin Sulfate within Trashed Jellyfish to Adsorb Heavy Metal Pollutants**  
Sun Woo Kang, 17, Senior, Cheongshim International Academy, Seoul, South Korea, T: Jung Suk Kim
- ENMC046I** **Research on Next-generation High-efficiency Aircraft Using the Aerodynamic Characteristics of the Korean Traditional Kite (Bangpaeyeon)**  
Jun Su Jang, 18, Senior, Geochang High School, Geochang, South Korea, T: Hye Jun Lim
- PHYS041T** **The Analysis of Changes in the Wave from the Dynamic Fluid through the SCS (Slope Control System) Produced**  
Eun Sung Choi, 17, Senior; Geon Tae Park, 18, Senior; Seong Yeop Na, 17, Senior, Chung-Buk Science High School, Cheongju, South Korea, T: Myung Kue Lee
- PLNT039I** **Plant's Immune Response by Communication through Common Mycorrhizal Network (CMN)**  
Hwang Huiseon, 16, Junior, Changwon Science High School, Changwon, South Korea, T: Park Sukhyun  
*Seoul, KOR001, Korea Olympiad in Informatics*
- EAEV090T** **Study of Heat Island Effect in Daegu Using Convergence Weather System**  
Gwang Jo Gong, 17, Junior; WonJong Kim, 16, Junior; Sanggyo Seo, 17, Junior, Daegu Il Science High School, Daegu, South Korea; T: Myoung Hee Baek
- ENMC033I** **Safe Mountain Path Service Implementation based on Public Data and Heart Rate Algorithm**  
Seungwoo Han, 17, Junior, Gyeonggi Science High School for the Gifted, Gyeonggi-do, South Korea, T: Jonghye Kim
- SOFT029I** **Computational Prediction of Sunlight in Urban Locations Throughout a Year Using a Smartphone & Image Processing**  
Junha Yang, 18, Senior, Dalseong High School, Daegu, South Korea, T: Seokmin Han
- SOFT030I** **Mechanics Simulator**  
Min Hyuk Daniel Jang, 14, Freshman, Daejeon Samchun Middle School, Daejeon, South Korea, T: Kyungha Suh
- SOFT059I** **Throw the Ring**  
Won Bin Park, 16, Sophomore, Geochang High School, Geochang, South Korea, T: Yi Sak Park

Seoul, KOR002, YSC (National Science Research Competition)

- ANIM055T Settlement of Tropical Moth into Korean Peninsula due to Global Warming**  
Byeongchan Park, 16, Junior; Hyunwoo Lee, 16, Junior; Kim Jaedong, 17, Junior, Busan Yongsin High School, Busan, South Korea, T: Lee Sangryul
- BMED100T Oral Antimicrobial Effect Using Eco-Friendly Substances**  
HyeRim Eam #, 16, Junior; Suyeon Lee, 16, Junior; Yoojin Ahn, 17, Junior, Busan Jangnan High School, Busan, South Korea; Geochang High School, Geochang, South Korea, T: YoungHee Noh
- CHEM054T Brightener? Cuticle!**  
Yeeun Kim, 17, Senior; Hyemin Kim, 18, Senior; Jeongeun Ahn, 17, Senior, Jinju Jeill Girl's High School, Jinju-si, South Korea, T: Hyeonwo Jo
- EBED039I Music Recommendation System via Emotion Recognition Using EEG**  
In Yong Koo, 17, Senior, Gyeonggi Science High School for the Gifted, Seongnam-si, South Korea, T: Eun Hae Kim
- EGPH037T Eco-Friendly Design of 'Door Buffer' by Minimizing Energy Waste and Slamming Force**  
Min Jae Kim, 17, Freshman; Won Chan Lee, 16, Junior; Seung Hyun Joo, 16, Junior, Suji High School, Yongin-si, South Korea, T: Ho Jin Jung
- EGPH051T Efficient Solar Panel Arrangement and Exploration through Biological Imitation**  
MinWoo Lee, 16, Junior; ChanYoung Song, 16, Junior; Sang Jun Lee, 16, Junior, Cheonghak High School, Namyangju-si, South Korea, T: Byoung Soo Han
- ENMC054T Research on Developing the Wheelchair which Can Climb the Kerb Using Center of Mass**  
Yoon-Ho Cho, 16, Junior; Su-Yeon Choi, 16, Junior; Bo-young Son, 16, Junior, Incheon Science High School, Incheon, South Korea, T: Cho Dae-Ki

## SPAIN

Barcelona, SPN001, Exporecerca Jove

- CBIO047I From EEG to Image: The Graphic Representation of Neural Activity**  
Ines Martinez Saludes, 17, Senior, Collegi Claret Barcelona, Barcelona, Spain, T: Robert Vilella Moix
- ENMC062I Application of the Technological Principles of Photography to Build a Hand-Made Accordion Camera Able to Obtain High-Resolution Photographs**  
Paula Santos Guarch, 17, Freshman, Institut Ernest Lluch, Barcelona, Spain, T: Ana Albalat Martinez

## SRI LANKA

Colombo, LKA001, Sri Lanka Science & Engineering Fair

- EGPH011I Eye Protection and Energy Saving Lamp**  
Sivatharshan Mahendran, 19, Senior, Hartley College, Jaffna, Sri Lanka, T: Elango Celliah
- ENMC021I Supporting Rod to Climb Stair Case for Disable Personnel**  
Sanju Subodha Sewwandi Kahandugodagam Acharige, 17, Sophomore, Bomiriya Central College, Kaduwela, Sri Lanka, T: Thanthrige Don Yasawardana Saman Kumara
- PLNT038T Biological Treatment of Maintaining Bio-Quality of *Allium sativum* by Storing with *Garcinia quaesita***  
Janith Ishanka Premalal Ranige, 16, Junior; Tharindu Pasan Dissanayake Sesath Devage, 19, Senior; Buddhi Pramodaya Wijerathna Samaraweera Mudalige, 17, Junior, WP/KT/Gnanodaya Maha Vidyalaya, Kalutara, Sri Lanka, T: Vinitha Pushpalatha Perera

## SWEDEN

Stockholm, SWE001, Utställningen Unga Forskare

- CBIO048I Artificial Evolution**  
Martin Rolf Henning Lindblom, 18, Senior, Lugnetgymnasiet, Falun, Sweden, T: Gunnar Kihlberg

**PHYS043I**     **Disordered Packings of the Platonic Solids and the Pentagonal Trapezohedron**  
 Toomas Mart Liiv, 18, Senior, Danderyds Gymnasium, Danderyd, Sweden,  
 T: Lars Ake Grasjo

## SWITZERLAND

*Bern, CHE001, Swiss Youth in Science*

**BMED002I**     **Detection of Candidatus *Neoehrlichia mikurensis* in Ticks of the Grisons Rhine Valley**

Juno Kim, 19, Senior, Bundner Kantonsschule, Chur, Switzerland,

T: Adrian Puntschart

**PHYS025I**     **A Study on Quantifying Personal UV Exposure, Vitamin D Status and Their Relationship within a Group of High School Students in an Alpine Environment**

Matthias Grobner, 19, Senior, Schweizerische Alpine Mittelschule Davos, Davos, Switzerland, T: Christoph Hangartner

## THAILAND

*Bangkok, THA001, National Science Projects Competition*

**ANIM062T**     **A New Method of Silk Sheath Production Developed from Observation of Spinning Behavior of Silkworms**

Thananon Hiranwanichchakorn, 16, Freshman; Nattapong Chueasiritaworn, 15, Freshman; Sutthiluk Rakdee, 15, Freshman, Damrongratsongkroh, Muang, Thailand, T: Sutipong Jaikaew

**ENEV068T**     **Eco-Friendly Cycling Helmet**

Chakkaphan Kangkorn, 17, Freshman; Natchaya Baenpeth, 17, Senior; Pacharapol Apinuntachart, 16, Freshman, Surattapittaya School, Surattani, Thailand, T: Suwaree Pongtheerawan

**ENEV069T**     **Bio-based Packaging from Lotus Cellulose**

Theeraphat Manoi, 17, Senior; Yutthasat Sonprasom, 17, Senior; Rittikun Thorarit, 17, Senior, Surattapittaya School, Surat Thani, Thailand, T: Suwaree Pongtheerawan

**PLNT057T**     **The Effect of Crude Extract of *Imperata cylindrica* and the Survival and Growth Rates of *Nilaparvata lugens* Stal and Its Impact on Predatory Insects of *Nilaparvata lugens* Stal's Eggs**

Vasu Chavanasupitchaya, 16, Sophomore; Natchamukda Paibool, 16, Sophomore; Wanicha Khotwongsa, 16, Sophomore, The Demonstration School of Khonkaen University (Modindang), Khonkaen, Thailand, T: Pratuengsook Maneelam

**PLNT058I**     **Using Parasitic Fruit Sap to Produce Orchid Adhesion Glue**

Wattana Thumkhongdee, 19, Senior, Damrongratsongkroh School, Muang, Thailand, T: Kietisak Inrajsadon

**PLNT059T**     **Bio-technical Process for Increasing Oil Palm Productivity**

Arnupab Chaida, 17, Freshman; Nattanicha Buathong, 17, Junior; Radarat Sarathip #, 17, Junior, Surattapittaya School, Surattani, Thailand, T: Chalernporn Pongteerawan

**ROBO025T**     **Braille Keyboard Development on Android OS**

Sirapatsorn Pongpiriyakarn, 18, Senior; Patarin Sriwatanasakdi, 18, Senior, Mahidol Wittayanusorn School, Phutthamonthon, Thailand, T: Siriporn Sakboonyarat

*Bangkok, THA002, Young Scientists Competition*

**ENEV078T**     **Efficient Dry-Cell Batteries Powered by Environmental-Friendly and Low Cost Activated Carbon Derived from Bacterial Cellulose**

Orawan Thasanabenjakul, 17, Junior; Pannawat Peanjad, 17, Junior, Surattapittaya School, Surattani, Thailand; Surattapittaya, Surattani, Thailand, T: Suwaree Pongtheerawan

**MATH041I**     **Dominating Broadcast and Multipacking in Specific Graph: A Case Study on Cycle Graphs and Sunlet Graphs**

Sivakorn Sanguanmoo, 17, Junior, Mahidol Wittayanusorn School (Public Organization), Nakornpatom, Thailand, T: Thammanoon Puirod



- PHYS059T** **A Study of Volumetric Variation and Kinetic Behavior of Gas Bubbles for Water and Air Quality Assessment**  
Krit Kruaykitanon, 15, Sophomore; Boonyakorn Assavanives #, 18, Senior, Bangkok Christian College, Bangkok, Thailand, T: Chanan Keatsirisart
- PLNT065I** **The Effectiveness of Rice Bran Extract as a Natural Rubber Sheet Browning Inhibitor**  
Rattatammanoon Tiyaubud, 18, Senior, Princess Chulabhorn's College, Pathumthani, Pathumthani, Thailand, T: Khunthong Klaythong
- TUNISIA**  
*Tunis, TUN001, Tunisia Science and Engineering Fair*
- EAEOV014I** **Sky Cleaner: Atmosphere's Purification from Greenhouse Gases**  
Imen Nouri, 18, Junior, Secondary Pilot High School of Gabes Tunisia, Gabes, Tunisia, T: Hedi Khelifi
- ENMC035I** **The Kelvin Angle: Wave Shock and Velocity**  
Haroun Chahed, 18, Senior, Pioneer High School of Sousse, Sahloul, Tunisia, T: Jamel Chahed
- SOFT019I** **Using Fake Dictionaries in Cryptology to Develop a More Secure Cipher (Fake Synonyms Encryption Cipher)**  
Tarek Abdessattar Aloui, 14, Freshman, Pioneer Preparatory School of Gabes, Gabes, Tunisia, T: Hedi Khelifi
- TURKEY**  
*Ankara, TUR002, Tubitak Fair*
- BMED134I** **The Antiangiogenic Effect of Thyme Essential Oil at Its Anticancer Effect**  
Ilayda Cetin, 18, Senior, Sivas Fen lisesi, Sivas, Turkey, T: Sadi Sezginer
- CELL059T** **Proliferative Effect of Hypericine on Human Skin Fibroblast Cells *in vitro***  
Melih Yaman, 17, Senior; Muhammed Said Tasdemir, 18, Senior, Private Nilufer High School, Bursa, Turkey, T: Faysal Yilmaz
- CHEM073T** **Development of a Novel Radiation Shielding Material**  
Seyit Alp Herdem, 19, Senior; Tahsin Elmas, 18, Senior, Isiklar Air Force High School, Bursa, Turkey, T: Mustafa Sevik
- EGCH044I** **Fabrication and Characterization of Carbon Nanotube Doped Organic Solar Cells**  
Yaren Sever, 16, Junior, Ozel Bornova Ugur Asirlik Anadolu Lisesi, Izmir, Turkey, T: Umit Karademir
- MATH043T** **New Equations for Coprimality and Indivisibility**  
Mucahit Ekinci, 17, Senior; Halil Ibrahim Karakoc, 17, Senior, Sivas Fen Lisesi, Sivas, Turkey, T: Selim Egri
- MATH045T** **The Sum of the Double Forces of the Distances Between the Cusp Points in the Same Plane Regular Polygon and P Point in the Plane**  
Mehmet Eren Savasturk, 17, Senior; Mehmet Yigit Huduti, 17, Senior, Edirne Suleyman Demirel Fen Lisesi, Edirne, Turkey, T: Murat Sahin
- MATS052T** **Production of Alternative Ballistic Protection Vest from "Shear Thickening Fluid" (STF) Based Silica Nanoparticle Containing Composite Fabric**  
Fatih Guler, 19, Senior; Tunahan Enginer, 19, Senior, Kuleli Military High School, Istanbul, Turkey, T: Ahmet Gungor
- MATS053I** **Biocompatible Artificial Blood Vessels Fabricated from Thermoplastic Polyurethane Added with ZnO Nanoparticles Conjugated with Olive Seed and *Chladophora prolifera* Extracts with Bacterial Cellulose Exterior and Heparin Interior Coatings**  
Ibrahim Can Kaymaz, 17, Senior, Ozel Bornova Ugur Asirlik Anadolu Lisesi, Izmir, Turkey, T: Figen Ozyildiz
- PHYS058T** **Detection of Conductance Quantization and Designing a Simple Biosensor via Gold Wire**  
Busra Yildirim, 17, Junior; Koray Sekerin, 19, Senior, Ozel Bornova Ugur Asirlik Anadolu Lisesi, Izmir, Turkey, T: Viki Kalderon
- Istanbul, TUR001, 12th National Environmental Project Olympiad*
- EGPH030T** **Electromagnetic Radiation Hunter**  
Mark Albert Adut, 16, Sophomore; Yosi Kohen Kutucu, 16, Sophomore, Ulus Private Jewish Schools, Istanbul, Turkey, T: Talha Kilic

## ENEV052T **Super Bee Fertilizer**

Merih Akalin, 17, Senior; Esin Comlekcioglu, 16, Freshman, Dr. Rifat Osman Kesan Anatolian Health Professional High School, Edirne-Kesan, Turkey; Bahcesehir College, Istanbul, Turkey, T: Hasan Avcu

## UKRAINE

*Kyiv, UKR001, Intel-TechnoUkraine*

### EBED024I **Development of 3D LED Globe**

Ervin Ervinovich Molnar, 17, Junior, Gimnazium, Vinogradov, Ukraine, T: Igor Nestorovich Firmaniuk

### PHYS028I **Distribution and Kinematics of Cepheids in the Milky Way Galaxy**

Nadiia Maslova, 16, Sophomore, Odessa Mariinsky High School, Odessa, Ukraine, T: Natalia Virnina

### SOFT061I **Nilrima Program**

Yurii Rivnyi, 18, Senior, Technical Creative Center "Evrika", Kyiv, Ukraine, T: Igor Nedozhdiy

*Kyiv, UKR002, Intel-EcoUkraine*

### CHEM035I **Synthesis of New Potential Analgesics from Phosphorylated Derivatives of benzo[e][1,4]diazepin-2-ones**

Valeriia Pyrogova, 16, Junior, Gymnasium No.9, Odessa, Ukraine, T: Svitlana Sikorska

### CHEM069I **New Selective Fluorescent Indicator for Toxic Metal Ions**

Mykhaylo Parkulab, 17, Junior, Kharkiv Specialized School #17, Kharkiv, Ukraine, T: Alla Loktionova

### ENEV034I **Camelina as Appropriate Bioenergetic Crop for Sustainable Full Cycle Ecomanagement in Temperate Climate Areas**

Rostyslav Blyum, 16, Sophomore, Lyceum "Holosiyivky" No. 241, Kyiv, Ukraine, T: Volodymyr Nazarenko

## UNITED ARAB EMIRATES

*Abu Dhabi, ARE002, Think Science Competition*

### BMED150T **Morse Glasses for ALS Patients**

Abdulla Mohamed Alali, 17, Senior; Mohamed Ahmed Alshehhi, 18, Senior, Applied Technology High School - Boys - Abu Dhabi, Abu Dhabi, United Arab Emirates, T: Carvalho Ryan Rosario

### EBED057T **Roads Accidents Alert System**

Rashid Jasem Alhammadi, 17, Senior; Ali Abdullah Albastaki, 17, Senior; Humaid Mohammad Alhammadi, 17, Senior, Applied Technology High School - Dubai, Dubai, United Arab Emirates, T: Hussam Eljammal

### EGCH049T **A Hint to a New Beginning**

Maryam Fuad Bukhash, 16, Junior; Amna Mohammad Al Hashimi, 16, Junior, Al Ittihad Private School - Jumeira, Dubai, United Arab Emirates, T: Abeer Charab

### EGCH050I **A Well of Inexhaustible Power**

Roudha Saeed Al Kamda, 17, Junior, Al Ittihad Private School - Jumeira, Dubai, United Arab Emirates, T: Abeer Charab

### ENMC078T **Anti-Alcohol Car**

Alia Arif Alharmi, 15, Junior; Shouq Abdulaziz Altawash, 15, Junior, Dubai National School - Al Barsha, Dubai, United Arab Emirates, T: Nafissa El Jabban

### ROBO030T **The Smart Glove**

Khalid Ahmed Alkhyeli, 18, Senior; Obaid Abdulazeez Bin Safwan, 18, Senior, Applied Technology High School - Boys - Abu Dhabi, Abu Dhabi, United Arab Emirates, T: Carvalho Ryan Rosario

## UNITED KINGDOM

*Birmingham, GBR003, Young Engineers for Britain*

### ENMC032I **Find My Dog**

David Steele, 17, Freshman, Nottingham High School, Nottingham, United Kingdom, T: Ian Thorpe

**ENMC0571 Continuous Reciprocating Air Filter**  
Matthew Lewis Ardern, 17, Senior, Stockport Grammar, Stockport,  
United Kingdom, T: Graeme McKinna-Whitby

## UNITED STATES OF AMERICA

### ALABAMA

*Auburn, USAL01, Greater East Alabama Regional Science and Engineering Fair*

**BMED0451 Quantitative Usage of a Novel Bioelectronic Chip for Noninvasive, Versatile Cancer Diagnosis**  
Venkata Viswajit Macha, 17, Senior, Loveless Academic Magnet Program  
High School, Montgomery, Alabama, T: Moore Asouzu

**ENMC0501 Algorithms for Prognostication of Electronics Failures in Hybrid and Electric Vehicles**

# Rahul Lall, 16, Freshman, Auburn High School, Auburn, Alabama,  
T: Mark Jones

*Birmingham, USAL02, Central Alabama Regional Science and Engineering Fair*

**ANIM0561 Modifiers of *Apis mellifera* Flight Muscle Metabolism: A Field Study in a Working Apiary**

# Quinn McCormick, 17, Junior, Jefferson County International Baccalaureate,  
Irondale, Alabama, T: Kelly Breland

**EAEV0561 Correcting Ocean Acidification with Potassium Carbonate**

Margaret Amelia Knight, 15, Sophomore, Alabama School of Fine Arts,  
Birmingham, Alabama, T: Rebecca Thrash

**EGPH031T Increased Efficiency in Solar Energy for Developing Countries**

Matthew Tyler Jackson, 18, Senior; Austin Lee Norwood, 18, Senior,  
Hewitt-Trussville High School, Trussville, Alabama, T: Christopher Bond

**ENEV053T The Removal of Arsenic (III) from Contaminated Drinking Water Using Iron Oxide and 3D Printed Beads**

Makenzie Plyman, 18, Senior; Madison Baylee Plyman, 18, Senior,  
Hewitt-Trussville High School, Trussville, Alabama, T: Chris Walters

*Huntsville, USAL03, North Alabama Regional Science and Engineering Fair*

**CBIO0231 Multiscale Simulation of Tumor Growth and Angiogenesis: A Model for Pharmacotherapy Assessment and Drug Discovery**

# # Joshua Cyril Abreo, 17, Senior, James Clemens High School, Madison,  
Alabama, T: Tammy Simons

**EBED0261 Design and Construction of a Scalable Active Battery Management System for Electric and Hybrid Electric Vehicles**

# Michael Andrew Prevost, 17, Junior, Covenant Christian Academy, Huntsville,  
Alabama, T: Rhonda Lisauckis

**ENMC0641 Development of a Novel Unmanned Aerial Vehicle (UAV): Nanoscale Transverse Tilt-rotor Helicopter**

Hunter Wilhelm Phillips, 18, Senior, Covenant Christian Academy, Huntsville,  
Alabama, T: Rhonda Lisauckis

*Huntsville, USAL50, Alabama Science and Engineering Fair*

**BMED1321 Non-Invasive Monitoring of Inflammation in a Genetically-Modified, Tissue Engineered Vascular Model**

Priya Shailesh Shah, 18, Senior, Alabama School of Fine Arts, Birmingham,  
Alabama, T: Hungsin Chin

**CELL0571 Modulation of Macrophage Phenotype Using Nanoparticle-Delivered Gene Therapy for Treatment of Inflammatory Diseases**

# Ruchir Rastogi, 17, Senior, Loveless Academic Magnet Program High School,  
Montgomery, Alabama, T: Huyen Tran

**ENEV0631 Removal of BTEX from Storm Water Using Improved HDTMA Nano-Particle Enhanced Reactive Porous Concrete**

# Megan Abigail Lange, 16, Junior, Auburn High School, Auburn, Alabama,  
T: Jacque Middleton

**ROBO0291 Thermally Actuated Artificial Muscles for Use in Exoskeletons**

# # Sean Alexander Benson, 18, Senior, Satsuma High School, Satsuma, Alabama,  
T: Judy Tapia

*Livingston, USAL05, West Alabama Regional Science Fair*

**ENEV012I Balloon Bloat**

Lesleigh Reann Anderson, 16, Sophomore, Patrician Academy, Butler, Alabama, T: Maghan Fuller

*Mobile, USAL04, Mobile Regional Science Fair*

**ANIM066I Tag Retention and Stress Levels on Subadult Red Drum (*Sciaenops ocellatus*)**

Sarah Nina Bowman, 17, Junior, Murphy High School, Mobile, Alabama, T: Julie Prerost

**BMED092I Gold and Silver Nanoparticles for Skin Cancer Chemoprevention and Therapy**

# # Rohan Palanki, 18, Senior, WP Davidson High School, Mobile, Alabama, T: Barbara Alexander

**ALASKA**

*Anchorage, USAK50, Alaska Science and Engineering Fair*

**BCHM028I Determining the Relative Affinities of Alkaloids in Reed Canarygrass for Tannic Acid**

Gary Thomas Hoppenworth, 15, Sophomore, West Anchorage High School, Anchorage, Alaska, T: Carmen Olito

**EAEV055I Conclusions from a IV Year Research Study: Ocean Acidification in Prince William Sound, Alaska**

Alta Dean, 18, Senior, Colony High School, Palmer, Alaska, T: Dorrie Dean

**MCRO041I A Genetic Mechanism Underlying Bacterial Drug Resistance: Ampicillin Resistant *Escherichia coli***

David Dawei Chen, 16, Sophomore, West Valley High School, Fairbanks, Alaska, T: Gregory Kahoe

*Juneau, USAK01, Southeast Alaska Regional Science Fair*

**ANIM006T How Temperature Affects Growth of Pacific Blue Mussels (*Mytilus trossulus*)**

Aidan Seid, 16, Sophomore; Ben Undurraga, 16, Freshman, Juneau-Douglas High School, Juneau, Alaska, T: Jonathan Smith

**EAEV013T How Habitat Water Temperature Affects the Fish Condition and Energy Density of Fourhorn Sculpin (*Myoxocephalus quadricornis*)**

Derek Rain Dzinich, 17, Junior; Samantha Nicole Heidersdorf #, 18, Senior, Juneau-Douglas High School, Juneau, Alaska, T: Jonathan Smith

**ARIZONA**

*Phoenix, USAZ50, Arizona Science and Engineering Fair*

**BMED145I Can Caspase 3 and Caspase 3/7 Inhibitors Improve the Quality and Longevity of Corneas Being Stored for Transplant?**

Samantha Marie Bouchal, 17, Senior, Basha High School, Chandler, Arizona, T: Michael McKelvy

**BMED147I Using the Ketone Body Beta-hydroxybutyrate as a Radiosensitizer for Malignant Glioma Cells**

Alex Patrick Rossi, 18, Senior, Paradise Valley High School, Phoenix, Arizona, T: Marni Landry

**CELL058I An Investigation of Potential Gene Over-Expression and siRNA Methods for Causing Cell Lysis and Stasis**

Jordan Heaven Hines, 17, Senior, Chandler High School, Chandler, Arizona, T: Donna Bond

**EAEV083I Can Bacteria Effectively Reduce the Toxicity of Mine Drainage?**

Harold Joseph Carrigan, 17, Junior, Basha High School, Chandler, Arizona, T: Michael John McKelvy

**EBED050I A Novel Solution for the Visually Impaired Utilizing Computer Vision and Vibrohaptics**

Mani Kandan, 16, Sophomore, Hamilton High School, Chandler, Arizona, T: Angela Sodemann

EGCH045T	<b>The Effect of the Algal Harvesting Method on the Amount of Algal Mass Recovered for Economically Feasible Biofuel Production</b> Kaitlyn Noel Loop #, 17, Freshman; McKenna Kristin Loop, 16, Sophomore, Arizona College Preparatory-Erie Campus, Chandler, Arizona, T: Kristi Glassmeyer
ENEV079T	<b>Uptake and Translocation of Arsenite and Arsenate by <i>Zea mays</i>: Effect of Boron</b> Kaveri Das, 18, Senior; Lisa Zou, 16, Junior, Hamilton High School, Chandler, Arizona, T: Debbie Nipar
ENEV082I	<b>Nanotech Fungi</b> Farah Eltohamy, 15, Freshman, Arizona College Preparatory-Erie Campus, Chandler, Arizona, T: Kristi Glassmeyer
MATH042T	<b>On the Constructibility of n-Division Points of Certain Polar Curves by Area</b> Nithin Venkat Kannan, 16, Junior; Young Han Kim, 16, Junior, BASIS Scottsdale, Scottsdale, Arizona, T: Marizza Bailey
MATS054I	<b>High Quality YBCO on Perovskite Dielectric for Superconducting Microwave Resonators</b> Joseph Park, 18, Senior, Corona del Sol High School, Tempe, Arizona, T: Sarah Blechacz
MCRO062I	<b>Developing an Effective Phage Therapy for Treatment of Methicillin-Resistant <i>Staphylococcus aureus</i></b> Aryasp Seyed Nejat, 15, Sophomore, Hamilton High School, Chandler, Arizona, T: Debbie Crane
MCRO065I #	<b>The Innovative Use of Proteolytic Enzymes as Specific Targeting Antivirals</b> Rebecca Jeanne Jernigan, 18, Freshman, Hamilton High School, Chandler, Arizona, T: Debbie Nipar
PHYS062I	<b>The Effect of Orbital Separation and Stellar Class Type on the Habitability of Circumbinary Planets in the Innermost Stable Orbit about a Binary Star System</b> Alexandra Michele Smith, 18, Senior, Mountain View High School, Mesa, Arizona, T: Kristen Grindle
PLNT066I	<b>Observations of Phytosterol: A Novel Method of Anti-Cancer Treatment Using Plant Based Steroid Compounds</b> Ritika Bharati, 16, Sophomore, Hamilton High School, Chandler, Arizona, T: Raxha Bhagdev
SOFT057I	<b>Lockino: A Novel Solution for Public Lockers Using Bluetooth LE and the Estimote iBeacon Platform</b> Zachary Scott Rolfness, 15, Freshman, Westwood High School, Mesa, Arizona, T: Jorge Vega
<i>Sierra Vista, USAZ02, SSVEC's Youth Engineering and Science Fair</i>	
BEHA047I	<b>Need a Break?</b> Emma Judd, 15, Freshman, Saint David High School, Saint David, Arizona, T: Larry Chandler
EGPH032I	<b>What Are Solar Panels Actually Collecting?</b> Noah Samuel Bell, 16, Sophomore, Veritas Christian Community School, Sierra Vista, Arizona, T: Angela Massa
<i>Tucson, USAZ03, Southern Arizona Research, Science and Engineering Fair</i>	
ANIM022I #	<b>A Novel Approach to the Characterization of <i>Toxoplasma gondii</i> Infected Neurons</b> Tapasya Bhupendra Trivedi, 17, Senior, Academy of Tucson High School, Tucson, Arizona, T: Kathy Friedman
BMED047I	<b>A Novel Approach to Treatment for ALS through Metabolomics in a <i>Drosophila</i> Model</b> Sylvia Zarnescu, 15, Freshman, Catalina Foothills High School, Tucson, Arizona, T: Terry Fortunato
EAEV033I	<b>Efficacious Phytoremediation of Rice and the Surrounding Environment from Arsenic and Lead Using <i>Nymphaea odorata</i></b> Claire Jeanne Thai, 15, Freshman, Thai Homeschool, Tucson, Arizona, T: Claire Jeanne Thai

- EBED0221** **AMELIA: Using an IoT-Interfaced Cloud Computing Network to Create a Wireless, Realtime, World-Wide Aircraft Safety Data Monitoring System**  
Jeremiah Pate, 16, Freshman, BASIS Oro Valley, Oro Valley, Arizona,  
T: Tommaso Cioni
- EGCH0201** **3-Dimensional Microbial Fuel Cell Anode**  
Diego Aubert Vasquez, 17, Freshman, Tucson Magnet High School, Tucson, Arizona, T: Margaret Wilch
- ENEV0401** **An Engineered System for Filtering Pb2+ Using Chlorophyta, Phase Two**  
Amanda Catherine Minke, 16, Sophomore, Immaculate Heart High School, Oro Valley, Arizona, T: Danielle Renee Abrames
- PLNT0251** **The Role of EXPORTIN1A and EXPORTIN1B in Nuclear Export of AGO4 in *Arabidopsis thaliana***  
Pearl Dixon, 16, Junior, Tucson Magnet High School, Tucson, Arizona, T: Margaret Wilch

## ARKANSAS

Conway, USAR50, Arkansas State Science Fair

- BEHA0521** **Enlightened Education: Evaluating Classroom Inversion and Mutual Engagement in Chemistry and Biology**  
Jacquelyn Jewell Mosely, 18, Senior, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas, T: Patrycja Krakowiak
- CELL0521** **DZ3: A Novel Analog that Selectively Targets and Eliminates Senescent Cells**  
Angela Wang, 17, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- ENMC0611** **Non-planar Slicing for Extrusion-based 3D Printing**  
Joseph Zhang, 17, Senior, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas, T: Nicholas Seward
- ENMC0701** **Efficient Drag Optimization by FMM Accelerated Gridless Vorticity Discretization and Functional Far-Field Contributors**  
Kwung Tang, 17, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- MATS0551** **Graphene-Based Infrared Detector**  
Nimit Gandhi, 17, Senior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley
- Fayetteville, USAR03, Northwest Arkansas Regional Science and Engineering Fair
- ANIM0201** **Dead in Their Tracks, Phase II**  
Cole McBride Balkman, 17, Junior, Alma High School, Alma, Arkansas, T: Jeana Parker
- ENEV0281** **Filtration Purification**  
Brandon James Criner, 16, Sophomore, Alpena High School, Alpena, Arkansas, T: Mark Welch
- SOFT0231** **Detecting Plagiarism**  
Caleb Joseph Fritz, 17, Junior, Alma High School, Alma, Arkansas, T: Tiffany Scrivner
- Hot Springs, USAR07, West Central Regional Science fair
- BMED0101** **Graphene Sheets as Drug Delivery Vehicles into Cancer Cells**  
Deisy Yarabith Abarca Espiritú, 17, Senior, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas, T: Walt Levissee
- EGPH0061** **The Enhanced Growth of Biodiesel Crops Using a Photovoltaic-Powered Drip Irrigation System for the Efficient Production of Fuel**  
Nilanjana Ray, 18, Senior, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas, T: Brian Monson
- PLNT0101** **Imaging Kalanchoe Plantlet Initiation**  
Ashley Rainier Barto, 18, Senior, Arkansas School for Mathematics, Sciences, and the Arts, Hot Springs, Arkansas, T: Jon Ruehle
- Jonesboro, USAR04, Northeast Arkansas Regional Science Fair
- BEHA0631** **Do Left Hand or Right Hand Dominant People Have More Control of Their Non-dominant Hand?**  
Amelia Malvindra Singh, 15, Freshman, Nettleton Public Schools, Jonesboro, Arkansas, T: Annette Rena Holder

<b>ENMC0711</b>	<b>Developing an Efficient Plant Counting System Using Robotic Sensors</b>
#	Darrin Andrew McFall, 16, Sophomore, Buffalo Island Central, Monette, Arkansas, T: Amanda Beth McFall
<b>MATS0211</b>	<b>I Gotta Biggin</b>
	Austin Tanner Bassham, 15, Freshman, Salem High School, Salem, Arkansas, T: Amanda Leigh Himschoot
<i>Little Rock, USAR05, Central Arkansas Regional Science Fair</i>	
<b>BMED1241</b>	<b>Cytotoxic Effects of Graphene on Cell Proliferation of Skin Fibroblast Cells</b>
	Shruti Shah, 18, Senior, Little Rock Central High School, Little Rock, Arkansas, T: Mary Parson
<b>EGCH022T</b>	<b>Enhancement of the Photocurrent Response of Tungsten Nano-Structures Using an Indium Tin Oxide Coating</b>
	Dana Abulez # #, 18, Senior; Rachana Kombathula #, 18, Freshman; Devyani Shekhawat # #, 17, Senior, Little Rock Central High School, Little Rock, Arkansas, T: Patrick Foley, Katie Parson
<b>MATS0221</b>	<b>Superhydrophobicity: Using Nanotechnology to Enhance Anti-Microbial Properties of Silicone Shunts</b>
# #	Hanya Marium Qureshi, 16, Senior, Pulaski Academy, Little Rock, Arkansas, T: Annice Steadman
<b>CALIFORNIA</b>	
<i>Contra Costa County, USCA08, Contra Costa County Science and Engineering Fair</i>	
<b>CBIO0441</b>	<b>Discrete Markov Chains: A Novel Approach to Tumor Angiogenesis</b>
	Dibya Jyoti Ghosh, 17, Senior, California High School, San Ramon, California, T: Douglas Mason
<b>MCRO0571</b>	<b>Is Manganese Involved in Helping Haloarchaea Resist UV Damage?</b>
	Maia Thelen, 15, Freshman, San Ramon Valley High School, Danville, California, T: Robin Groch
<b>PHYS0361</b>	<b>Quantum Locking Aircraft: Towards the Development of Magnetically Assisted Landing and Take-off Systems via Flux Pinning</b>
#	Julienne Sauer, 15, Sophomore, Dougherty Valley High School, San Ramon, California, T: Annie Nguyen
<b>ROBO0221</b>	<b>Can I See It If I Cannot Hear It? Real-Time Visualization of Incoming Sound for People with Hearing Disabilities or Ear Obstruction</b>
	Vasily Antonovich Tremsin, 15, Freshman, Campolindo High School, Moraga, California, T: Roxanna Jackman
<i>Costa Mesa, USCA01, Orange County Science and Engineering Fair</i>	
<b>BMED0621</b>	<b>Using Electromyographic Technology and Voice Control to Create a Cost-Effective Prosthetic Arm</b>
	Nilay Mehta, 16, Junior, Irvine High School, Irvine, California, T: Joan Elliott
<b>CHEM0361</b>	<b>A Novel Method to Immobilize Ionic Liquid in Alginate-Gelatin Polymer Beads for Heavy Metal(s) Extraction</b>
	Hope Lee, 17, Junior, Woodbridge High School, Irvine, California, T: Mike Antrim
<b>CHEM0451</b>	<b>Correlating the Bandgaps of Earth-Abundant Metal Oxides to Photocurrent Generation for Water Splitting Applications</b>
	Jennifer Anne McCleary, 18, Senior, Arnold O. Beckman High School, Irvine, California, T: Michael Tran
<b>SOFT0311</b>	<b>A Novel, Efficient Anti-Malware System through Strongly Coupled Blockchain Consensus and Feedforward Bloom-Bloomier Scanning Mechanisms</b>
	Charles Noyes, 16, Sophomore, Villa Park High School, Villa Park, California, T: Judith Fusco
<i>Fresno, USCA03, Central California Regional Science, Mathematics and Engineering Fair</i>	
<b>ANIM0351</b>	<b>Antimicrobial Properties of Stingray Mucus</b>
	Titus Mark Patton, 15, Sophomore, Sanger High School, Sanger, California, T: Davin Aalto
<b>CELL029T</b>	<b>Role of Taste Receptor Gene TAS2R38 and Fat Sensor Protein CD36 in Supertasting Ability and Childhood Obesity</b>
	Japmeet Sandhu #, 17, Senior; Ashima Thusu #, 16, Junior, Clovis North High School, Fresno, California, T: Jonathan Bowns



<b>CHEM037I</b>	<b>Comparative Studies of Gold Nanoparticles as Chemical Sensing Materials: Electronic Tongue vs. Electronic Nose, Year Three</b>
# #	Seung Hye (Beatrice) Choi, 16, Junior, University High School–Fresno, Fresno, California, T: Brenda Royce
<b>ROBO006I</b>	<b>Project Maverick: An Omni-Directional Robotic Mobility System</b>
	Alex Cristian Tacescu, 16, Junior, Clovis North High School, Fresno, California, T: Jonathan Bowns
<i>Los Angeles, USCA02, Los Angeles County Science and Engineering Fair</i>	
<b>BMED117I</b>	<b>A Handheld Hematology Analyzer Using Acoustic Enhanced Blood Smear Devices</b>
#	Vick Cheung Liu, 17, Junior, Flintridge Preparatory School, La Cañada Flintridge, California, T: Laura Kaufman
<b>MATH039I</b>	<b>Preserving Algebraic Structures on Exact Infinity: Categories with the K-theory Functor</b>
	Sanath Kumar Devalapurkar, 15, Freshman, West High School, Torrance, California, T: Patricia Girgis
<i>Palos Verdes Peninsula, USCA10, Palos Verdes Peninsula Unified School District Science and Engineering Fair</i>	
<b>BMED049I</b>	<b>Pathology and Chemistry of the Brain in Sanfilippo Syndrome Type B</b>
#	Braeden Christopher Benedict, 18, Senior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
<b>CHEM031I</b>	<b>Synthesizing and Utilizing Difluoromethyl- &amp; Trifluoromethyl-Artemisinins to Interrupt the Life Cycle of Malaria Parasites, Year III</b>
#	Shreya Sundaresh Ramayya, 17, Senior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
<i>Pleasanton, USCA09, Synopsys Alameda County Science &amp; Engineering Fair co-sponsored by Lawrence Livermore National Laboratory</i>	
<b>BMED090I</b>	<b>A Nonsurgical Regenerative Stem Cell Treatment for Osteoporosis through an Injectable Nanocomposite Orthopedic Implant and Dynamic Acoustic Radiation Force</b>
#	Vaishnavi Shrivastava, 18, Senior, Mission San Jose High School, Fremont, California, T: Arshiya Sultana
<b>BMED105I</b>	<b>Using Virtual Screening Methods to Identify a Novel and Noninvasive Method of Heart Disease Treatment and Prevention</b>
	Rohan Arora, 14, Freshman, American High School, Fremont, California, T: Gary Benz
<b>EBED055I</b>	<b>3D-Printed Bluetooth Android-Based Spirometer with HIPAA-Compliant Secured Cloud Data Storage</b>
	Hannah Alexandra Edge, 13, Freshman, Dublin High School, Dublin, California, T: Janet Kaehms
<b>ENMC037I</b>	<b>Little Insect Project (Inspired by DARPA LittleDog Project)</b>
	Vanessa Wang, 15, Freshman, American High School, Fremont, California, T: Joshua Baker
<i>Sacramento, USCA04, Sacramento Regional Science and Engineering Fair</i>	
<b>BCHM050I</b>	<b>Advancing Western Blotting: Improving the Sensitivity of Protein Detection with Smaller Well Engineering</b>
#	Nathaniel George Varghese, 17, Senior, Folsom High School, Folsom, California, T: Jeanine Robb
<b>CBIO021I</b>	<b>Model Order Reduction of Cell Signalling Pathways: An Investigation of the Invasive Mechanism of Ebola Virus</b>
#	Prem Talwai, 17, Senior, Mira Loma High School, Sacramento, California, T: Tim Thayer
<b>PLNT021I</b>	<b>Development of New Primers and TaqMan® Probes for the Detection of Grapevine Viruses Associated with Red Blotch and Leafroll by qPCR and Digital PCR</b>
	Maya Jayanth, 16, Sophomore, Mira Loma High School, Sacramento, California, T: Mysore Sudarshana

*San Bernardino, USCA13, Riverside, Inyo, Mono, San Bernardino (RIMS) Science and Engineering Fair*

**CHEM0781** **A Novel and Efficient Method for the Self Assembly of Fe-TiO<sub>2</sub> Nanoparticles for Enrichment of Phosphorylated Proteins**  
Andrea Lynn Noronha, 15, Sophomore, Redlands High School, Redlands, California, T: Colleen Duncan

**MATH0481** **Fuzzy Structures with Application to Differential Topology, Manifold Learning, and Specialized Concepts in Mathematics**

# Jared Anthony Tramontano, 16, Freshman, Centennial High School, Corona, California, T: Sunny Kaura

**PLNT0691** **A Rapid Field Detection of *Liberibacter* Bacteria Using Lateral Flow Technology**

# # Saumya Ramadugu Keremane, 18, Senior, Martin Luther King High School, Riverside, California, T: Kristine Jennings

*San Diego, USCA05, Greater San Diego Science and Engineering Fair*

**ANIM0681** **Multiple Generations Beyond "You Are What You Eat": Transgenerational Inheritance of Nutritional Programming of Longevity and Reproduction after Postnatal Dietary Manipulations**

Brian Xia, 15, Sophomore, Canyon Crest Academy, San Diego, California, T: Steve de Belle

**BMED1391** **Cancer Targeting Activity of *Salmonella* Invasion Protein A (SipA)**

Kyung Eun Christina Baek, 17, Junior, Torrey Pines High School, San Diego, California, T: Julia Newman

**BMED1421** **A Computer-Based Integrated Analysis of Genomic Signatures in Ovarian Cancer**

Stephanie Hu, 16, Junior, Torrey Pines High School, San Diego, California, T: Julia Newman

**CBIO0581** **Identification of Pathogen and Anti-Ebola Drug Targets Using Bayes' Theorem and Information Entropy**

# Min Jean Cho, 17, Junior, Torrey Pines High School, San Diego, California, T: Julia Newman

**EBED0441** **The Exchange iMproving Unit: An Auditory Device for Directional Filtering**

Robert Cole Henning, 17, Junior, Mission Hills High School, San Marcos, California, T: Angelika Termin

**ROBO0261** **Object Recognition Based UAV Control**

Francisca Vasconcelos, 17, Junior, Torrey Pines High School, San Diego, California, T: Julia Newman

*San Francisco, USCA06, San Francisco Bay Area Science Fair, Inc.*

**BMED0911** **The Metalloprotease Inhibitor, 1, 10 Phenanthroline, as a Lead for Finding Drugs to Kill *Brugia pahangi* Worms**

Matthew Moser, 16, Junior, Redwood High School, Larkspur, California, T: Todd Samet

**EBED0521** **Touch to Talk: A Wearable Tech Glove to Enable Speech-Impaired Persons to Communicate with Strangers in Public**

Austin Sherrill Veseliza, 16, Sophomore, The Nueva School, San Mateo, California, T: Amanda Alonzo

*San Jose, USCA07, Synopsys Silicon Valley Science and Technology Championship presented by the Santa Clara Valley Science and Engineering Fair Association*

**BCHM0351** **Novel Design and Optimization of an EGFRvIII-based Cancer Peptide Vaccine**

Anin Sayana, 16, Junior, Bellarmine College Preparatory, San Jose, California, T: Debjani Roy

**BMED0481** **Identification and Characterization of a Rare Subpopulation with Cancer Stem Cell Properties in Lung Cancer**

# Joy Qiu Jin, 17, Senior, Henry M. Gunn High School, Palo Alto, California, T: Biao He

**CBIO0341** **Enabling Precision Medicine with Big Data: A Cross-Platform Framework to Computationally Characterize Gene Presence and Function**

# # Swetha Revanur, 16, Junior, Evergreen Valley High School, San Jose, California, T: David Walz

- CBIO035T** **Systematic Rational Identification of Sex-Linked Molecular Alterations and Therapies in Cancer**  
Sadhika S. Malladi, 17, Junior; Jonathan QuanXuan Ma, 16, Junior, The Harker School, San Jose, California, T: Chris Spenner
- CBIO045I** **Computational Cardiology: An Automated Algorithm for Heart Murmur Detection**  
Holly Marie Jackson, 14, Freshman, Notre Dame High School San Jose, San Jose, California, T: Victoria Evashenko
- CBIO051I** **The 99¢ Clinical Trial: Accelerating Fast Failures in Clinical Trials Using Software that Models Weizmann BioNumbers on ErbB2 Activated Signaling Pathways and Lapatinib Drug Interaction for Advanced/Metastatic Breast Cancer**  
# Tanisha Joshi, 16, Sophomore, Evergreen Valley High School, San Jose, California, T: Carol Metica-Pongol
- CHEM065I** **Design and Synthesis of a Novel Biosensor Platform for Health Diagnostics**  
Ruchi Sandeep Pandya, 18, Senior, Lynbrook High School, San Jose, California, T: Jason Lee
- EBED036I** **A Wireless Smartphone-Based System for Diagnosis of Pulmonary Illnesses**  
Maya Varma, 16, Junior, Presentation High School, San Jose, California, T: Tracy Hughes
- MATH021I** **Characterizing the Constructible N-Division Points of the Rational C-Hypocycloids through Straightedge and Compass Constructions**  
# Nitya Mani, 17, Senior, The Harker School, San Jose, California, T: Chris Spenner
- PHYS051T** **A Search for Exoplanets in the Open Star Clusters Messier 35 and Koposov 62 Using A Novel Large-Scale Photometric Algorithm for the "Crippled" Kepler Mission**  
Shashank Dholakia, 16, Sophomore; Shishir Dholakia, 16, Sophomore, Adrian C Wilcox High School, Santa Clara, California, T: Cory Dobos  
*Santa Cruz, USCA11, Santa Cruz County Science and Engineering Fair*
- EAEV045T** **Secrets of San Lorenzo Valley's Atmosphere, Part Three: The Dangers of Particulate Matter 2.5 and SLV Inversion Analysis**  
Connor Burke Lydon # #, 18, Senior; Natalie Gallagher # #, 17, Freshman, San Lorenzo Valley High School, Felton, California, T: Jane Orbuch  
*Seaside, USCA12, Monterey County Science and Engineering Fair*
- MCRO032I** **Gravitactic Effects of Copper Pollution on Glucose Metabolism in *Euglena gracilis***  
Rohan Bhushan, 14, Freshman, Monterey High School, Monterey, California, T: Geoffrey Von Saltza
- PLNT027I** **Characterization and Utility of Resistance Sources Against Resistance-Breaking Rhizomania in Sugar Beet**  
# # Kapil Sinha, 15, Freshman, Salinas High School, Salinas, California, T: Kelley Richardson
- PLNT028I** **Molecular Detection of *Peronospora effusa* during the Latent Period**  
Chaitra Shankar Subbarao, 17, Junior, Salinas High School, Salinas, California, T: Steven J. Klosterman
- COLORADO**  
*Alamosa, USCO01, San Luis Valley Regional Science Fair, Inc.*
- ANIM009I** **Fields for Flight: Effects of Magnetic Fields on Butterfly Navigation**  
Jeremiah Taylor Etter, 17, Junior, Monte Vista High School, Monte Vista, Colorado, T: Loree' Ann Harvey
- EAEV086I** **Pharmacoenvironmentology—Developing a Baseline for PPCP Contaminant Levels at the Monte Vista Wildlife Refuge (MVWR)**  
Hannah Victoria Fischer, 16, Sophomore, Sierra Grande High School, Blanca, Colorado, T: Judy Lopez  
*Boulder, USCO09, Corden Pharma Colorado Regional Science Fair*
- ANIM010I** **Pulsing Electromagnetic Radiation at 50/60 Hz as a Pest Repellent in Insects**  
Margaret Therese Preigh, 17, Senior, Fairview High School, Boulder, Colorado, T: Paul Strode

<b>BCHM049I</b>	<b>Determining the Stiffness Threshold of a PEG Hydrogel for Motor Neuron Axon Extension</b> Annie Shao Chen, 16, Sophomore, Boulder High School, Boulder, Colorado, T: Ryan O'Block
<b>EAEV073I</b> #	<b>The Effect of the Atlantic Ocean on Polar Vortex Weakening</b> Jesse Tan Zhang, 17, Senior, Fairview High School, Boulder, Colorado, T: Paul Strode
<i>Brush, USCO03, Morgan-Washington Bi-County Science Fair</i>	
<b>BEHA003I</b>	<b>Frustration Responses: An Analysis of Dispositional Learning</b> Sarena Ruth Wells, 18, Senior, Fort Morgan High School, Fort Morgan, Colorado, T: Krista Wells
<b>EBED012I</b>	<b>Designing a Reliable Child Seat Alarm</b> Eric Andrew Lyne, 17, Senior, Brush High School, Brush, Colorado, T: Dave Miner
<i>Colorado Springs, USCO04, Pikes Peak Regional Science Fair</i>	
<b>EAEV036I</b>	<b>A Spoonful of Sugar Helps the Nitrate Go Down: Denitrification in Wetland Soil</b> Michelle T. Kummel, 14, Freshman, William J. Palmer High School, Colorado Springs, Colorado, T: Geoff Lewis
<b>MCRO026I</b> #	<b>Competence Dependent Chemotaxis and Genomic Repair in <i>Acinetobacter baylyi</i></b> Rebecca Bloomfield, 16, Freshman, William J. Palmer High School, Colorado Springs, Colorado, T: Reed Carlson
<b>SOFT062I</b>	<b>Cyber Automated Report Linker: A Network Approach to Minimizing Expansion of Catastrophic Cyber Infiltrations</b> Stephan Parish, 19, Senior, Home School, Colorado Springs, Colorado, T: Maureen Yvonne Parish
<i>Denver, USCO10, Denver Metropolitan Regional Science and Engineering Fair</i>	
<b>CELL022I</b>	<b>Nanoparticle-Induced Macrophage Atherogenesis</b> Hari Sowrirajan, 15, Freshman, Cherry Creek High School, Greenwood Village, Colorado, T: Ethan Dusto
<b>PHYS009I</b>	<b>The Effects of Electron Beam Dose on the Visible Spectroscopic Signatures of Thin C60 Films</b> Ben Sheffer, 17, Junior, Eaglecrest High School, Centennial, Colorado, T: Marilyn Kemp
<i>Durango, USCO02, San Juan Basin Regional Science Fair</i>	
<b>ENMC036I</b>	<b>A Wing of the Future, Part II</b> Jordan Trevor, 17, Junior, Animas High School, Durango, Colorado, T: Steve Smith
<i>Fort Collins, USCO50, Colorado Science and Engineering Fair</i>	
<b>EBED027I</b> #	<b>SMART Cane: A Technology Integrated Device to Reduce the Fall Susceptibility of the Elderly</b> Mary Hood, 17, Junior, Sargent High School, Monte Vista, Colorado, T: Matthew Relyea
<b>MCRO009I</b> # #	<b>An RK2 Mediated Bacterial Conjugation Delivery System for Artificial Genes Coding for Antimicrobial Polypeptides: A Novel Synthetic Biology Approach to Antibiotic Resistance</b> Logan Thrasher Collins, 18, Senior, Fairview High School, Boulder, Colorado, T: Paul Strode
<b>PHYS056I</b>	<b>Rigorous Constraints on Exchange for the 3-Body Problem</b> Samuel David Scheeres, 18, Senior, Fairview High School, Boulder, Colorado, T: Paul Strode
<b>SOFT063I</b>	<b>A Novel Algorithm for #SAT Using the Inclusion-Exclusion Principle and Memorization</b> Elliot Gorokhovsky, 16, Sophomore, Fairview High School, Boulder, Colorado, T: Paul Strode
<i>Greeley, USCO06, Longs Peak Science and Engineering Fair</i>	
<b>EAEV087I</b>	<b>Leftovers to Livestock: Turning Leftover Human Food Waste into Feed for Livestock with Consistent Nutrient Values</b> Kaitlyn Elise Dumm, 15, Sophomore, Windsor High School, Windsor, Colorado, T: Glenn Peterson

*La Junta, USCO07, Arkansas Valley Regional Science Fair*

**PLNT012T Stabilizing the Quality of Harvested Produce through the Introduction of Light and Dark Cycles, Year Two**

Vincente Luciano Ozzello, 17, Junior; Tucker Garrett Shrout, 17, Junior, La Veta High School, La Veta, Colorado, T: Patricia Keeling

*Sterling, USCO08, Northeast Colorado Regional Science Fair*

**BMED013I Vitamin D Stimulates the mRNA Expression of ACP in LNCaP Cells**

Jayden Elizabeth Durbin, 18, Senior, Haxtun High School, Haxtun, Colorado, T: Karl Forest Donnelson

## CONNECTICUT

*Hamden, USCT50, Connecticut Science & Engineering Fair*

**BMED054I Chocolate's Theobromine, and Not Caffeine, Significantly Reduces Sleep in *Drosophila***

Reid W. Radulovacki, 16, Junior, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

**BMED055I Temperature-Independent, Portable, and Rapid Field Detection of Ebola via a Silk-Derived Lateral-Flow System**

Olivia Anne Hallisey, 16, Sophomore, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

**EGPH022I Development of Non-toxic Photostabilized Phycoerythrin for Application in Dye Sensitized Solar Cells**

Eunsun Hong, 17, Senior, Bridgeport Regional Aquaculture Science and Technology Education Center, Bridgeport, Connecticut, T: Kirk Shadle

**EGPH023I Novel Low Grade Waste Heat Recovery System with Simultaneous Electricity Generation, Carbon Sequestration and Urea Production**

Ethan Novek, 16, Sophomore, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

**MATS026I Synthesis of an Electromagnetically-Controlled Corn-Starch/PVA Biopolymer Microcube for Extended and Targeted Drug Delivery**

Margaret Anne Cirino, 16, Sophomore, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

**MATS050I Hybridized Manganese Dioxide & Gold-Iron Oxide Nanoparticle Inhibition of Tumor Growth via Radiosensitization and Tumor Microenvironment Control**

William Yin, 15, Sophomore, Greenwich High School, Greenwich, Connecticut, T: Andrew Bramante

## DISTRICT OF COLUMBIA

*Washington, USDC01, District of Columbia STEM Fair*

**BEHA048I An Analysis of Dyslexia and Degree of Handedness**

Molly Beatrice Weiner, 18, Senior, School Without Walls, Washington, District of Columbia, T: Sydney Bergman

**BMED127I Quantitative Imaging Biomarkers of Respiratory Viruses in Children**

Abia Khan, 17, Senior, School Without Walls, Washington, District of Columbia, T: Sydney Bergman

**EAEV092I Analysis of Wetland Restoration Done by the National Park Service at Kenilworth Marsh and Roaches Run Waterfowl Sanctuary**

Rebecca Patricia Edmonds, 18, Senior, School Without Walls, Washington, District of Columbia, T: Sydney Bergman

## FLORIDA

*Avon Park, USFL01, Heartland Regional Science and Engineering Fair*

**ANIM013I Florfenicol as a Treatment for *Mycoplasma bovis* in Dairy Calves, a Two Year Study**

# Cady C. McGehee, 15, Sophomore, Okeechobee High School, Okeechobee, Florida, T: Wendy Riester

ENEV002I	<b>The Use of FeCl<sub>2</sub> and CMC Treated Brazilian Pepper Fibers to Remove Phosphate from Real-World Contaminated Water, the Analysis of Used Fibers as a Potential Fertilizer, and the Cost of the Fibers as Both a Phosphate Filtration Medium and Fertilizer</b>
#	Johnathan Forrest Fox, 17, Junior, Okeechobee High School, Okeechobee, Florida, T: Wendy Ruth Reister
<i>Bradenton, USFL02, Manatee Lockheed Regional Science and Engineering Fair</i>	
ANIM001I	<b>The Effect of Electromagnetic Radiation similar to that Released by Powerlines on the Time to Hatch of Silkworm Eggs</b>
	Jason L. Edelkind, 14, Freshman, Manatee High School, Bradenton, Florida, T: Patricia Zalo
ENMC008I	<b>Electromagnetic Rail Launch System</b>
	Colton C. Lewis, 15, Freshman, Bradenton Christian School, Bradenton, Florida, T: Andrea Pires
<i>Bushnell, USFL18, Sumter County Regional Science Fair</i>	
ANIM007T	<b>The Future of Agriculture</b>
	Kyle Douglas Fox, 16, Sophomore; Hayden Fox Siverson, 16, Sophomore, Villages Charter High School, The Villages, Florida, T: Bridget Logan
BEHA011I	<b>Do Hippocampal Place Cells Respond Differently to Visual Cues that Vary in Size and Perspective?</b>
#	Isabel Maria Torres, 17, Junior, Villages Charter High School, The Villages, Florida, T: Monica Vinas
BMED008I	<b>Is There a Mathematical Correlation Between the Posterior Dominant Rhythm and Heart Rate?</b>
	Ugwuminsachi Desiree Nwaubani, 16, Junior, Villages Charter High School, The Villages, Florida, T: Monica Vinas
BMED021I	<b>The Effect of the Citrus Flavonoid Naringin on Raji Burkitt Lymphoma Cells</b>
	Kendall Reed Clark, 17, Junior, South Sumter High School, Bushnell, Florida, T: Emily Keeler
BMED136I	<b>Can Magnetic Resonance Imaging (MRI) Differentiate between Gram-positive and Gram-negative Bacteria Species in Human Blood?</b>
	Tiffany Liu, 15, Freshman, Villages Charter High School, The Villages, Florida, T: Monica Vinas
<i>Fort Myers, USFL05, Thomas Alva Edison Kiwanis Science and Engineering Fair</i>	
CELL002I	<b>Moving Towards the Cure: The Effects of LPS-Induced Inflammation Response on the Regulation of the MAPT Gene in Alzheimer's Disease, a Novel Second Year <i>in vitro</i> Study</b>
#	Jay Chandar, 15, Sophomore, Canterbury School, Fort Myers, Florida, T: Kelly Mahan
EAEV007I	<b>The Temporal and Spatial Relationship of Outdoor Air Pollutants at a School</b>
	Melissa Marchese, 16, Sophomore, Canterbury School, Fort Myers, Florida, T: Kelly Mahan
EGCH048I	<b>Carbon Filtration: Turning Fossil Fueled Emissions into a Recyclable By-Product</b>
	Morgan Elizabeth McAtee, 15, Freshman, Charlotte High School, Punta Gorda, Florida, T: Susan Haynes
<i>Fort Pierce, USFL06, St. Lucie County Regional Science and Engineering Fair</i>	
BCHM046I	<b>Effectiveness of Influenza VLP and SAR9 Vaccination</b>
	Koushal Rao, 17, Junior, Lincoln Park Academy, Ft. Pierce, Florida, T: Helen Koch
PLNT013I	<b>How Can the Efficacy of Potential Biological Controls against <i>Mikania micrantha</i> Be Enhanced? The Role of Adjuvants in Disease Progress</b>
	Haniya Shareef, 14, Freshman, Lincoln Park Academy, Fort Pierce, Florida, T: Lisa Hevner
PLNT015I	<b>Anti-microbials: The Cure for HLB (Greening Disease) in Citrus?</b>
	Peter Damian Jones, 16, Sophomore, Olivet Private School, Port St. Lucie, Florida, T: Linda Day Jones

- Fort Walton Beach, USFL07, Panhandle Regional Science and Engineering Fair*  
**CBIO004I** **The Diagnosis: Disease Identification of Airborne Pathogens Using Mobile Non-Invasive Techniques**  
 # Alexis Rose Hopkins, 16, Junior, Fort Walton Beach High School, Fort Walton Beach, Florida, T: Tavia Marez
- EAEV006I** **Purification of Polluted Water Systems—A Continuation Study: The Effectiveness of Herbs in Removal of Heavy Metals from Drinking Water Supplies**  
 Chase Taylor Cleveland, 16, Sophomore, Fort Walton Beach High School, Fort Walton Beach, Florida, T: Devon Stewart
- PHYS023I** **2015: A Photon Odyssey**  
 Jasmine Sumpter, 14, Freshman, Seacoast Collegiate High School, Santa Rosa Beach, Florida, T: Jonathan D'Avignon
- Ft Lauderdale, USFL09, Broward County Science Fair*  
**ANIM057I** **An Evaluation of Mutation in the Nuclear Locus ITS2 and the Mitochondrial Locus COI in *Notorynchus cepedianus* from 7 Different Geographic Locations Confirms the Presence of a Single Species**  
 Elizabeth R. Feldman, 17, Junior, Pine Crest School, Fort Lauderdale, Florida, T: Jennifer Gordinier
- BMED089I** **Inhibition of Mutation in *S. typhimurium* and Cell Division in *Allium cepa* by Zyflamend, *C. longa*, *Z. officinale*, *A. indica*, and *M. citrifolia* and Possible Implications in Cancer Prevention**  
 Nithya Kasarla, 14, Freshman, American Heritage School, Plantation, Florida, T: Leya M. Joykuty
- CELL035I** **Investigation of Mutation in Huntington's Disease Using a Mutant Huntingtin Knock-in Striatal Cell Line**  
 Lauren Anji Houle, 17, Senior, Pine Crest School, Ft. Lauderdale, Florida, T: Jennifer Gordinier
- CHEM079I** **Electrodialysis Efficiency in Desalination for Electrolytic Fuel Cell**  
 Brandon Michael Wummer, 18, Senior, Saint Thomas Aquinas High School, Fort Lauderdale, Florida, T: Laura Shearer
- Gainesville, USFL08, Alachua Region Science and Engineering Fair*  
**BCHM005I** **Extraction and Evaluation of Cancer-Preventive Properties of Green Algae from Florida**  
 # Jessica Jiamei Lee, 17, Junior, Eastside High School, Gainesville, Florida, T: Alisha Kage
- SOFT008I** **Developing Mobile Algorithms to Detect Seizures and Falls**  
 Amir Helmy, 14, Freshman, Eastside High School, Gainesville, Florida, T: Alisha Kage
- Jacksonville, USFL10, Northeast Florida Regional Science and Engineering Fair*  
**EAEV003I** **Usefulness in Daily Life Sometimes Contains Danger: The Impact of Methylparaben to the Ghost Shrimp**  
 Yebin Choi, 17, Junior, Episcopal School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner
- EAEV079I** **The Effect of UVA Radiation on the Production of Oxygen in *Chlamydomonas* and *Ankistrodesmus***  
 Howard Andre Royce, 17, Junior, Episcopal School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner
- ENMC006I** **Parameterization of 3D Printing of Biological Structures**  
 Suhani Jain, 17, Junior, Stanton College Preparatory, Jacksonville, Florida, T: Tamla Simmons
- MCRO007I** **Emergent Enteroinvasive *E. coli* Clinical Isolates Form Biofilms Over Biological and Inert Surfaces**  
 Niharika Malviya, 17, Senior, Stanton College Preparatory, Jacksonville, Florida, T: Marion Zeiner
- Jensen Beach, USFL25, Martin County Regional Science and Engineering Fair*  
**ANIM016I** **Novel Mosquito Control: Variable-Frequency Sound Sweep to Disrupt *Aedes aegypti* Mating**  
 # Shantanu Jakhete, 15, Sophomore, South Fork High School, Stuart, Florida, T: Lauren Case



<b>ENEV0131</b>	<b>Filtering Agricultural Effluent with Fungal Mycelia, Year Two</b> Caroline Grace Nolan, 14, Freshman, Jensen Beach High School, Jensen Beach, Florida, T: Michael Thurman
<i>Lake City, USFL11, Suwannee Valley Regional Science and Engineering Fair</i>	
<b>CHEM0271</b>	<b>Beef! It's What's for Dinner!</b>
#	Case Hilland Emerson, 18, Senior, Union County High School, Lake Butler, Florida, T: Renae Allen
<i>Lakeland, USFL12, Polk Region Science and Engineering Fair</i>	
<b>ENMC0071</b>	<b>A Novel Approach to 3D Prototype Production</b>
# #	Andrew Kenneth Noonan, 18, Senior, International Baccalaureate School at Bartow High School, Bartow, Florida, T: Debbie Kennon
<b>MCRO0081</b>	<b>The Battle Against Cystic Fibrosis Complication Continues. . .</b>
#	Divya Ravinder, 16, Junior, International Baccalaureate School at Bartow High School, Bartow, Florida, T: Debbie Kennon
<b>PLNT0061</b>	<b>Weed Warfare: Investigating Allelopathy, Year Five</b>
	Julia Grace Canady, 16, Sophomore, Lakeland Christian School, Lakeland, Florida, T: Jennifer Houghton Canady
<i>Lakeland, USFL50, State Science and Engineering Fair of Florida—Ying Scholars</i>	
<b>ANIM0151</b>	<b>Evolution of Nervous System Function and Behavior in a Micro-Vertebrate, the Brahminy Blindsnake (<i>Ramphotyphlops brahminus</i>)</b>
	River Connell Grace, 15, Sophomore, West Shore Junior-Senior High School, Melbourne, Florida, T: Mary Anderson
<b>BMED0061</b>	<b>The Effect of Ultrasound on Osmolysis of Metastatic Carcinomas</b>
#	Maxwell Norleans, 16, Junior, Fort Myers High School, Fort Myers, Florida, T: Cathy Tucker
<b>BMED1331</b>	<b>WUBEE: An Autism Destroying Avatar</b>
	Sapna K. Patel, 14, Freshman, Oviedo High School, Oviedo, Florida, T: Rachel Hallett
<b>EGCH0401</b>	<b>Geometric Manipulation of Cuprous Oxide Nanocrystal Surface Morphology Enhances Photoelectrochemical Properties and Enables Fabrication of Low-Cost, High Efficiency Photovoltaic Cells</b>
	Elizabeth P. Donoway, 17, Senior, Pine Crest School, Fort Lauderdale, Florida, T: Jennifer Gordinier
<b>ENEV0551</b>	<b>Production of Energy and Fertilizer from Ordinary Waste Materials through Micro-Scale Anaerobic Digestion</b>
	Robert Z. Halfon, 16, Junior, American Heritage School of Boca Delray, Delray Beach, Florida, T: Brian Paul Ramos
<b>MATS0481</b>	<b>Novel Chromogenic Vapor Sensors Enabled by Shape Memory Polymers</b>
	Beverly Ge, 16, Junior, F. W. Buchholz High School, Gainesville, Florida, T: ZoEllen Warren
<b>MCRO0061</b>	<b>Proteomic Characterization of Mosquito Host Cell Glycoproteins during Dengue Virus Egress</b>
#	Carly Elizabeth Crump, 18, Senior, Episcopal School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner
<b>PHYS0441</b>	<b>Developing an Accurate Model of Microwave Propulsion</b>
	John R. Royero, 18, Senior, Paul J. Hagerty High School, Oviedo, Florida, T: Sarah Anne Evans
<i>Melbourne, USFL13, South Brevard Science and Engineering Fair</i>	
<b>ANIM0041</b>	<b>The Effects of Hyperoxia on <i>Drosophila</i> Development</b>
	Hunter Dalton, 17, Junior, Melbourne High School, Melbourne, Florida, T: Sean Fisk
<b>EAEV0111</b>	<b>The Influence of Increased Gibberellic Acid on the Cell Growth and CO<sub>2</sub> Sequestration by <i>Cyclotella</i></b>
#	Daniella Bernadel, 17, Junior, Palm Bay Magnet High School, Melbourne, Florida, T: Micheal O'Donnell
<i>Merritt Island, USFL14, Brevard Intracoastal Regional Science and Engineering Fair</i>	
<b>BCHM004T</b>	<b>Super Fruits Starve Cancer</b>
	Christian Strock #, 18, ; Anna Westerfield, 18, Senior, Satellite High School, Satellite Beach, Florida, T: Joseph Scott
<b>PHYS0051</b>	<b>4-D Printing: Creating Tessellated Foldable Structures, Year III</b>
	Morgan Jane Havel, 17, Senior, Satellite High School, Satellite Beach, Florida, T: Joseph Scott

*Merritt Island, USFL28, Brevard Mainland Regional Science and Engineering Fair*

**BCHM044I The Effect of Trace Elements on Bioceramic for Enhancing Bone Engineering**  
Calista J. Foo, 15, Freshman, West Shore Junior-Senior High School, Melbourne, Florida, T: Mary Anderson

**EGCH007I Algae....the Greener Fuel, Year Four**  
# Alexandra Katrina Gabrielski, 16, Sophomore, Viera High School, Viera, Florida, T: Elizabeth Youngs

**MATH009I Deterministic and Stochastic Analysis in Biomedical Engineering: Chaotic Dynamics vs. Brownian Motion**  
Muhammad Ugur oglu Abdulla, 15, Freshman, West Shore Junior-Senior High School, Melbourne, Florida, T: Paula Ladd

*Miami, USFL15, South Florida Science and Engineering Fair*

**BEHA004I The Effect of Year in School Upon Cheating Rates**  
Ashley Nicole Diaz, 16, Junior, Westminster Christian School, Palmetto Bay, Florida, T: Lisa Garrido

**BMED007I Clinical Accuracy of Non-Invasive Glucose Monitoring for Ex-Vivo Artificial Pancreas**  
Maya Miriam Levy, 15, Sophomore, Dr. Michael M. Krop Senior High School, Miami, Florida, T: David Buncher

**CHEM003I Effects of Morphology and Illumination on the Catalytic Properties of Gold Nanoparticles**  
Bo You, 17, Junior, Miami Palmetto Senior High School, Miami, Florida, T: Pamela Schlachtman

**CHEM080I "Coco Loco": The Impact of Soil Contaminants in Coconut Water in the Florida Keys (Virginia Key and Key Biscayne, FL)**  
Rebecca Annemarie Rauch-Thane, 14, Freshman, Miami Beach Senior High, Miami Beach, Florida, T: Rosemarie Melinek

**ENEV005I Auxin Induced Cell Modification, Nutrient Absorption, and Biomass Production in *Botryococcus braunii* and *Chlamydomonas reinhardtii***  
Vaidya Govindarajan, 17, Junior, Archimedean Upper Conservatory, Miami, Florida, T: Kalai Panneerselvam

**ENMC011I A Novel Prosthetic Design Utilizing a Unique Sensory Control System, Brushless Motor Drives, and Worm Gear Mechanisms through Rapid Prototyping Techniques**  
Megan Rose Erdozain, 16, Sophomore, Medical Academy for Science and Technology, Homestead, Florida, T: Brian Ruhmann

*New Port Richey, USFL30, Pasco Regional Science and Engineering Fair*

**BCHM029I Toxicology Study Using Yeast**  
Viraj S. Patel, 16, Sophomore, J.W. Mitchell High School, New Port Richey, Florida, T: Edwin A. Braddy

**PLNT052I Effect of Increasing Wind Velocities on the Rate of Transpiration of MarvaParvi Flora Plant**  
Nura Abujbara, 18, Freshman, Wiregrass Ranch High School, Wesley Chapel, Florida, T: Branden Anglin

*Ocala, USFL16, Big Springs Regional Science Fair*

**BEHA005I Olympics, Year Three: Training for Gold**  
# Brandon Williams, 17, Senior, Belleview High School, Belleview, Florida, T: Cynthia Andrews

**BMED131I Are Decreased Levels of Cystatin-C an Indicator of Weak Arterial Walls in Abdominal Aortic Aneurysms?**  
Rayna Chandra, 15, Sophomore, Vanguard High School, Ocala, Florida, T: John Hare

**ENEV035T Environmentally-Friendly Synthesis of Uncoated Silver Nanoparticles: Reduction of Negative Photosynthetic Effects of Commercial Nanoparticle Coatings**  
Jacob A. Mosley #, 15, Sophomore; Cassandra S Mosley #, 18, Senior, Vanguard High School, Ocala, Florida, T: John Hare

*Orlando, USFL17, Dr. Nelson Ying-Orange County Science Exposition*

**BCHM003I Visual Detection of miRNA-122**  
Julia Elisabeth Gallagher, 15, Sophomore, Lake Highland Preparatory School, Orlando, Florida, T: Nicole Justice

- BEHA006I** **Analysis of Peripheral Vision to Aid the Reading Process in Patients with Macular Degeneration**  
Noopur Ranganathan, 16, Sophomore, Trinity Preparatory School, Winter Park, Florida, T: Lali DeRosier
- CHEM004I** **Self-healing Polymers: What Factors Affect the Speed at Which Polymers Self-heal?**  
Blake Austin Gardner, 14, Freshman, Orlando Science Schools, Orlando, Florida, T: Jason Stampas
- MATS012I** **In-Fiber Emulsification of Biodegradable Polymers for Drug Delivery, Year Two**  
# Catherine J. Li, 18, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Nicole Justice  
*Panama City, USFL19, Florida Three Rivers Regional Science and Engineering Fair*
- ANIM002I** **Do Prenatal Vitamins Inhibit Cell Growth? The Effects of Butylated hydroxyanisole and Butylated hydroxytoluene on Blastemal Cell Growth and Development**  
Madison J. Fish, 16, Junior, Rutherford High School, Panama City, Florida, T: Beverly Barron
- PHYS006I** **Critical Point Energy Storage**  
# # Shixuan Justin Li, 17, Junior, Rutherford High School, Panama City, Florida, T: Victoria Steele  
*Pensacola, USFL20, West Panhandle Regional Science and Engineering Fair*
- BEHA002T** **The Effect of Age and Gender on the Accuracy of Eyewitness Testimonies**  
Patricia Kay McAuley, 16, Sophomore; Holley J. Meaney, 16, Sophomore; Lauren Alison Beall, 16, Sophomore, Pensacola High School, Pensacola, Florida, T: Cherie Stephens, Cherie Stephens
- ROBO001I** **The Implantation of the Phototoxic Behavior of *Physarum polycephalum* in a Decentralized Robotics System**  
William Henry Langhorne, 17, Junior, Pensacola High School, Pensacola, Florida, T: Cherie Stephens  
*Saint Augustine, USFL21, St. Johns County Science Fair*
- MCRO003T** **Prevalence of Beta-Lactamase Genes in Oral Streptococcus Species in a Healthy Population: Molecular Analysis by Polymerase-Chain Reaction**  
Charis Wang, 17, Senior; Cassia Wang, 16, Junior, Ponte Vedra High School, Ponte Vedra, Florida, T: Kathryn Kehoe  
*Sanford, USFL23, Seminole County Regional Science, Mathematics & Engineering Fair*
- BEHA058I** **Craniometrix: Using Sensory Dissonance to Identify Cognitive Decline, Year Three**  
Nikhil Sanjay Patel, 15, Sophomore, Oviedo High School, Oviedo, Florida, T: Kathy Savage
- MCRO014I** **Cell Death and the Unfolded Protein Response with Cholera Toxin**  
Miles Antoine Burlingame, 17, Senior, Lake Brantley High School, Altamonte Springs, Florida, T: Seth Reichelson
- MCRO015I** **The Effects of Kojic Acid and PTU on the Synergistic Antimicrobial Properties of *S. bullata* & *S. frugiperda* Hemolymph with Gentamycin on *E. coli***  
Lindsay Martin, 17, Junior, Seminole High School, Sanford, Florida, T: Heather Clayton  
*Sarasota, USFL32, Sarasota Regional Science, Engineering and Technology Fair*
- CBIO061I** **MEDI-Profiler: A Computational Classifier that Identifies Determinant Chemical Features and Their Influences on Pharmaceutical Drug Properties**  
# # Courtney Alexandra Astore, 18, Senior, Cardinal Mooney High School, Sarasota, Florida, T: Diane Buhler
- CHEM072I** **Mitigation of the Cytotoxicity of Single-walled Carbon Nanotubes Using Nsurfactants and Surface Functionalization**  
# Rebecca Elshishans, 18, Senior, Sarasota High School, Sarasota, Florida, T: Andrew Harshman

Tallahassee, USFL26, Capital Regional Science and Engineering Fair

**BCHM048I Using *Drosophila melanogaster* to Study Alzheimer's-Related Amyloid Proteins**

Jeffrey Deng Zhu, 18, Senior, Lawton Chiles High School, Tallahassee, Florida, T: Angela Breza-Pierce

Tampa, USFL27, Hillsborough Regional Science Fair

**CHEM002I Engineering an Upconversion Photocatalyst for Energy and Environmental Applications**

Vignesh Chandra Bhethanabotla, 16, Junior, C. Leon King High School, Tampa, Florida, T: Nicole Works

**EAEV027I Design, Construction and Optimization of a Low-Cost Portable *Enterococci* Test (PET) Kit**

# Margaret Parrish, 16, Junior, Chamberlain High School, Tampa, Florida, T: Michael Zanatian

Tavares, USFL34, Lake Regional Science & Engineering Fair

**EGPH005I The Concentration Combination, Year II**

# Rishi A. Basdeo, 16, Sophomore, East Ridge High School, Clermont, Florida, T: Dennis Doherty

Vero Beach, USFL31, Indian River Regional Science and Engineering Fair

**ANIM018I The Food Preference of the Sri Lankan Weevil, *Mylocherus undecimpustulatus undatus* Marshall (Coleoptera: Curculionidae: Entiminae)**

Sana Shareef, 14, Freshman, Saint Edward's Upper School, Vero Beach, Florida, T: Kerryanne Monahan

West Palm Beach, USFL29, Palm Beach Regional Science and Engineering Fair

**ANIM049I The Effect of Water Temperature on the Mussel's Byssal Thread Protein Composition**

Amy Nicole Polen, 17, Junior, Palm Beach Central High School, Wellington, Florida, T: William Bartenslager

**ANIM050I The Effect of the Parasitic Fungus *Beauveria bassiana* Treated with Chitinase on Adult and Larval Mosquitoes**

Alexander Naum, 17, Senior, Palm Beach Central High School, Wellington, Florida, T: William Bartenslager

**BEHA039I Is Stress the New Drug? An Analysis on the Effects of Stress on the Prefrontal Cortex and the Addicted Brain**

Lila Mish, 16, Sophomore, American Heritage School of Boca Delray, Delray Beach, Florida, T: Brian Ramos

**EAEV058I H<sub>2</sub>O<sub>2</sub> No: Pharmaceuticals Contaminate Groundwater! Sulfamethazine Adsorption Isotherms and Kinetics with Hypercrosslinked Polymer MN250 at Varying Ionic Strengths**

# # Maria Elena Grimmer, 16, Junior, Oxbridge Academy of the Palm Beaches, West Palm Beach, Florida, T: Kate Kilian

**ENEV054I The Potential Use of Biogas as an Energy Source via the Anaerobic Decomposition of Biomass**

Michelle Renee Moore, 17, Junior, Suncoast Community High School, Riviera Beach, Florida, T: Jeff Laufer

**ENMC051I My Solar Garden**

Sean Thomas Elia, 18, Senior, Spanish River High School, Boca Raton, Florida, T: Mary Fish

**ROBO013I Developing a Comprehensive, Efficient, and Mult-Layered Navigation Algorithm for Coordinating Driverless Vehicles**

# Anthony Thomas Olive, 18, Senior, Palm Beach Central High School, Wellington, Florida, T: William Bartenslager

**GEORGIA**

Albany, USGA01, Darton College/Merck Regional Science Fair

**ENEV003I Water Purification Utilizing a Carbon Matrix and Fresnel Lens**

# Courtney Ann Terrell, 18, Senior, Colquitt County High School, Moultrie, Georgia, T: Vance Hurst

Athens, USGA50, Georgia State Science and Engineering Fair

- BCHM039I Universal Molecular Tension-based Fluorescence Microscopy Probe to Visualize Receptor Forces in Living Cells**  
Jeffery Chen Yang, 17, Junior, Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, Georgia, T: Jennifer Berry
- ENEV070I Transformation of *Lemna minor* for Nitrate Reduction, Year Three**  
Alexandra Melehan, 17, Senior, Woodstock High School, Woodstock, Georgia, T: Chelsea Sexton
- MATS049I Influence of Gel Content on the Strength of Produced Amylose Bioplastic Films**  
Jake Yutan Wong, 16, Junior, Chattahoochee High School, Johns Creek, Georgia, T: Kenny Marbry
- PLNT051I Symbiotic N<sub>2</sub>-Fixation in Small Partridge Pea**  
Caroline Elizabeth Hendricks, 16, Sophomore, Carrollton High School, Carrollton, Georgia, T: Zeke Gresham

Atlanta, USGA03, Atlanta City Science & Engineering Fair

- BMED148I HIV Antiretroviral, Efavirin, Stimulates Cysteine Cathepsin Activity in Macrophages: Implications of HIV- Associated Atherosclerosis**  
Katrina Burch, 18, Senior, Coretta Scott King Young Women's Leadership Academy High School, Atlanta, Georgia, T: Shannon Hart
- CELL062I Contact Dependency of Immune Cells and Endothelial Cells in Promoting Angiogenesis**  
# Amadou Sadio Bah, 18, Senior, B.E.S.T Academy High School @ Benjamin S. Carson, Atlanta, Georgia, T: William Bagot
- MATS056I Regenerating Articular Cartilage with Heparan Sulfate Hydrogels Using Human Adipose Derived Stem Cells**  
Quantayvious Artez Stiggers, 17, Junior, B.E.S.T Academy High School @ Benjamin S Carson, Atlanta, Georgia, T: William Bagot

Atlanta, USGA13, Fulton County Regional Science & Engineering Fair

- BEHA061T Jamais Vu: Induced Memory Loss Through Semantic Satiation**  
Andrew David Loftus, 16, Junior; Nadav Ribak, 17, Junior, Johns Creek High School, Johns Creek, Georgia, T: Corey Wellmaker

Conyers, USGA12, Rockdale Regional Science & Engineering Fair

- BEHA008I In The Mind's Eye: Comparing Eye Movements and Ocular Patterns**  
Molly Niemczyk, 17, Junior, Rockdale Magnet High School for Science and Technology, Conyers, Georgia, T: Tyrone Huebsch
- CBIO002I Genetic Determination of *in vitro* Stem Cell Characteristics**  
# Lawrence Conley Jacobs, 18, Freshman, Rockdale Magnet School for Science and Technology, Conyers, Georgia, T: Amanda Dyann Baskett
- MCRO004T Chyrid Treatments and Their Compatibility with Amphibian Tissue**  
Lilith Renae South, 18, Senior; Bhaskar Patel, 17, Junior, Rockdale Magnet High School for Science and Technology, Conyers, Georgia, T: John Hendrix, Mary Mansell

Duluth, USGA11, Gwinnett Regional Fair

- ANIM011I Competing Memories in *Drosophila* Based on Classical Conditioning**  
# Karen Gu, 17, Junior, Collins Hill High School, Suwanee, Georgia, T: Kristina Labocetta
- CBIO022I Vaccines and the Thermophilic Gene**  
Satya Amritsai Jella, 15, Sophomore, Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, Georgia, T: James Dart
- ENEV007I Waste-Based Runoff Pollutant Biosorptive and Ion Exchanging Permeable Barriers**  
# Aksal P. Vashi, 17, Freshman, Collins Hill High School, Suwanee, Georgia, T: Laura Herbig

Griffin, USGA09, Griffin RESA Regional Science Fair

- EGPH009I Innovative Solar-Powered Incubator to Prevent Preterm Neonatal Mortality**  
Jeramie Mercado Paz, 15, Sophomore, Griffin High School, Griffin, Georgia, T: Lorie Dobbs

- ENMC023T** **Cost Effective Device for Preventing Hot Car Deaths**  
Jubin Santhosh Thomas, 16, Sophomore; Janeen Santhosh Thomas, 17, Senior, Fayette County High School, Fayetteville, Georgia, T: Shane Kuykendall  
*McDonough, USGA06, Henry County Science and Engineering Fair*
- ANIM005T** **How Does the Exposure of Prednisolone and Methylprednisolone Affect the *Daphnia's* Heart Rate?**  
Stephanie Ngo, 16, Sophomore; Alexis Brasilia Rodriguez, 15, Sophomore, Woodland High School, Stockbridge, Georgia, T: Christopher Smith
- BMED129I** **Single Cell Suspension and the Production of Factor VIII and Dilution Viability in Transfected Chinese Hamster Ovarian Cells**  
# Jessica Moore, 15, Sophomore, Union Grove High School, McDonough, Georgia, T: Keron Gwaltney
- EGPH004I** **Is There a Correlation between Hydropower Efficiency and Flap Arrangement?**  
# Craig Worley, 17, Junior, Luella High School, Locust Grove, Georgia, T: Jody Barfield
- ENMC001I** **How Does the Color of Artificial Light Affect the Time It Takes for a Light-Sensing Robot to Trace the Light?**  
Dhruv Vijaykumar Patel, 14, Freshman, Eagle's Landing High School, McDonough, Georgia, T: Pansy Forrester  
*Milledgeville, USGA07, Georgia College & State University Regional Science and Engineering Fair*
- MATS028I** **Coating: Effect of Particle Size and Shape**  
Alaina George Dawson, 16, Sophomore, Washington County High School, Sandersville, Georgia, T: Kelly Severence  
*Warner Robins, USGA10, Houston Regional Science and Engineering Fair*
- ENMC005I** **Sign Language Robotic Hand**  
Ashley Bishop, 16, Sophomore, Veterans High School, Kathleen, Georgia, T: Jennifer Douglass
- SOFT006I** **Digitally Optimizing the Game of Ultimate Frisbee**  
Kenneth Jon Higginbotham, 18, Senior, Veterans High School, Kathleen, Georgia, T: Jennifer Douglass
- HAWAII**  
*Hilo, USHI05, Hawaii District Science and Engineering Fair*
- ANIM014I** **Death Assay Evaluation for *Angiostrongylus cantonensis* Nematode**  
Abigail L. Atkinson, 17, Senior, Hilo High School, Hilo, Hawaii, T: Pascale Creek Pinner
- BCHM001I** **Activation of the Hepatocyte Antioxidant Response by Kava Secondary Metabolites**  
# Keanu Dean Pinner, 17, Junior, Hilo High School, Hilo, Hawaii, T: Pascale Creek Pinner  
*Honolulu, USHI01, Hawaii Association of Independent Schools Science and Engineering Fair*
- CELL003I** **PEA-15 Regulates Cell Migration in Glioblastoma via Integrin Trafficking**  
Maveric Abella, 17, Senior, Kamehameha Schools Kapalama, Honolulu, Hawaii, T: Gail Ishimoto
- EAEV008I** **Hohonukai: An Environmental Study of Hawaii's Marine Biota Using Underwater Time-Lapse Photography**  
# Christopher James Lindsay, 16, Sophomore, Iolani School, Honolulu, Hawaii, T: Mark D. Lindsay  
*Honolulu, USHI08, Honolulu District Science & Engineering Fair*
- BCHM006I** **Biophysical Characterization of Arc: Insights into Learning and Memory**  
Rajeev Jha, 17, Junior, Roosevelt High School, Honolulu, Hawaii, T: Jennifer Williams
- ENEV008I** **Reducing the Reliance of Hawaii's Farmers on Imported Fertilizers**  
Roshani Jha, 15, Sophomore, Roosevelt High School, Honolulu, Hawaii, T: Jennifer Williams  
*Honolulu, USHI50, Hawaii State Science and Engineering Fair*
- CHEM046T** **A Novel Analysis Utilizing Invasive Fermented Macroalgae**  
Ariana Kim #, 17, Junior; Sreelakshmi Kutty, 17, Junior, Saint Andrew's Priory, Honolulu, Hawaii, T: Ai Hirasuna

- PHYS034I** **Search for Eccentric Accretions in Kepler Binary Systems**  
Kaimi Billy Kahihikolo, 17, Senior, Kamehameha Schools Kapalama, Honolulu, Hawaii, T: Gail Ishimoto
- PHYS035I** **Testing Modified Newtonian Dynamics**  
Luke Jones, 15, Sophomore, Kihei Charter Public High School, Kihei, Hawaii, T: Stephanie Betancourt
- PLNT035I** **The Antibacterial and Cytotoxic Effects of Wiliwili (*Erythrina sandwicensis*)**  
Shaylin Yoko Marn, 17, Junior, Kamehameha Schools Kapalama, Honolulu, Hawaii, T: Gail Ishimoto
- SOFT038I** **Utilization of Open Sourced Technology and Software to Improve the Safety of Outdoor and Indoor Navigation: Applying Methods to Assist the Visually Impaired**  
# # Brandon Kinard, 17, Senior, Mililani High School, Mililani, Hawaii, T: Matt Capps
- Kaneohe, USHI06, Windward District Science and Engineering Fair*
- CHEM007I** **Bacterial Warfare**  
Samuel Marin Scott, 15, Freshman, Kahuku High and Intermediate School, Kahuku, Hawaii, T: Brett Kewish
- EAEV015I** **Coccolithophores in a Changing World**  
Kyla Cantillo, 17, Senior, Kailua High School, Kailua, Hawaii, T: Sara Anglin
- Lihue, USHI04, Kauai Regional Science & Engineering Fair*
- ANIM051I** **The Effect of Light on Small Hive Beetles**  
Kelly Kennedy, 15, Junior, Kauai High School, Lihue, Hawaii, T: Kelly Kennedy
- EGCH033I** **The Effects of Phosphorus Depletion on Lipid Yields for *Chlorella sp.***  
Jacky Lin, 15, Sophomore, Kauai High School, Lihue, Hawaii, T: Kevin Matthew Johnson
- Wailuku, USHI03, Maui Schools Science and Engineering Fair*
- BCHM047T** **Investigating Agar Extraction as a Method of *Gracilaria salicornia* Eradication**  
Amber Kukuileiwilimomi Afelin, 16, Senior; Keaakahonua Davis, 16, Junior; Alexandria H Simon, 16, Junior, Molokai High School, Ho'olehua, Hawaii, T: Scott Hemenway
- EAEV009T** **March of the Molokai Mangrove: The Socio-Economic and Ecological Impacts of Introduced Red Mangrove (*Rhizophora mangle*) on Molokai, Hawaiian Islands**  
Sarah 'Alohilani Jenkins # #, 17, Freshman; Lily Nalulani Jenkins, 15, Sophomore, Molokai High School, Ho'olehua, Hawaii, T: Malia Lee
- Waipahu, USHI02, Leeward District Science and Engineering Fair*
- BMED057I** **The Detection for Substances in E-liquids and Secondhand Aerosol from Electronic Cigarettes**  
Shanell N. Folger, 18, Senior, James Campbell High School, Ewa Beach, Hawaii, T: Noel Hakoda
- CELL004I** **Investigating the Biomarkers of Bladder Cancer**  
Rejina Marie U. Calo, 17, Senior, Waipahu High School, Waipahu, Hawaii, T: Michael Sana
- ENMC009T** **Underwater ROV Propulsion**  
Alex Yamada, 15, Sophomore; Eric Scott Schlitzkus, 15, Freshman, Pearl City High School, Pearl City, Hawaii, T: Kathy Lin

## ILLINOIS

*Chicago, USIL01, Chicago Public Schools Student Science Fair*

- ANIM036I** **Role of miR-143 in Intestinal Tumorigenesis in the Apc Mutant Min Mouse**  
Alexander Pei, 18, Senior, Whitney M. Young Magnet High School, Chicago, Illinois, T: Lynne Muhammad
- BCHM030I** **Mechanism of Apoptotic Action of Colloidal Silver and Bromelain on PC12 & HeLa Cells**  
# # Marcelina Puc, 18, Senior, Albert G Lane Technical College Prep, Chicago, Illinois, T: Kathryn Anderson
- CHEM050I** **The Effects of Pollutants on a Model Lung Surfactant System**  
Omobilaji Opakunle, 18, Senior, Lindblom Math and Science Academy, Chicago, Illinois, T: Elizabeth Copper



- EGCH032I** **Go Green, Go Friendly, Go Biodiesel**  
Stacy Lam, 18, Senior, Von Steuben Metropolitan Science Center, Chicago, Illinois, T: Urik Halliday  
*Edwardsville, USIL02, Illinois Junior Academy of Science Region XII Science Fair*
- CELL053I** **Finding a "Missing Link": The Potential of Atoh8 in Hereditary Hemochromatosis, Anemia, and Other Iron-Related Diseases**  
Sally Nijim, 16, Junior, Willowbrook High School, Villa Park, Illinois, T: Megan Graham
- SOFT060I** **Data Representation with Relational Document Graphs for 3D Visualization**  
# Brian Charles Fitzgerald, 18, Freshman, The Governor French Academy, Belleville, Illinois, T: Christine Stewart  
*Macomb, USIL03, Heart of Illinois Science and Engineering Fair*
- BEHA055I** **The Effects of Technological Devices on Short-Term Memory**  
Gabrielle Ann Torrance, 16, Junior, Macomb High School, Macomb, Illinois, T: Thomas Johnson
- ROBO023T** **Programming an Adaptive Artificial Intelligence Utilizing Past Pattern Recognition**  
Trenton Dean Lawrence, Jr. #, 18, Freshman; Rush Vincent Hoehne #, 18, Senior; Larry David Lane, III #, 18, Senior, Delavan High School, Delavan, Illinois, T: Mary Kay Adamczyk Wonders  
*Skokie, USIL05, Illinois Junior Academy of Science North Suburban Region 6 Science and Engineering Fair*
- CELL013I** **Inhibition of Cancer Cell Proliferation via G-Rich Oligonucleotides as Aptamer Nanosphere Bioconjugates**  
Anam Jehan Furrukh, 16, Junior, Niles Township West High School, Skokie, Illinois, T: Ruth Gleicher
- EAEV025I** **Assessing the Influence of Swamp Areas on Rangeland Stream Flow Rate at Blair Wallis, Wyoming**  
Blandon E. Su, 17, Junior, Adlai E. Stevenson High School, Lincolnshire, Illinois, T: Christina Palffy
- EAEV026I** **The Viability of a Mixed Bacterial Culture for Bioremediation of Heavy Metals, Poly-Cyclic Hydrocarbons, and Volatile Organic Compounds**  
Ambria Benesch, 18, Senior, Niles North High School, Skokie, Illinois, T: Susie Posnock
- EGPH014I** **Characterization of Ruthenium and Organic Based Dye Sensitized Solar Cells (DSSCs) with Time Dependent Dye Loading**  
Kiana Lee, 17, Freshman, Niles North High School, Skokie, Illinois, T: Christine Camel
- MCRO022I** **Designing and Optimizing Whole-Cell Biosensors for the Detection of Heavy Metals in Water**  
# Mrugami Mahadik, 17, Freshman, Niles Township West High School, Skokie, Illinois, T: JulieAnn Villa  
*Springfield, USIL04, Illinois Junior Academy of Science Region X Science Fair*
- EGCH023I** **Photoelectrolysis: Increasing Efficiency of Solar Energy**  
John Patrick Cramsey, 16, Sophomore, Southeastern Junior/Senior High School, Augusta, Illinois, T: Keela K. Whewell
- ENEV038T** **Waste Not Want Not: Promoting Sustainability by Turning Agricultural Waste into Biofuels**  
Dakota Erin Limkemann, 18, Senior; Dexter Louis Redenius #, 18, Freshman, Southeastern High School, Augusta, Illinois, T: Keela Whewell
- INDIANA**  
*Angola, USIN01, Northeastern Indiana Tri-State Regional Science Fair*
- PLNT029I** **Solving World Hunger: One Family at a Time**  
Leah Hefty, 17, Junior, DeKalb High School, Waterloo, Indiana, T: Susan Zuber  
*Bloomington, USIN02, South Central Indiana Regional Science and Engineering Fair*
- MCRO036I** **The Medicinal Effects of Juglone**  
# Rachel Johns, 18, Senior, Northwestern High School, Kokomo, Indiana, T: Linda Wilson

Evansville, USIN03, Tri-State Regional Science and Engineering Fair

- EBED025I** **A Warning System Based on Sensor Technology and Chemical Analysis to Detect Distracted Driving**  
 # Arjun Kundan Dhawan, 15, Sophomore, Signature School, Evansville, Indiana, T: Sandeep Dhawan
- ENMC034I** **The Guardian Angel "Heroic Acts, Taking Flight"**  
 Ryan Stephen Loehrlein, 17, Senior, Francis Joesph Reitz High School, Evansville, Indiana, T: Nora Walsh
- SOFT043I** **Circle Fitting Algorithm Optimization through the Iterative Hough Transform**  
 Yu Jin Lee, 16, Sophomore, Culver Academies, Culver, Indiana, T: Mark Prochaska

Fort Wayne, USIN04, Northeast Indiana Regional Science and Engineering Fair

- CELL019I** **The Role of Syk Protein Kinase in Stress Granule Dynamics of Cancer Cells**  
 # Sarah Elizabeth Cooper, 18, Senior, Lafayette Jefferson High School, Lafayette, Indiana, T: Joe Ruhl
- CELL020I** **Missense Mutations in Colorectal Cancer: Targeting Pathways in Early vs. Late Stages--Could There be a Role for Early Intervention with Better Outcomes?**  
 Nirupama Devanathan, 16, Junior, Homestead Senior High School, Fort Wayne, Indiana, T: Matt Elder

Gary, USIN05, Calumet Regional Science Fair

- EGCH024I** **Is Lithium a Safe Power Source?**  
 Aditya Mishra, 17, Junior, Munster High School, Munster, Indiana, T: Jon Aros
- Greencastle, USIN10, West Central Indiana Regional Science and Engineering Fair
- CBIO057I** **Computational Assessment of the Role of Repeat Sequences in Splicing of the Human RNA Transcript During HIV-infection**  
 Sabin Karki, 17, Junior, Terre Haute South Vigo High School, Terre Haute, Indiana, T: Melanie Huber

- CELL021I** **Chemo-immunotherapy of Cancer with Adjuvants**  
 Amit Kumar Chakrabarti, 16, Sophomore, Terre Haute South Vigo High School, Terre Haute, Indiana, T: Melanie Huber

Indianapolis, USIN06, Central Indiana Regional Science and Engineering Fair

- ANIM026I** **Effects of Treatment of Reduced Glutathione on Budding and Feeding Rates in *Hydra littoralis***  
 # Asmaa Mahoui, 15, Sophomore, Eman Schools, Fishers, Indiana, T: Kimberly Vogt
- EAEV069I** **A Study of Leaf and Root Extracts from Invasive Species *Lonicera maackii* on Microbial Growth**  
 Noor Abdullah, 14, Freshman, Hamilton Southeastern High School, Fishers, Indiana, T: Ken Link
- PHYS052I** **Effect of Time-dependent Gain and Loss in a PT-Symmetric Optical Waveguide Array**  
 Sreya Vemuri, 16, Junior, Carmel High School, Carmel, Indiana, T: Jennifer Marlow

Indianapolis, USIN50, Hoosier Science and Engineering Fair

- CBIO062I** **Engineered Intraocular Injection Guide (IIG): Pain Reduction in Ophthalmic Disease Treatment**  
 # Vikas Rammohan Maturi, 16, Junior, Carmel High School, Carmel, Indiana, T: Jennifer Marlow
- CELL015I** **Harnessing the Prokaryotic CRISPR/Cas Foreign DNA Defense System for Antiviral Therapy in Canine Fibroblast Tumor Cells**  
 Boyang Peter Dun, 16, Junior, Canterbury High School, Fort Wayne, Indiana, T: Julie Ervin
- EGCH028I** **Year Two of Production of Hydrogen Gas from *C. reinhardtii*: Parameter Analysis for Eventual Implementation**  
 # Priya Renee Kirtley, 17, Senior, Terre Haute South Vigo High School, Terre Haute, Indiana, T: Melanie Huber

- ROBO007I** **Autonomous Motion Planning for Hyper-Redundant Modular Robotic Systems Using State Estimation, Obstacle Avoidance, and Intelligence Locomotion Algorithms**  
# Puneeth Naga Sai Krishna Meruva, 17, Senior, Homestead Senior High School, Fort Wayne, Indiana, T: Matthew Elder  
*Muncie, USIN07, East Central Indiana Regional Science Fair*
- BEHA029I** **Paper Texts versus Electronic Texts in Terms of Reading**  
Spencer Alexander McDaniel, 15, Freshman, Northwestern High School, Kokomo, Indiana, T: Linda Wilson
- EAEV042I** **The Role of *Bacillus subtilis* on Algae Blooms for the Survival of Aquatic Ecosystems**  
Emily Louise Martin, 15, Freshman, Northwestern High School, Kokomo, Indiana, T: Linda Wilson  
*South Bend, USIN09, Northern Indiana Regional Science and Engineering Fair*
- BMED125I** **Effect of Cisplatin on Gene Expression Over Time in Lung Cancer Cells**  
Alexis Gabrielle Thornburg, 17, Junior, Marian High School, Mishawaka, Indiana, T: Ken Andrzejewski
- EGCH025I** **Using Hydrophobic Microporous Layers and Enhanced Air Flow to Reduce Methanol Crossover in a Direct Methanol Fuel Cell**  
Stephen Bauer, 18, Senior, John Adams High School, South Bend, Indiana, T: Nevin Longenecker  
*Valparaiso, USIN12, Northwestern Indiana Science and Engineering Fair*
- CHEM074I** **Photoelectrochemical Properties of 2-D Transition Metal Dichalcogenides (TMDs) Functionalized with Porphyrins**  
# Arjun Srinivasan Ramani, 16, Sophomore, West Lafayette Junior Senior High School, West Lafayette, Indiana, T: Jane Schott  
*West Lafayette, USIN11, Lafayette Regional Science and Engineering Fair*
- MATS039I** **Adhesive Elastin-based Proteins as Soft-tissue Surgical Glues**  
Laan Yeung, 18, Senior, West Lafayette Junior Senior High School, West Lafayette, Indiana, T: Jane Schott
- IOWA**  
*Ames, USIA50, State Science and Technology Fair of Iowa*
- EGCH034I** **An Investigation into the Improvement of Switchgrass Biofuel Production, Phase II**  
Manasa Sai Pagadala, 15, Sophomore, Rivermont Collegiate, Bettendorf, Iowa, T: Shawn Buettner
- MCRO042I** **Recombinant DNA: Dual Antibiotic-Resistant Genes, Phase II**  
Libby Madeline King, 17, Junior, Van Buren Community Schools, Keosauqua, Iowa, T: Amanda Rae Kite
- MCRO043I** **The Effects of Cholecalciferol on Survivability of Methicillin-resistant *Staphylococcus aureus*: Combined Treatment**  
# # Micaela Jayne Bryant, 17, Senior, Central Lee High School, Donnellson, Iowa, T: Alicia Schiller
- PLNT042I** **Rhizobia: The Future Natural Fertilizer of Leguminous Plants**  
Rachel Mehmert, 17, Junior, Holy Trinity Catholic High School, Fort Madison, Iowa, T: Gail Kunch
- SOFT040T** **Tracking and Killing Insects Using Photonic Fences**  
Bimba Shrestha #, 18, Freshman; Doga Ozesmi, 16, Junior, Maharishi School of the Age of Enlightenment, Fairfield, Iowa; Fairfield Community High School, Fairfield, Iowa, T: Vishal Bakshi, Stacy Maurer  
*Cedar Rapids, USIA01, Eastern Iowa Science and Engineering Fair*
- BCHM040T** **Examining the Mechanism in which Chlorogenic Acid Inhibits Glucose from Diffusing from the Small Intestine**  
Clara Reynen, 17, Junior; Liana Shady Suleiman, 16, Freshman, Burlington Community High School, Burlington, Iowa, T: Elizabeth Sanning
- CELL032I** ***Drosophila*: A New Model for Studying Nuclear Actin**  
Sweta Sudhir, 16, Junior, John F. Kennedy High School, Cedar Rapids, Iowa, T: Tina L. Tootle

Sheldon, USIA02, Western Iowa Science and Engineering Fair

**EGCH0311 Grass to Gas, Phase IV**

# Eric Koehlmoos, 19, Freshman, South O'Brien High School, Paullina, Iowa,  
T: Kevin Brassier

**KANSAS**

Wichita, USKS50, Kansas State Science and Engineering Fair

**CHEM063T Got Vitamin C?**

Yajaira Galilea Rivera, 18, Senior; Devin Michael King, 18, Senior, Liberal High School, Liberal, Kansas, T: Melisa Westerman

**EGCH047T The Effect of a Genetically Modified Yeast on Alcohol Production in Corn-based Ethanol**

Nancy Maria Varela-Gastelum, 17, Freshman; Jessica Isamar Rodriguez, 18, Senior, Liberal High School, Liberal, Kansas, T: Melisa Westerman

**KENTUCKY**

Highland Heights, USKY04, Science and Engineering Fair of Northern Kentucky

**EAEV0161 Bioassay Determination of Environmentally Safe Levels of Atenolol, Carbamazepine, and Ibuprofen in Waterways**

Cassidy Ryan, 18, Senior, Notre Dame Academy, Park Hills, Kentucky,  
T: Terri Perrino

Lexington, USKY05, Central Kentucky Regional Science and Engineering Fair

**ANIM0371 The Effect of Injury Severity on the Risk of Post-Traumatic Epilepsy**

Sriyanshi R. Suryadevara, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Beverly Smith

**BMED0171 Novel Therapeutic Intra-Arterial Pharmacotherapy Administration for Treatment of Acute Ischemic Stroke**

Ishi Aron, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Beverly Smith

**EAEV0171 Understanding Heat Transfer Mechanisms in Forest Fire Spread: Fuel Particle Heat Transfer**

Kyra Leigh Seevers, 16, Junior, Paul Laurence Dunbar High School, Lexington, Kentucky, T: Beverly Smith

Louisville, USKY02, Louisville Regional Science and Engineering Fair

**ENEV0161 Coal-Ash Pond Management: Studying Groundwater Flow Using Darcy's Law**

Natasha Gupta, 15, Freshman, Ballard High School, Louisville, Kentucky,  
T: Ronda Fields

**MATS0131 Application of UV Resins in Extrusion-Based 3D Printing**

Joshua Murphy Jacob, 15, Freshman, Saint Xavier High School, Louisville, Kentucky, T: Greg Cambron

**MCRO0531 Triclosan: Antibacterial or Genotoxic?**

Tanya Gupta, 15, Freshman, Ballard High School, Louisville, Kentucky,  
T: Ronda Fields

**PLNT0111 Relations between Mycorrhizal Abundance and Biofuel Crop Yield**

# Erin Burba, 17, Senior, The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, Kentucky, T: Sarah Emery

**SOFT0151 Increasing Encryption Strength through the Alteration of Data Readability without a Key**

Jakob Shad Williamson, 17, Junior, Bullitt Central High School, Shepherdsville, Kentucky, T: James Moore

Louisville, USKY03, Dupont Manual High School Regional Fair

**CELL0161 Effect of Urolithin-A on Colorectal Cancer**

Praharshasai Paladugu, 16, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar

**EAEV0371 Mechanisms of Arsenic-Induced Atherosclerosis**

Divija Sharma, 17, Freshman, DuPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig

<b>EGCH038T</b>	<b>Optimization of Hybrid Capacitors: Role of Electrode Composition and Surface Area</b> Richard Nipun Gunasena # #, 16, Junior; Madan A. Subheeswar #, 16, Junior; Matthew Carmel Raj #, 15, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar
<b>ENEV076I</b>	<b>The Production and Applications of Cellulose Nanofibers from Soybean Hulls</b> Akanksha M. Gupta, 16, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig
<b>PHYS046I</b>	<b>Blood Trauma Testing for a Total Artificial Heart</b> Jennifer Jiaqi Leung, 16, Junior, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar
<i>Richmond, USKY50, Kentucky Science and Engineering Fair</i>	
<b>BCHM031I</b>	<b>The Role of Extracellular Nuclear Factor-Erythroid Derived Protein 2 (NF-E2) as a Danger Associated Molecular Pattern (DAMP) Released during Acrolein Induced Renal Fibrosis</b>
# #	Sanjana J. Rane, 17, Freshman, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar
<b>BEHA040T</b>	<b>The Effect of Shape, Weight, and Diameter on Haptic Perception: An Active Haptic Sensing Study of the Predicted and Actual Grip Forces and their Impacts on Weight Detection Thresholds</b> Sophia Nicole Korner, 16, Sophomore; Diya Mathur, 16, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig
<b>BMED120I</b>	<b>Characterization of Vascular Responses to Mechanically Induced Continuous Flow Patterns in Bovine Models</b> Sumanth Chennareddy, 17, Junior, DuPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig
<b>EBED037I</b>	<b>Development of a Ultra Low-Cost Integrated Audiometer and Hearing Aid</b> Mukund Venkatakrishnan, 15, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig
<b>PHYS045I</b>	<b>The Study of the Mechanical Properties of Silicon Carbide Monolayer</b> Emily Jiayuan Liu, 16, Sophomore, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar
<b>SOFT044I</b>	<b>An Asymmetric Elliptic Curve Algorithm to Increase Entropy and Decrease Computation Time of Iris Recognition</b>
#	Sasank Venkata Vishnubhatla, 17, Junior, DuPont Manual High School, Louisville, Kentucky, T: Robert Baar
<b>LOUISIANA</b>	
<i>Alexandria, USLA07, Louisiana Region IV Science Fair</i>	
<b>SOFT010I</b>	<b>Satya: Steganography Utilizing Individual Pixels</b> Shiva Mangesh Velingker, 17, Senior, Louisiana School for Math, Science, and the Arts, Natchitoches, Louisiana, T: Robert Dalling
<i>Baton Rouge, USLA01, Louisiana Region VII-Science and Engineering Fair</i>	
<b>EAEV010I</b>	<b>Mitigation of Hypoxic Ecosystems Using Hemolymph Analysis of <i>Callinectes sapidus</i> and <i>Procambarus clarkii</i> in Relation to Spartina Grasses, Year Two</b>
#	Natalie Marie Bush, 16, Freshman, Saint Joseph's Academy, Baton Rouge, Louisiana, T: Linda Kerr Messina
<b>MATH004I</b>	<b>Tortoise or Hare? Improving Accuracy of Frequency, Amplitude, and Phase with Explicit Integration Rather than Fast Fourier Transforms</b> Elya Courtney, 16, Junior, Carmel Hill School, Baton Rouge, Louisiana, T: Michael Courtney
<i>Baton Rouge, USLA50, Louisiana Science and Engineering Fair</i>	
<b>BMED063I</b>	<b>Does Secondhand Smoke Induce Superbugs?</b> Anugrah Jeyaseelan, 15, Freshman, Baton Rouge Magnet High School, Baton Rouge, Louisiana, T: Tiffany Moore
<b>CBIO036I</b>	<b>A Novel Platform for the Measurement of Hydrogen Sulfide</b> Moez Hayat, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Purdy Clements

- CHEM0511** **Phytorecovery of Heavy Metals Utilizing, Hyperaccumulators Grown in Contaminated Soil; a Second Year Study**  
Madison Ann Hasenkampf, 16, Sophomore, Saint Joseph's Academy, Baton Rouge, Louisiana, T: Linda K. Messina
- EAEV0661** **The Effect of the Atlantic Multidecadal Oscillation on the Accumulated Cyclone Energy and Annual Storm Counts of Atlantic Tropical Storms and Hurricanes**  
Emma Camille Barbin, 15, Sophomore, Saint Joseph's Academy, Baton Rouge, Louisiana, T: Linda K. Messina
- ENEV051T** **A Greener Shade of Grey: The Effects of a Novel Water-Reducing Geopolymer on SO<sub>3</sub> in Non-Standard Coal Combustion Residues**  
Olivia Guidry #, 18, Freshman; Marygrace Duggar #, 18, Senior, Saint Joseph's Academy, Baton Rouge, Louisiana, T: Linda Messina
- Bossier City, USLA02, Bossier Parish Community College Louisiana Region I Science and Engineering Fair*
- BMED0341** **Restoring Angiogenesis through the Manipulation of Cellular Glutathione Content in a Diabetic Microenvironment**  
Vijay Letchuman, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Clements
- CELL0071** **High Throughput AD Drug Screening of Alpha-Secretase Activity Modulators as a Novel Model for Alzheimer's Disease**  
# # Morni A. Modi, 18, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Clements
- ENMC0131** **Actuation of a Reconfigurable Shape Memory Alloy Airfoil during Stages of Flight for a Commercial Aircraft**  
# Kyle Lee Dockendorf, 18, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Clements
- Houma, USLA03, Terrebonne Parish Science Fair*
- ANIM0701** **Oh! How You Affect My Heart! (Again)**  
# Samantha Rose Theriot, 16, Junior, Terrebonne High School, Houma, Louisiana, T: Rayemona Boyd
- MATH0081** **Chance?**  
Adeline Marie Martin, 15, Freshman, South Terrebonne High School, Bourg, Louisiana, T: Francis Labat
- Lafayette, USLA04, Louisiana Region VI Science and Engineering Fair*
- EAEV0181** **Overpopulation of Water Hyacinth: Reaching the Root of the Problem**  
Drake Lawrence Bergeron, 17, Junior, Ovey Comeaux High School, Lafayette, Louisiana, T: Lisa Ranney
- EAEV0751** **Toxic Correlation?**  
Taylor Jade Marks, 16, Junior, Catholic High School, New Iberia, Louisiana, T: Michelle Stelly
- Lake Charles, USLA05, Louisiana Region V Science and Engineering Fair*
- EAEV0201** **The Effects of Acetaminophen on *Daphnia magna* and *Daphnia magna* Resting Eggs**  
Ethan A. Mills, 17, Sophomore, Pathways Christian School, Lake Charles, Louisiana, T: Renee Unsworth
- MATH0071** **Using Statistical Analysis and Probability to Examine a Counterintuitive Problem**  
Elizabeth A. Martin, 16, Sophomore, Academics Etc., Lake Charles, Louisiana, T: Donald Martin
- New Orleans, USLA08, Greater New Orleans Science and Engineering Fair*
- ANIM0591** **How Do Seasonal Temperature Changes Affect *Cyrtobagous salviniae* Density Patterns?**  
Madison Diann Berard, 18, Senior, Patrick F. Taylor Science & Technology Academy, Avondale, Louisiana, T: Janell Simpson
- BMED0191** **Investigation of Inflammatory Molecules during the Disease Progression of Multiple Sclerosis in Mouse, *Mus musculus*, Tissue**  
Ilaria Simeone, 16, Sophomore, Benjamin Franklin High School, New Orleans, Louisiana, T: Mary Gubala

- CELL042I** **The Effects of Light Exposure at Night on Circadian Regulation of Expression of and Damage from the Retrotransposon L1**  
Madison Elizabeth Smither, 16, Sophomore, Benjamin Franklin High School, New Orleans, Louisiana, T: Mary Gubala
- EAEV047I** **A Method for Identifying the Photoproducts, Mechanisms, and Toxicity of Petroleum from the Deepwater Horizon by High-Performance Liquid Chromatography and DNPHi Derivatization**  
Keiana Ashli Cave, 17, Junior, Lusher Charter High School, New Orleans, Louisiana, T: Stephen Collins
- Ruston, USLA09, Louisiana Region II Science and Engineering Fair*
- BMED020I** **TBI: Light More than Meets the Eye**  
# Savannah Floyd, 15, Sophomore, Ruston High School, Ruston, Louisiana, T: Rik Cason
- St. James Parish, USLA06, St. James Parish Science Fair*
- EAEV005I** **Acidification: Testing the Effect of Our Ever Changing Environment on Our Oceans and Marine Life**  
Sarah Bradford, 15, Sophomore, Luther High School, Litcher, Louisiana, T: Renee Hartley
- MAINE**  
*Bar Harbor, USME50, Maine State Science Fair*
- CELL056I** **Directed Differentiation of Human Pluripotent Stem Cells into Kidney Cells: Building an Artificial Kidney**  
# Demetri Maxim, 17, Junior, Gould Academy, Bethel, Maine, T: Joseph V Bonventre
- EAEV074I** **Identifying and Remediating the Sources of Pollution in Impaired Bangor Streams**  
Paige Elizabeth Brown, 16, Junior, Bangor High School, Bangor, Maine, T: Cary James
- SOFT056T** **Calculating Horizons with Perspective Projection**  
Ben L. Schade, 16, Junior; Justin Hunter Hamilton, 16, Junior, Maine School of Science and Mathematics, Limestone, Maine, T: Gregory Hamlin
- MARYLAND**  
*Glen Burnie, USMD01, Anne Arundel County Regional Science and Engineering Fair*
- MCRO048I** **Biosorption of Heavy Metals by E. coli**  
Ava Grounds, 16, Sophomore, South River High School, Edgewater, Maryland, T: Eleonor Nulud
- PLNT047T** **Ideal Dilution of Capsaicinoids as a Natural Pesticide**  
Ashlee James Brennan, 17, Junior; Hannah Rachel Hall, 17, Junior, South River High School, Edgewater, Maryland, T: Mevlin Smith
- Largo, USMD05, Prince George's Area Science Fair*
- ANIM044I** **Effects of Dietary Fatty Acids on Overwintering Success of Honeybees**  
OreOluwa Comfort Aluko, 16, Senior, Charles Herbert Flowers High School, Springdale, Maryland, T: Shanice White
- BEHA049T** **Constructing a Carcinogen Indicator Application Based on Statistical Analysis of Statewide Cancer Incidences in Relationship with Graphical Consumer Data**  
Sarah Asfari, 17, Senior; Yousuf Asfari, 15, Junior, Al-Huda School, College Park, Maryland, T: Farida Chowdhury
- PHYS037I** **Smart Sensors for Localizing Blade Impacts**  
Jonathan Yu, 16, Sophomore, Great Mills High School, Great Mills, Maryland, T: Jennifer Morgenthaler
- PLNT067I** **Pheromone Aided Trap Cropping of the Harlequin Bug**  
Emma Marie Thrift, 17, Senior, Eleanor Roosevelt High School, Greenbelt, Maryland, T: Jennifer Morgenthaler
- Silver Spring, USMD03, ScienceMontgomery*
- BEHA026T** **Mathematical Modeling and Brain Activations Characterize Differences in Human Pattern Recognition under Conditions of Ambiguous Feedback**  
Parth Shah, 18, Senior; Sreejan Kumar, 17, Senior, Mission Viejo High School, Mission Viejo, California; Poolesville High School, Poolesville, Maryland, T: Daryl Fukuda



<b>CBIO024I</b>	<b>Automatic Detection of Vascular Lesions of the Retina Using a Localized Adaptive Thresholding Approach</b> Elina Kapoor, 17, Senior, Winston Churchill High School, Potomac, Maryland, T: Deanna Svrcek
<b>MATH020I</b>	<b>Cylindric Young Tableaux and Their Properties</b> Eric Michael Neyman, 18, Senior, Montgomery Blair High School, Silver Spring, Maryland, T: Angelique Bosse
<b>ROBO005I</b>	<b>Development of an Authorship Identification Algorithm for Twitter Using Stylometric Techniques</b> Cherry Ying Zou, 16, Junior, Poolesville High School, Poolesville, Maryland, T: Patricia Miller
<i>Towson, USMD06, Baltimore Science Fair</i>	
<b>BMED093I</b>	<b>Effects of Environmental Enrichment on a Mouse Model of Stress-Induced Depression</b> Isaiah Thomas, 18, Senior, Baltimore Polytechnic Institute, Baltimore, Maryland, T: Sally Kutzer
<b>PHYS053I</b>	<b>Analyzing and Placing Limits on Light Curves Generated from HST/COS White Dwarf Data</b> Phoebe Hannah Sandhaus, 17, Senior, Baltimore Polytechnic Institute, Baltimore, Maryland, T: David Nelson
<b>SOFT055I</b>	<b>Reverse PubMed Search Program</b> Mengyuan Sun, 17, Senior, Centennial High School, Ellicott City, Maryland, T: Michelle Bagley
<i>Waldorf, USMD04, Charles County Science Fair</i>	
<b>BEHA056I</b>	<b>Remember Memory: The Effect of Age and Gender on Visual Short Term Memory</b> Elizabeth Grace Saoud, 15, Freshman, Maurice J. McDonough High School, Pomfret, Maryland, T: Karena Bennett
<b>MATH031I</b>	<b>Do Perfect Cuboids Exist?</b> Matthew Johnathan Fan, 16, Junior, La Plata High School, La Plata, Maryland, T: Michael McNeil
<i>Walkersville, USMD02, Frederick County Science and Engineering Fair</i>	
<b>ANIM028I</b>	<b>A Secondary Analysis of Shark Attack Data</b> Matthew John Green, 17, Junior, Urbana High School, Ijamsville, Maryland, T: Suzanne Folk
<b>BCHM020I</b>	<b>Interrogating Ras Function with Protein Mimetics</b> Rebecca Natasha Freed, 17, Senior, Governor Thomas Johnson High School, Frederick, Maryland, T: Nadya I. Tarasova
<b>MASSACHUSETTS</b>	
<i>Boston, USMA06, Massachusetts Region VI Science Fair</i>	
<b>EAEV039I</b>	<b>Phosphorus Pollution: Determining the Effect of Chelates on Phosphorus Sorption in Soil</b> Mindy Li Wu, 17, Senior, Boston Latin School, Boston, Massachusetts, T: Kathleen Bateman
<b>EGCH017I</b>	<b>Conversion of Algae Extract into Bio-Fuel</b> Justin Nguyen Phuoc, 17, Senior, Community Academy of Science and Health, Dorchester, Massachusetts, T: Taiwo Stephenson
<b>SOFT026I</b>	<b>Radiation Randomness: The Entropy of Thin Air</b> Dominic Marcuse, 16, Sophomore, Mary Lyon Pilot High School, Brighton, Massachusetts, T: Michaela Danek
<i>Bridgewater, USMA01, Massachusetts Region V Science Fair</i>	
<b>CELL017I</b>	<b>Advancing the Cancer Stem Cell Approach for Early Tumorigenesis: Delineation of p53 Pathways in Differentially Expressed Tumor-Initiating Cells</b>
#	Fan Liu, 17, Freshman, Fontbonne Academy, Milton, Massachusetts, T: Mary Ellen Barnes

Cambridge, USMA50, Massachusetts State Science & Engineering Fair

**BEHA025I** **More than a Paycheck: The Relationship between Perceived Occupational Stress and Health Indicators**

# # Amy Elizabeth Santos, 17, Junior, Taunton High School, Taunton, Massachusetts, T: John McDevitt

**EBED056I** **Single-Track Gray Codes: An Efficiently Decodable Maximum Period General Construction and Extensions**

Georgie Botev, 16, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Thomas Regele

**ENEV031T** **Biodegradable Air Filter and Ionizer Development**

Brian O'Rourke, 16, Freshman; Allegra Paola Francesca Rollo, 15, Sophomore, Boston Latin School, Boston, Massachusetts, T: Kathleen Bateman

**ENEV032I** **Azoreductase Activity: Bioremediation for Treatment of Synthetic Diazo Dyes in Polluted Water**

Sishir Ramakrishna Pasumarthi, 17, Junior, North Attleboro High School, North Attleboro, Massachusetts, T: Alexander Hatzberger

**ENEV033I** **Augmented Reality Sand Table**

Christopher Aring, 17, Junior, Martha's Vineyard Regional High School, Oak Bluffs, Massachusetts, T: Natalie Munn

**ENEV049I** **Diamagnetic Water Filtration: Perpetually Green Nitrate Removal**

Tyler Fox Ethier, 17, Senior, Berkshire Arts and Technology College Preparatory School, Adams, Massachusetts, T: Miles Wheat

**ROBO024T** **An Exploration in Motion Interface Robotic Arms**

Michael Yang #, 16, Freshman; Danny Lu, 17, Freshman, Lexington High School, Lexington, Massachusetts, T: Janice Compton

**SOFT032I** **The Phoney Lift: Using Accelerometers to Identify People**

Yashaswini Makaram, 17, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Angela Taricco

Fall River, USMA03, Massachusetts Region III Science Fair

**BCHM017I** **Does Salinity Affect Lactase Effectivity?**

Herbert Anthony Leonard, 17, Junior, Taunton High School, Taunton, Massachusetts, T: Amanda Machado

**EAEV038I** **Plastic Pollution's Effect on Aquatic Organisms**

Christine Ann Schremp, 15, Freshman, Bishop Feehan High School, Attleboro, Massachusetts, T: Eileen Correia

North Adams, USMA04, Massachusetts Region I Science Fair

**EBED043I** **SMART House: Utilizing Embedded Electronics for Efficient Living**

Alison Adamski, 17, Senior, Westfield High School, Westfield, Massachusetts, T: Renee Sweeney

Somerville, USMA02, Massachusetts Region IV Science Fair

**MCRO030I** **Post Translational Modification on Bacterial Collagen: Hydroxylation of Recombinant Collagen from *S. pyogenes***

Connie Chan, 18, Senior, Somerville High School, Somerville, Massachusetts, T: Christopher Angelli

Worcester, USMA05, Massachusetts Region II State Science Fair

**ANIM027I** **Effects of Curcumin and Piperine on Embryological Development in *Danio rerio***

Aishwaryya Arivudainambi, 16, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Judith Sumner

**BCHM045I** **Rethinking Drug Discovery: New Algorithms for Virtual Drug Screening**

Amol Punjabi, 16, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Judith Sumner

**BMED031I** **The Effects of Taurine on Memory Retention in *D. dorotocephala***

Mariam Eman Dogar, 16, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Shari Weaver

**BMED043I** **They Get Knocked Down, But They Get UP Again! The Effect of Head Impacts on Phototaxis and Geotaxis in *Drosophila melanogaster***

Kyle Thomas Foster, 17, Junior, Wachusett Regional High School, Holden, Massachusetts, T: Nicholas Guerin

**MICHIGAN***Ann Arbor, USMI01, Southeast Michigan Science Fair*

- BMED0591** **The Ebola Epidemic in West Africa: Developing a Transmission Model to Compare the Effectiveness of Interventions**

Jeremy Philip D'Silva, 16, Junior, Father Gabriel Richard High School,  
Ann Arbor, Michigan, T: Cinda-Sue Davis

- CELL0361** **Effect of Antioxidant Supplements on Human Cancers: Novel Observation on Expression Profiles of Intronic RNA**

# Shreya Menon, 17, Junior, Skyline High School, Ann Arbor, Michigan,  
T: Casey Warner

*Detroit, USMI02, Science and Engineering Fair of Metropolitan Detroit*

- BEHA0151** **Identification of MEG Biomarkers for Schizophrenia and Its Subtypes**

Frank Wang, 18, Senior, Troy High School, Troy, Michigan, T: Rebecca Brewer

- BMED0941** **Identification of DDR2 as a Critical Molecule in Breast Cancer Stem Cells**

Jason Wu, 15, Sophomore, Cranbrook Kingswood School, Bloomfield Hills,  
Michigan, T: Greg Miller

- CELL0441** **The Potential Role of Let-7d in Pericyte Differentiation: Determining a Pathway to Target Pluripotent Stem Cells of the CNS to Differentiate to Provide a New Method for the Alleviation of Neurodegenerative Disorders and CNS Cancers**

# Anuush Vejalla, 16, Junior, Detroit Country Day Upper School, Beverly Hills,  
Michigan, T: John Dougherty

- MATH026T** **Structural Properties of 2-Bijjective Connection Networks**

Justin Xu, 17, Junior; Dhruv Medarametla, 16, Junior, Troy High School,  
Troy, Michigan, T: Rebecca Brewer

- PHYS0381** **Feasibility of Metal-Organic Framework for Vehicular Storage of Natural Gas**

Helen Xu, 16, Sophomore, Detroit Country Day Upper School, Beverly Hills,  
Michigan, T: Ross Arseneau

- PLNT0301** **Effect of Cucumber Fruit Peel Extracts on Inhibition of *Phytophthora capsici* Growth and Infection**

Isabel J. Hsu, 17, Senior, Crestwood High School, Dearborn Heights,  
Michigan, T: Diana Johns

- SOFT0331** **Composing Music with Sign Language Pattern Recognition**

Amina Mustafa, 15, Sophomore, Dearborn Center for Math, Science, and  
Technology, Dearborn Heights, Michigan, T: Steven Scott

*Detroit, USMI50, Michigan Science and Engineering Fair*

- CELL0181** **Interaction Between CD47 and EGF Receptors in Breast Cancer Stem Cells**

Ashi Arora, 17, Senior, Novi High School, Novi, Michigan, T: James Didio

- CHEM0491** **An Analysis of Proton Permeation in Liposomes Containing Novel Archaea-Inspired Lipids**

Claire Wang, 16, Junior, Detroit Country Day Upper School, Beverly Hills,  
Michigan, T: Marc Fazio

*Flint, USMI03, Flint Regional Science Fair*

- BMED0861** **Investigating External Interventions Applied to Football Headgear to Decrease Mean Peak Acceleration as Measured by a Single Axis Accelerometer Array**

Clara Elizabeth Wagner, 16, Sophomore, Saginaw Arts and Sciences  
Academy, Saginaw, Michigan, T: David Allan

- BMED0881** **Hirudotherapy: The Study of Blood Components in *Hirudo medicinalis* Bloodletting**

Lauren Louise Kaylor, 17, Junior, Saginaw Arts and Sciences Academy,  
Saginaw, Michigan, T: Matthew Miller

- EAEV0571** **Physiological and Behavioral Impacts of a Neonicotinoid Insecticide and Its Transformation Product on a Non-Target Keystone Species**

# Aishah Isabelle Ahmed, 16, Junior, Port Huron Northern High School,  
Port Huron, Michigan, T: Arlene Grabbitt

*Kalamazoo, USMI07, Southwest Michigan Science & Engineering Fair*

- ANIMO481** **Regulation of Glial Cell-Line Derived Neurotrophic Factor in Cardiac Muscle**

Jorge Antonio Ochoa, 18, Senior, Kalamazoo Area Math and Science Center,  
Kalamazoo Township, Michigan, T: John Goudie

<b>BCHM043T</b>	<b>Two-Photon Spectroscopy for the Early Diagnosis of ALS: Folding and Aggregation of SOD1</b> Natasha Goenawan, 16, Junior; Ziyang Mo, 16, Junior, Kalamazoo Area Math and Science Center, Kalamazoo Township, Michigan, T: Joseph Thorstenson
<b>MINNESOTA</b>	
<i>Bemidji, USMN01, Northern Minnesota Regional Science Fair</i>	
<b>ENMC010I</b>	<b>Improved Walker, Part Two</b>
#	Walker Mathew Cage, 17, Junior, Bagley High School, Bagley, Minnesota, T: Sam Roepke
<i>Crookston, USMN05, Western Minnesota Regional Science Fair</i>	
<b>SOFT058I</b>	<b>Using Sine Waves to Cancel out Tinnitus Frequencies</b>
	Olson Lawrence Langness, 15, Sophomore, Park Christian School, Moorhead, Minnesota, T: Nancy Schnabel
<i>Duluth, USMN02, Northeast Minnesota Regional Science Fair</i>	
<b>ANIM008I</b>	<b>The Use of Growth and Dissolved Oxygen Consumption per Mass of Fish to Determine the Impact of Gender, Transgenes (Wild-type vs. Florescence), and Zygosity (Hemizygous vs. Homozygous) on the Fitness and Impact in the Wild of Transgenic Fluorescent Zebrafish</b>
	Frances Carol Slater, 15, Freshman, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
<b>BMED056I</b>	<b>The Development of an Inexpensive Hand Hygiene Monitoring System with a Raspberry Pi Computer: Applications for Healthcare and Beyond</b>
# #	Timothy James Fossum Renier, 17, Senior, East High School, Duluth, Minnesota, T: Robin Churchill
<b>PHYS008T</b>	<b>Cosmic Ray Conundrum: Using a Cosmic Ray Detector with Varied Scintillator Configurations to Determine the Origin of Charged Particles</b>
	Trentin Thomas Russell, 16, Sophomore; Jada Danielle Johnson, 16, Sophomore, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
<i>Mankato, USMN03, Southern Minnesota Regional Science and Engineering Fair</i>	
<b>CBIO006I</b>	<b>Computer Input and Therapy for the Physically Impaired</b>
	Isaiah James Croatt, 18, Senior, Jackson County Central High School, Jackson, Minnesota, T: Jordana Thompson
<b>EGCH005I</b>	<b>Employing White-Rot Fungi for Superior Delignification Combined with Fungal Biosynthesis to Produce Biofuels</b>
# # #	Jonah Butler, 17, Senior, Sibley East High School, Arlington, Minnesota, T: Christine Butler
<b>EGCH010I</b>	<b>Battle of the Diesels: A Comparison of B-10 Diesel vs.B-100 Homemade Biodiesel for Efficiency and Exhaust Analysis</b>
#	Brian Prchal, 18, Senior, New Prague High School, New Prague, Minnesota, T: Jodi Prchal
<b>MCRO010I</b>	<b>Reducing Carcinogenic Toxins in Milk: Examining the Effects of Using Probiotic Bacteria to Bind Aflatoxin M1</b>
	Ellen Roufs, 18, Senior, Cathedral High School, New Ulm, Minnesota, T: Shelley Roufs
<i>Minneapolis, USMN04, Twin Cities Regional Science Fair</i>	
<b>BMED009I</b>	<b>Increasing Cancer-Specific Drug Delivery Using Targeted Liposomes</b>
	Aadarsh Seth Padiyath, 17, Junior, Woodbury High School, Woodbury, Minnesota, T: Rachel Levine
<b>BMED015I</b>	<b>Schwann Cell Differentiation from Stem Cells of Neurofibromatosis 1 Patients and Normal Controls</b>
#	Amrita Mohanty, 18, Freshman, Woodbury High School, Woodbury, Minnesota, T: Princessa VanBuren Hansen
<b>EGCH015I</b>	<b>Landfill to Car Fuel: Using Surfactants to Increase Cellulosic Ethanol Production from Waste Paper</b>
	Maxwell Robert Ylitalo, 16, Junior, Stillwater Area High School, Stillwater, Minnesota, T: Princessa VanBuren Hansen

Minneapolis, USMN09, St. Paul Science Fair

**BMED028I** **Advancements in Drug Delivery: Development and Evaluation of Ibuprofen Loaded Biodegradable Hydrogels**

Serena Liang Jing, 16, Sophomore, Saint Paul Central High School, St. Paul, Minnesota, T: Princessa VanBuren Hansen

**PLNT009I** **Behind the Kernels II: A Reevaluation of Fungal Endophytes as Biocontrol Agents against the Common Maize Pathogen *Ustilago maydis***

Emilia Frances Topp-Johnson, 14, Freshman, Saint Paul Academy and Summit School, Saint Paul, Minnesota, T: Karissa Baker

Minneapolis, USMN10, Western Suburbs Science Fair

**EGCH008I** **Improving Environmental Sustainability: Solid Waste to Biofuel Generation Using Pyrolysis**

Arush Jain, 17, Junior, Eden Prairie High School, Eden Prairie, Minnesota, T: Kristin Gabel

**MATS008I** **Improved Efficiency of Seawater Steam Generation Using Carbon Nanoparticles**

**# #** Carolyn Kay Jons, 17, Junior, Eden Prairie High School, Eden Prairie, Minnesota, T: Carol Snyder

Minneapolis South, USMN50, Minnesota Academy of Science State Science & Engineering Fair

**CHEM048T** **Optimized Syntheses of Novel, Medicinally Applicable 1,2,3-Triazole Derivatives**

Sofie Kim #, 17, Senior; Jacob Levy #, 18, Senior, Breck School, Golden Valley, Minnesota, T: Lois Fruen

**EAEV072T** **Zebra Mussel (*Dreissena polymorpha*) Preference for Colonization on Microphytes in Lake Minnetonka, MN**

Eve Claire Zelikson, 18, Senior; Karsten Salvesson, 18, Senior, Breck School, Golden Valley, Minnesota, T: Lois Fruen

**EBED023I** **Fault-Tolerant Arithmetic Computing Using Partial Triple Modular Redundancy (PTMR)**

Rahul Parhi, 17, Senior, Wayzata High School, Plymouth, Minnesota, T: Keshab K. Parhi

**SOFT034I** **AirTouch**

Stephen Mylabathula, 18, Senior, Concordia Academy, Roseville, Minnesota, T: Elizabeth Bohren

Rochester, USMN07, Rochester Regional Science Fair

**BMED005I** **On a Mission: Rescuing T-Cells to Fight Cancer**

Annie Wu Sun, 17, Senior, Mayo High School, Rochester, Minnesota, T: Haidong Dong

**BMED027I** **Gelatin and Hyaluronic Acid Nanoparticle Based Delivery of miR-34a for Treatment of Pancreatic Cancer**

**# #** Michelle Elisabeth Marie Campeau, 17, Senior, Mayo High School, Rochester, Minnesota, T: Mansoor M. Amiji

**BMED035T** **Novel Observations on Intracardiac Electrograms Recorded During Ventricular Fibrillation**

Jason Tri, 17, Senior; Roshini Shreya Asirvatham, 15, Junior, Century High School, Rochester, Minnesota, T: Christopher DeSimone

Saint Cloud, USMN08, David F. Grether Central Minnesota Regional Science Fair and Research Paper Program

**BMED016I** **Moving Health Care Forward: A 10 Year Retrospective Cohort Evaluation of Pre and Post Robotic Surgery, Creating a Digital Data Bank and an Algorithm for Optimal Utilization of Surgical Resources when Considering Patient Biometrics**

**#** Sophia Elyce Brown, 16, Junior, Anoka High School, Anoka, Minnesota, T: Kevin Molohon

**SOFT021I** **Noisy Coins: Analyzing Coin Sound Spectra**

Yousuf Siddiqui, 16, Sophomore, Al-Amal School, Fridley, Minnesota, T: Hala Bazzi

Winona, USMN06, Southeast Minnesota Regional Science Fair

**EGPH007I Water Siphoning as an Alternative Hydroelectric Renewable Energy Source**

John Paul Gilles, 17, Junior, Winona Senior High School, Winona, Minnesota,  
T: Ken James Mann

**MISSISSIPPI**

Biloxi, USMS01, Mississippi Region VI Science and Engineering Fair

**BCHM027I The Effect of Microwave Heating on Substances in Foods and Beverages**

Sichen Shawn Chao, 15, Sophomore, Oxford High School, Oxford, Mississippi, T: Sarah Robinson

**BMED149I Chronic Alcohol Treatment Results in Physiological Tolerance, Decreased Fertility, and Liver Injury in *Drosophila***

# Kelly Odom, 18, Freshman, Forrest County Ag High School, Brooklyn, Mississippi, T: Sandra Leal

Booneville, USMS02, Mississippi Region IV Science Fair

**MATH038I Gas versus Diesel? You Do the Math. . .**

James Dylan Streff, 16, Freshman, Biggersville, Corinth, Mississippi, T: Daniel R. Rowsey

Greenville, USMS03, Mississippi Region III Science and Engineering Fair

**ANIM064I A Novel Procedure to Predict a Hypothetical-Population Growth Using an Evolved Diet Strain of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) and Its Potential Application to Other Pests of Genetically Modified Organisms**

# # # Manuela Jojoa-Portilla, 18, Senior, Home School, Cleveland, Mississippi, T: Maribel Portilla

**EAEV088I Aquaponics**

Allison Lauren Wise, 16, Sophomore, Saint Joseph's Catholic School, Greenville, Mississippi, T: Eddie Thomas Dennis

Hattiesburg, USMS04, University of Southern Mississippi Region I Science and Engineering Fair

**CELL033I Developing an mRNA-Mediated Gene Expression Strategy in Mouse Embryonic Stem Cells**

Jason Guo, 15, Sophomore, Oak Grove High School, Hattiesburg, Mississippi, T: Mark Holcomb

**CHEM076I Study of the Chemical Constituents and Properties of *Passiflora Lutea* through Isolation**

Chuan Carina Chen, 17, Senior, Oak Grove High School, Hattiesburg, Mississippi, T: Mark Holcomb

Hattiesburg, USMS50, Mississippi Science and Engineering State Fair

**BCHM002I Construction of Fusion Proteins by Optimizing Linker Sequences**

Allen Yang Huang, 14, Sophomore, Oak Grove High School, Hattiesburg, Mississippi, T: Mark Holcomb

**ENMC072I Cool It: Keeping Children Safe from Playground Burns**

Emoree Kristann Heiselt, 17, Senior, The Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Edward Leggett

Jackson, USMS05, Mississippi Region II Science and Engineering Fair

**BCHM034I Antibiotic Treatment of *Drosophila Simulans* to Prevent Transmission of *Wolbachia***

# Nikhil Arora, 16, Junior, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Sandra Hindsman

**CHEM081I Redefinition of the Boiling Point Elevation Equation Through Consideration of Various Aspects of Solute Nature on the Magnitude of Ion-Dipole Interactions in Aqueous Solutions**

# Andrew Neely, 16, Junior, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Sandra Hindsman

**EAEV076I Is Plant Chlorophyll a Good Biomarker for Monitoring Automobile Exhaust Pollution?**

Simmy Vig, 17, Junior, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Sandra Hindsman

- PLNT0531 The Effect of Plant Extracts on Seed Germination**  
Neha Arora, 15, Sophomore, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Claudia Bhagat  
*Mississippi State, USMS06, Mississippi Region V Science and Engineering Fair*
- CBIO0121 What Biomedical Device Shape Minimizes Blood Damage?**  
Lily Micah Burgreen, 14, Freshman, Home School, Starkville, Mississippi, T: Greg Burgreen
- MCRO0351 Determining Science-Based Solutions for Emergence of Tetracycline Resistant Bacteria**  
Aylin Memili, 16, Junior, The Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Elizabeth Morgan  
*Oxford, USMS07, Mississippi Region VII Science and Engineering Fair*
- BMED0781 Where Does Energy Come from in Energy Drinks?**  
Qihang Jeffrey Wang, 15, Freshman, Oxford High School, Oxford, Mississippi, T: Sarah Robinson
- MATS0511 The Effects of Build Direction and Raster Orientation on the Tensile Properties of Fused Deposition Modeled ABS Plastic Specimens**  
Samuel Coby Anderson, 18, Senior, The Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Elizabeth Morgan
- MISSOURI**  
*Cape Girardeau, USMO01, Southeast Missouri Regional Science Fair*
- CHEM0201 Cleaning the Scene: Using Forensics to Test for the Presence of Blood**  
Brynn Myers, 16, Sophomore, Oak Ridge High School, Oak Ridge, Missouri, T: Mark Gihring
- MCRO0341 Using *Aliivibrio fischeri* to Detect Water Toxins**  
# Jon Samuel Rodgers, 17, Junior, Dexter High School, Dexter, Missouri, T: Tiska Rodgers  
*Cottleville, USMO05, Missouri Tri-County Regional Science and Engineering Fair*
- PLNT0191 Stability of EPSPS Gene Copy Number in Glyphosate Resistant *Amaranthus palmeri***  
Kailey Lynn King, 18, Senior, Wentzville Holt High School, Wentzville, Missouri, T: Jennifer Mallery  
*Fayette, USMO10, Central Methodist Eagles Science and Engineering Fair*
- ANIM0671 It's A Girl: The Effects of Reverse-Sorted Semen on the Percent Accuracy of Fetal Sexing in Bovine**  
Emma Lee Rademacher, 17, Junior, Southwest Livingston County R-1, Ludlow, Missouri, T: Janel Coulson
- ANIM0711 The Effect of Formulation of Moxidectin When Administered Orally on Barber Pole Worm Levels in Goats**  
# Lauren Haley, 17, Senior, Chillicothe High School, Chillicothe, Missouri, T: Stacy Surber  
*Hillsboro, USMO09, Mastodon Art/Science Regional Fair*
- ANIM0311 Analyzing the Genetic Diversity of Sunfish and Looking for Signs of Sunfish Interbreeding**  
Anna Rachelle Merseal, 16, Sophomore, St.Clair High School, St. Clair, Missouri, T: Ben Martin
- PLNT0611 Studying Algal Lipid Production Under Nutrient Limitation to Develop a Dynamic Lipid Accumulation Model**  
# # Nathan Turner Wamsley, 17, Junior, Homeschool, Pacific, Missouri, T: Pamela Lynn Wamsley  
*Jefferson City, USMO02, Lincoln University Regional Science Fair*
- CELL0501 On the Molecular Basis of Cystic Fibrosis: The Criticality of the Position of Phenylalanine-508 in the Cystic Fibrosis Transmembrane Conductance Regulator**  
Wenzer Qin, 18, Senior, David H. Hickman High School, Columbia, Missouri, T: Pamela Close



- EAEV0671** **Searching for an Ally: Investigating the Effects of Thiamethoxam on *Podisus maculiventris* for Possible Integrated Pest Management, Year Three**  
 # Ashley Suzanne Wyrick, 17, Freshman, Tuscumbia High School, Tuscumbia, Missouri, T: Constance Wyrick  
*Joplin, USMO03, Missouri Southern Regional Science Fair*
- CHEM0471** **Phytoremediation through Mineralization of *Epipremnum aureum* in the Reduction of Benzene and Other Volatile Organic Compounds (VOCs) in Residential Dwellings**  
 Joanne Hayoung Kim, 15, Freshman, Carl Junction High School, Carl Junction, Missouri, T: Natalie Hughes  
*Kansas City, USMO04, Greater Kansas City Science & Engineering Fair*
- ANIM0291** **The Effect of Geographic Distance on the Variation in Vocalizations of the Gentoo Penguin, *Pygoscelis papua*, on the Antarctic Peninsula**  
 # Andrea Dahl, 15, Sophomore, Olathe North High School, Olathe, Kansas, T: Rebecca Groebe
- ANIM0301** **Roles of Tribbles in Tumor Formation in *Drosophila melanogaster***  
 Alexis Sue Allen, 16, Junior, Shawnee Mission West High School, Overland Park, Kansas, T: Brenda Bott
- PLNT0311** **The Effects of Cocoa Powder on the Cell Cycle and Ability to Induce Apoptosis in *Spodoptera frugiperda* Ovarian Tissue Cells**  
 Erin Smith, 15, Freshman, Shawnee Mission West High School, Overland Park, Kansas, T: Brenda Bott  
*Saint Joseph, USMO06, Mid-America Regional Science and Engineering Fair*
- CELL0051** **Mutational Analysis of Bacterial Gene Regulation**  
 Anthony Joseph Eckdahl, 16, Sophomore, Central High School, Saint Joseph, Missouri, T: Jay Lee Meyers  
*Springfield, USMO08, Ozarks Science and Engineering Fair*
- BEHA0571** **Are Hands Free Devices a Safe Alternative?**  
 Olivia Rae Brown, 16, Sophomore, Greenwood Laboratory School, Springfield, Missouri, T: Denise Vinton
- EBED0451** **Laser Chat: A Secure Short-range Messenger**  
 Noah Haleem Khan, 18, Senior, Glendale High School, Springfield, Missouri, T: Fredrick Fotsch  
*St. Louis, USMO07, Academy of Science—Greater St. Louis Science Fair*
- BMED0121** **Development of a Novel Spatial Frequency Domain Method for Fluorescence Imaging in Tumor Detection**  
 Jessica Sun, 16, Sophomore, Parkway Central High School, Chesterfield, Missouri, T: Walter Akers
- CHEM0101** **Assessing the Feasibility of Using Photoelectron Imaging to Study Electronic Structure in Cu-**  
 Joshua Leib Kazdan, 17, Junior, John Burroughs School, St. Louis, Missouri, T: Wayne F. Winters
- MONTANA**  
*Billings, USMT01, Billings Clinic Research Center Science Expo*
- EAEV0811** **The Effects of Crystallization on Water Impurities: The Natural Purification of Benton Lake National Wildlife Refuge**  
 Tyler Stenson, 18, Junior, Stenson Homeschool, Billings, Montana, T: Timothy Stenson  
*Butte, USMT02, Montana Tech Regional Science and Engineering Fair*
- BEHA010T** **The Effect of Multitasking on Reading Comprehension in Teens**  
 Colter Norick #, 17, Senior; Colin Norick #, 16, Freshman, Columbia Falls High School, Columbia Falls, Montana, T: Tara Norick
- CELL0061** **Designing an eDNA Assay for River Otter (*Lontra canadensis*) Detection in Streams**  
 Ticha Marie Padgett-Stewart, 17, Senior, Hellgate High School, Missoula, Montana, T: Robert Jensen
- MCRO0171** **How Mycobacteriophage Infection Is Affected by Variant Forms of Iron Doped Hydroxyapatite Nanoparticles**  
 # Robert J. Lester, 17, Senior, Butte High School, Butte, Montana, T: Maureen Driscoll

## Great Falls, USMT04, Montana Region II Science and Engineering Fair

- CBIO025T Bone Replacement Using 3D Printing**  
Samuel Allen Miller #, 18, Senior; Andrew David Ryan #, 19, Senior,  
North Toole County High School, Sunburst, Montana, T: Amanda Becker
- ENEV036I Remediation of Contaminated Water, Year Two**  
Hannah Emily Hauschulz, 18, Senior, North Toole County High School,  
Sunburst, Montana, T: Amanda Joan Becker
- Havre, USMT03, Hi-Line Regional Science and Engineering Fair—MSU-Northern*
- EAEO041I The Effect of Environmental Contaminants on the Biodiversity of Carpenter Creek**  
Madison Clara Reichelt, 16, Freshman, Big Sandy High School, Big Sandy,  
Montana, T: Melanie Ann Schwarzbach
- PLNT033T Determining Percent of Germination of 2014 Wheat Samples as a Function of Falling Number**  
Julia C. Meisdalen, 16, Sophomore; Caleb W. Meisdalen, 16, Sophomore,  
Malta High School, Malta, Montana, T: Marida J. Demarais

## Missoula, USMT50, Montana Science Fair

- ANIM033I The Effects of the Human Voice on Cattle**  
Lauren A. Wang, 18, Senior, Baker High School, Baker, Montana, T: Linda Rost
- MCRO049I Investigating the Contribution of prp-17 and Other Splicing Factors to Maintaining Fertility in *Caenorhabditis elegans***  
Preston Novak, 16, Junior, Hellgate High School, Missoula, Montana,  
T: Robert Jensen
- SOFT050I Developing a Program to Identify Targets for Transit Followup for the Minerva Telescope Array**  
Kit Belamy Fieldhouse, 16, Junior, Hellgate High School, Missoula, Montana,  
T: Rob Jensen

## NEBRASKA

### Nebraska City, USNE02, Greater Nebraska Science and Engineering Fair

- PLNT048I Traditional vs. Nontraditional Treatments on Treating *Clavibacter Michiganensis nebraskensis* in Corn (Phase III)**  
Michayla Jo Goedeken, 16, Sophomore, Humphrey Junior Senior  
High School, Humphrey, Nebraska, T: Suzanne Goedeken
- PLNT055I The Effect of Manure Microbes on the Growth of *Clavibacter Michiganensis subspecies nebraskensis***  
Coleman Kneifl, 18, Senior, Allen Consolidated Schools, Allen, Nebraska,  
T: Marc Bathke

## NEVADA

### Elko, USNV01, Elko County Science Fair

- ANIM039I The Color Vision of *Drosophila melanogaster***  
Yimeng Lina Du, 18, Senior, Elko High School, Elko, Nevada, T: Brian Zeiszler
- EGCH009I Sustainable Energy and Water Purification from the Oxidation of Anaerobic Bacteria, Part Two**  
# Benjamin Braunstadter, 18, Senior, Spring Creek High School, Spring Creek,  
Nevada, T: Dean Mitchel

### Las Vegas, USNV02, Southern Nevada Regional Science and Engineering Fair

- CHEM039I Food Digestion: Candies in the Stomach**  
Savanah Sheriff, 16, Junior, Andre Agassi College Preparatory Academy,  
Las Vegas, Nevada, T: Joshua Lyphout
- ENMC018I Getting Them Back on Their Feet: 3D Printing a Prosthetic Foot**  
# Chris Mathews, 15, Sophomore, Gakuen Homeschool, Las Vegas, Nevada,  
T: Lisa Mathews

### Reno, USNV03, Western Nevada Regional Science and Engineering Fair

- CHEM056I Supercritical Fluid Extraction of Allicin**  
Rinik Kumar, 15, Sophomore, The Davidson Academy of Nevada, Reno,  
Nevada, T: Martin Braik
- EGPH047I Concentrated Solar Power**  
Oliver Leitner, 15, Freshman, The Davidson Academy of Nevada, Reno,  
Nevada, T: Martin Braik

**ENMC055I Problems of Aerodynamic Proportion**  
Mason Jeffrey McKovich, 18, Junior, Homeschool/A Beka Academy, Fernley, Nevada, T: Patricia Jo-An McKovich

## NEW HAMPSHIRE

*Concord, USNH50, New Hampshire Science & Engineering Expo*

**ENEV037I Novel Photocatalytic Pervious Composites for Removing Multiple Classes of Toxins from Water**  
Deepika Saraswathy Kurup, 17, Senior, Nashua High School South, Nashua, New Hampshire, T: Mary Stewart

## NEW JERSEY

*Jersey City, USNJ02, Hudson County Science Fair*

**CHEM053I Identifying the Optimal Concentrations of Luminol and Sodium Carbonate for Sonochemiluminescence**  
Kapil Kanakaraj, 16, Junior, High Technical High School, North Bergen, New Jersey, T: Arun Srivastava

**EBED051I The ThereNIM: A Touch-less Respiratory Monitor**  
Eswar Anandapadmanaban, 17, Senior, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey, T: Robert Toegel

*Lawrenceville, USNJ03, Mercer Science and Engineering Fair*

**CBIO038I Control of Prosthetic Devices Using Interactive RFID Tags**  
Sandra R. Baskharon, 18, Junior, Hamilton High School East, Hamilton Township, New Jersey, T: Deborah Ryan

*New Brunswick, USNJ01, North Jersey Regional Science Fair*

**ANIM054T Factors that Cause the Dietary Anomaly of a Diamondback Terrapin Population (*Malaclemys terrapin*)**  
Peter Hyung Jun Yoon, 17, Junior; Chang Won Lee, 19, Senior, Bergen Catholic High School, Oradell, New Jersey; River Dell Regional High School, Oradell, New Jersey, T: Yei Seon Hwang

**BMED097I A Novel Use of Valeryl Salicylate in the Inhibition of CML Cell Proliferation**  
Nicole Marie Eskow, 18, Senior, Academy for the Advancement of Science and Technology, Hackensack, New Jersey, T: Donna Leonardi

**BMED098I Investigation of Mechanisms of Action of FGF1 and FGF21 on the Prevention of Diabetic Retinopathy**  
Dongmin Kim, 16, Sophomore, Academy for Medical Science Technology, Hackensack, New Jersey, T: Donna Leonardi

**MATH032I Approximating the Maximum k-Colorable Subgraph Problem on Dotted Interval Graphs**  
Alexander Lin, 17, Senior, Millburn High School, Millburn, New Jersey, T: Paul Gilmore

**MATH033I Optimizing Sensor Configurations for Ground-level and Aerial Intrusion Detection by Applying the Minimum Vertex Cover Problem**  
Heather Amelia Newman, 17, Senior, Colonia High School, Colonia, New Jersey, T: James Danch

## NEW MEXICO

*Albuquerque, USAI50, National American Indian Science and Engineering Fair*

**CHEM077I The Effects of Ceremonial Smudging on Indoor Air Quality**  
Aisha Rose Cacique, 18, Senior, Nawayee Center School, Minneapolis, Minnesota, T: Cynthia Aletha Ward-Thompson

**EAEV084I Effects of Early Mdewakanton Dakota Settlement Patterns on the Ecology of Mde Maka Ska (Lake Calhoun) in Minneapolis, MN**  
Grant Robert Two Bulls, 18, Freshman, Breck School, Golden Valley, Minnesota, T: Lois Fruen

**EGPH055T A Study of the Efficiency of Wind Energy Capture Devices, Phase II: Design Enhancements and Improvements**  
Gabe Enriquez Lah, 16, Sophomore; Evan John Pokornowski, 16, Freshman, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh

- Albuquerque, USNM01, Central New Mexico Regional Science and Engineering Challenge*  
**CELL0371 Cloning the Flying Gene: Molecular Genetic Analysis of the Hold Up (hup) Gene in *Drosophila***  
 Lien Tang, 15, Freshman, Manzano High School, Albuquerque, New Mexico,  
 T: Jennifer Tichy
- EAEV0681 Improving the Carbon Use Efficiency of Soil Microbial Communities: A Field Testing and Modelling Approach**  
 # Jarek Kwiecinski, 15, Sophomore, Albuquerque Institute of Math and Science, Albuquerque, New Mexico, T: Michael Harris
- PHYS060T Developing a More Efficient Fusion Reactor through Computer Modeling**  
 Jorge Antonio Perez, 15, Sophomore; Che Manuel Olavarria Gallegos, 16, Sophomore, Albuquerque Academy, Albuquerque, New Mexico,  
 T: James Mims
- Farmington, USNM02, San Juan New Mexico Regional Science and Engineering Fair*  
**BMED1411 Pucker Up: Genetic Similarities in Large Families**  
 Samantha Diane DeWees, 16, Sophomore, Piedra Vista High School, Farmington, New Mexico, T: Gail Silva
- EAEV0621 Agricultural Contaminants in the San Juan River**  
 Tyra Huyana Nicolay, 15, Sophomore, Navajo Preparatory School, Farmington, New Mexico, T: Yolanda Flores
- Grants, USNM03, Four Corners Regional Science and Engineering Fair*  
**EAEV0891 Getting the Dirt on Diversity**  
 Chali Ann Simpson, 16, Sophomore, Grants High School, Grants, New Mexico,  
 T: Shelby L. Alexander
- MCRO0181 Turf vs. Grass: Which Poses the Greatest Risk of Infection?**  
 Jordan Marie Woodbury, 17, Senior, Grants High School, Grants, New Mexico,  
 T: Shelby Lee Alexander
- Las Cruces, USNM04, Southwestern New Mexico Regional Science and Engineering Fair*  
**EGCH0461 Sustainable Bio-battery Utilizing Extracellular Charge Transfer Mechanism of Dissimilatory Metal-Reducing Bacteria**  
 # Edward Park, 16, Junior, Las Cruces High School, Las Cruces, New Mexico,  
 T: Young Ho Park
- ENEV0841 On Land or by Sea Oil Eating Bacteria, Part V**  
 # Michael Patrick Randall, 18, Senior, Mayfield High School, Las Cruces, New Mexico, T: Jennifer Randall
- Las Vegas, USNM05, Northeastern New Mexico Regional Science and Engineering Fair*  
**ENEV065T Crabyotics: Novel Chitosan Water Filtration – Structure and Filtration, Year Two**  
 Andrea Chin-Lopez, 15, Sophomore; Anthony Jade Archuleta, 16, Sophomore, Taos High School, Taos, New Mexico, T: Laura J. Tenorio
- PHYS0391 Coupled Hydrodynamic Ocean and Atmospheric Simulation of El Niño**  
 # # Coleman J. Kendrick, 17, Junior, Los Alamos High School, Los Alamos, New Mexico, T: Brian Kendrick
- Portales, USNM06, Southeastern New Mexico Regional Science and Engineering Fair*  
**ENMC0141 Autonomous Robotic Navigation Applied to Lawn Mowing**  
 Nathan Isaiah Christensen, 16, Junior, Carlsbad High School, Carlsbad, New Mexico, T: Deborah Haggerton
- Socorro, USNM50, New Mexico Science and Engineering Fair*  
**BEHA0531 Grid Based Learning Environment: A Tangible User Interface for the Blind and Visually Impaired, Phase Two**  
 # Sara S. Manshad, 16, Junior, Arrowhead Park Early College High School, Las Cruces, New Mexico, T: Muhanad S. Manshad
- BMED0641 The Cancer Breathalyzer: Chemical Strips that Detect Chemicals in Lung Cancer "Breathprint"**  
 Jon Tobin Goodart, 17, Junior, Grants High School, Grants, New Mexico,  
 T: Shelby Alexander
- BMED1071 Cell Immortality Revoked: Novel Method for Removing Gene Inhibitors from DNA to Induce Apoptosis to Kill Cancer Cells**  
 Priyanka Jain, 17, Junior, La Cueva High School, Albuquerque, New Mexico,  
 T: Kimberly Conell

EGCH0431 #	<b>Modeling Gas Flow in Hydraulically Fractured Shale</b> Jovan Y. Zhang, 17, Junior, Los Alamos High School, Los Alamos, New Mexico, T: Duan Zhong Zhang
MATH012I	<b>An Investigation of Mathematical Hat Games</b> Ruby Ellena Aidun, 16, Sophomore, Albuquerque High School, Albuquerque, New Mexico, T: Joan Newsom
MCRO059T	<b>Preventing Hospital Acquired Infections Using Permanent Nanostructure Surface Coatings on Invasive Devices</b> Esteban Luis Abeyta #, 18, Senior; Ashvini Rajendra Vaidya #, 17, Senior, Los Alamos High School, Los Alamos, New Mexico, T: Eva F. Abeyta
<b>NEW YORK</b>	
<i>Long Island, USNY02, Long Island Science and Engineering Fair</i>	
ANIM017I	<b>Oyster Reef Sustainability, A Piece of the Puzzle: Gamete Viability in <i>Crassostrea virginica</i>; Determining Temporal and Concentration Constraints</b> Justin Chad Weissberg, 16, Junior, Long Beach Senior High School, Lido Beach, New York, T: Cody Onufrock
BCHM013I	<b>Benzalkonium Chloride as an Ophthalmic Preservative: Examining Harmful Implications, Toxic Inhibition, and Potential Alternatives</b> Aaron Henry Wang, 16, Junior, Jericho Senior High School, Jericho, New York, T: Serena McCalla
BCHM014T	<b>Counteracting Pb2+ Induced Neurodegeneration: A Chemical and Genetic Approach towards Enhanced Synaptic Plasticity</b> Jason Christopher Fiacco, 17, Junior; Kevin Sadhu, 17, Junior, Manhasset High School, Manhasset, New York, T: Peter Guastella
BEHA016I	<b>Sticks and Stones May Break My Bones: Middle School Students' Perceptions of Bullying</b> Aansh Shah, 17, Senior, Roslyn High School, Roslyn, New York, T: Allyson Weseley
BMED032I #	<b>Repurposing CNI-1493 to Treat Alzheimer's Disease: Attenuation of Intracellular Amyloid Beta <i>in vitro</i> and <i>in vivo</i></b> Jinyu Wu, 18, Freshman, Manhasset High School, Manhasset, New York, T: Peter Guastella
BMED036I	<b>Evaluating the Capacity of NO-releasing Nanoparticles to Be Used in Conjunction with Earthworm Erythrocytes and Maintain NO Bioactivity: A Potential Blood Substitute Candidate</b> Abhinav Arunabh Talwar, 17, Senior, Herricks High School, New Hyde Park, New York, T: Renee Barcia
CBIO013I	<b>Predicting Fluid Intelligence from Resting-State Neural Connectivity</b> Jessica Li Huang, 16, Junior, Jericho Senior High School, Jericho, New York, T: Serena McCalla
CBIO015I	<b>Kinetic Modeling of Radiotracer [<sup>11</sup>C]OMAR for Accurate PET Imaging of the Cannabinoid Receptor Type 1</b> Danny Huang, 17, Senior, Jericho Senior High School, Jericho, New York, T: Serena McCalla
CELL012I #	<b>The Importance of Endocytosis to Neuregulin1 Back Signaling: Implications in Neuropsychiatric and Neurodegenerative Disorders</b> Scott Massa, 17, Senior, Commack High School, Commack, New York, T: Richard Kurtz
CELL023I	<b>Zip1 C-terminal Phosphorylation Promotes Zip1-Sgs1 Interaction in Meiotic Cells</b> Jay Wolf Zussman, 17, Senior, William A. Shine Great Neck South High School, Great Neck, New York, T: Carol Hersh
CHEM021I	<b>Formation of Poly(3-hydroxybutyrate) Inclusion Compounds with Urea and Thiourea</b> Pavithran T. Ravindran, 17, Senior, W. Tresper Clarke High School, Westbury, New York, T: Erika Rotolo
EAEV024I	<b>Using Geochemical Mapping of Marsh Foraminifera Tests to Analyze Cytoplasmic Deposition of Trace Elements</b> Benjamin Drew Senzer, 16, Junior, Syosset High School, Syosset, New York, T: Veronica Ade

EBED016I	<b>A Device for the Tracking of At-Home Medical Equipment during Natural Disasters</b> David Li, 16, Junior, Commack High School, Commack, New York, T: Richard Kurtz
EGPH012I	<b>Fueling the World One Layer at a Time: Improving the Efficiency of the Gratzel Cell with Nanotechnology</b> Aidan Rhys Dwyer, 17, Junior, Northport High School, Northport, New York, T: Bryan Horan
ENEV020I	<b>Synthesis of a Novel Metal Organic Framework with a PCU Topology for CO<sub>2</sub> Separation in CCS</b> Steve Daikai Zheng, 18, Senior, Jericho Senior High School, Jericho, New York, T: Serena McCalla
MATH011I	<b>The Base Dependent Behavior of Kaprekar's Routine: A Theoretical and Computational Study Revealing New Regularities</b> Daniel M. Hanover, 18, Senior, John L Miller Great Neck North High School, Great Neck, New York, T: Alan Schorn
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MCRO021I	<b>Designing a Genetic CRISPR-cas Detection Probe for Adherent Invasive Escherichia coli Utilizing Comparative Genomics</b> Brian Joseph Righter, 17, Senior, Smithtown High School East, Saint James, New York, T: Maria Zeitlin
PHYS019I	<b>Hybrid Graphene-Ferroelectric Devices Utilizing BaTiO<sub>3</sub>-SrTiO<sub>3</sub> Superlattices</b> Niyati Ketan Desai, 17, Senior, Ward Melville High School, East Setauket, New York, T: George Baldo
PLNT020T	<b>Investigating the Phytotoxicity of ZnO Nanoparticles and the Mechanism of Transport in the Prothallial Cells of Ceratopteris richardii</b> Meghan Dong Duo Bialt-DeCelie, 17, Senior; Benjamin David Golbin, 16, Junior; Levy Aaron Sominsky, 17, Junior, George W. Hewlett High School, Hewlett, New York, T: Terrence Bissoondial
SOFT020I	<b>A Hand-centric Gestural Interface for 3D Navigation and Interaction in Visualization</b> Justin Barish, 17, Senior, Kings Park High School, Kings Park, New York, T: Mary Ellen Fay
New York City,	<i>USNY03, New York City Science and Engineering Fair</i>
ANIM061I	<b>Diversity of Free-living Soil Nematodes in an Urban-Metropolitan Region</b> Kevin Lin, 17, Senior, Staten Island Technical High School, Staten Island, New York, T: John Davis
ANIM065I	<b>Computational Analysis of Neuronal Chromatin Structure and Nuclear PARP-1 and PAR Expression Provides Novel Marker for Detecting Learning Associated Changes in Mice</b> Anmolpreet Singh Kandola, 17, Senior, Stuyvesant High School, New York, New York, T: Jason Econome
BCHM036I	<b>Naturalistic Painkillers: Design, Synthesis, and Biological Evaluation of Novel Fatty Acid Binding Protein Inhibitors</b> Glenn Yu, 17, Senior, Hunter College High School, New York, New York, T: Gilana Reiss
BCHM038I	<b>A Novel Peptide Alters the Alzheimer's <math>\beta</math>-amyloid Equilibrium to Protect Against A<math>\beta</math> Oligomer Neurotoxicity</b> Yinge Zhao, 17, Freshman, The Dalton School, New York, New York, T: Lisa Brizzolara
#	
BEHA045I	<b>Effects of Credit Union Loans vs. Bank Loans on Employment and Firm Creation</b> Syeda Nusrath Wahid, 17, Senior, Bronx High School of Science, Bronx, New York, T: Timothy Huth
BMED108I	<b>Novel Treatment Strategy for Chronic Lymphocytic Leukemia: Malignant B1 Cell Depletion via Siglec-10 Stimulation</b> Jaison Jain, 16, Junior, Hunter College High School, New York, New York, T: Gilana Reiss
#	

<b>BMED112T</b>	<b>Characterization of A Novel Groundbreaking Radioresistance Pathway in the Endometrial Cancer Stem Cell Niche: The Interplay of WNT, Cyclooxygenase-2 (COX-2), and Hypoxia Inducible Factor-1a (HIF-1a)</b> Nelly Lin, 18, Senior; Ker-Cheng Chen, 18, Senior, Bronx High School of Science, Bronx, New York, T: Vladimir Shapovalov
<b>CBIO060I</b>	<b>A Novel Computational Method for Subdividing Hepatocellular Carcinoma Patients into Uniquely Treatable Clusters</b>
<b># #</b>	Axel Stephan Feldmann, 18, Senior, Hunter College High School, New York, New York, T: Gilana Reiss
<b>CELL049I</b>	<b>Examining the Role of IL-2 Receptor Mediated Signaling in <i>Alopecia areata</i></b> Yi Hua Chen, 16, Junior, Bronx High School of Science, Bronx, New York, T: Robert Muratore
<b>ENEV066I</b>	<b>Degradation of TPH- Diesel in Soil through Mycoremediation</b> Lucy Lin, 17, Senior, Midwood High School, Brooklyn, New York, T: Glenn Elert
<b>ENEV080T</b>	<b>BioDissolve: The Natural Breakdown of Polystyrene Waste through the Application of Pseudomonas putida to Produce Usable Byproducts</b> James Savoldelli, 17, Junior; Hugh Savoldelli, 17, Junior; Drew Tomback, 17, Junior, Columbia Grammar and Preparatory School, New York City, New York, T: Cheng San Tan
<b>MATH034I</b>	<b>Categorizing Point Sets with No Empty Pentagons</b> George Drimba, 17, Senior, Stuyvesant High School, New York, New York, T: Jason Econome
<b>MATH036I</b>	<b>Solution to the Realization Problem for Two Element Delta Sets</b>
<b>#</b>	Stefan Luka Colton, 18, Senior, Hunter College High School, New York, New York, T: Gilana Reiss
<b>PHYS047I</b>	<b>Pion Condensates in an External Magnetic Field</b> Julia Samantha Sakowitz, 16, Senior, The Brearley School, New York, New York, T: Laurie Seminara
<b>ROBO021I</b>	<b>A Novel Controller for Soft Robots: An Experimental Usage of Linear Temporal Logic Mission Planning (LTLMoP) with an Optimized Elastomeric Actuator</b> Simone Braunstein, 17, Junior, The Dalton School, New York, New York, T: Lisa Brizzolara
<i>Poughkeepsie, USNY01, Dutchess County Regional Science Fair</i>	
<b>MATS030I</b>	<b>Synthetic Cryolite Nanoparticles: A Potential Rare Earth Doped Host Material Capable of Matching the Refractive Index of Numerous Vascularized-Tumor Fluids</b> Nikhil Dhawan, 17, Senior, Spackenkill High School, Poughkeepsie, New York, T: Amy Matts
<i>Queens, USNY50, New York State Science and Engineering Fair</i>	
<b>BCHM032I</b>	<b>Toward a Novel Treatment for Corneal Scarring: Establishing the Roles of TRPV1 and TGF-B1 in the Fibroblast-to-Myofibroblast Differentiation</b>
<b>#</b>	Abrar Ali Nadroo, 17, Senior, Syosset High School, Syosset, New York, T: Veronica Ade
<b>BEHA050I</b>	<b>A Novel Calculation of Localized US Congressional Shortest Split Line Districts and Its Implications</b> Jack Tyler Robbins, 17, Senior, Syosset High School, Syosset, New York, T: Veronica Ade
<b>BMED143I</b>	<b>Comparative Analysis of Cerebrospinal Fluid and Peripheral Blood in Patients with Schizophrenia and Healthy Controls: mACHr and NMDAR Autoantibody Presence and VH Subfamily Usage</b> E. Madeline Rose Fagen, 17, Junior, Paul D. Schreiber Senior High School, Port Washington, New York, T: John Michael Schineller
<b>CBIO039I</b>	<b>A Novel Algorithm to Determine the Functionality of Brain Stem Glioma Associated Single Nucleotide Polymorphisms</b> Ishan Datt, 17, Junior, Syosset High School, Syosset, New York, T: Mary Hendrickson



<b>CBIO040T</b>	<b>Identification of Differentially Expressed Genes in Pancreatic Regulatory T Cell Survival</b> Jake Spencer Carrion, 16, Junior; Michael Benett Carrion, 16, Junior, Jericho Senior High School, Jericho, New York, T: Serena McCalla
<b>EGCH039T</b>	<b>Natural, Cost-Effective Anodes for Optimized Sediment Microbial Fuel Cells: Engineering a Novel Approach to Harvesting Energy and Cleaning Up Oil-Polluted Regions</b> Kimberly Alexis Te #, 17, Junior; Christine Yoo, 16, Junior, Manhasset High School, Manhasset, New York, T: Peter Guastella
<b>MATS042I</b>	<b>Advancing Energy Storage Materials through the Development of Quasi-Aligned Graphene Fibers with Enhanced Thermal and Electrical Conductivities</b> Liana J. He, 17, Senior, Half Hollow Hills High School West, Dix Hills, New York, T: Michael Lake
<b>MATS043I</b>	<b>The Development of a Microfluidic Device to Assess the Chemotaxis of Bacteria</b> Ariel Slepyan, 17, Junior, George W. Hewlett High School, Hewlett, New York, T: Terrence Bissoondial
<b>MCRO045I</b>	<b>Mis-Disordered Tau Protein Interactions with <i>Curcuma longa</i> Utilizing a <i>C. elegans</i> Model</b> Maliya Brianna Rodriguez, 15, Sophomore, Elmont Memorial Junior Senior High School, Elmont, New York, T: Michelle Flannory
<b>SOFT039T</b>	<b>Generation via Embedding of Quasi-Optimal Networks for Application in High Performance Computing</b> Sahil Abbi, 16, Junior; Arjun Kapoor, 17, Senior, Herricks High School, New Hyde Park, New York; The Wheatley School, Old Westbury, New York, T: Renee Barcia, Mary Alexis Blondrage
<i>Syracuse, USNY06, Central New York Science and Engineering Fair</i>	
<b>CELL030I</b>	<b>The Impact of Myosin 1e Knockout on Podocyte Structure</b> Lwam Tberh Asfaw, 15, Sophomore, Manlius Pebble Hill School, DeWitt, New York, T: Mira Krendel
<b>EBED032I</b>	<b>HaptoTech: Creating Wearable Proximity Warning Devices for the Visually Impaired</b> Alexander Frederick Wulff, 15, Sophomore, Skaneateles High School, Skaneateles, New York, T: Rick Garrett
<i>Syracuse, USNY10, Dr. Nelson Ying Tri Region Science and Engineering Fair</i>	
<b>CELL038I</b>	<b>A Novel Mouse Model to Mimic the Evolution of Cancer</b> Ramzi David Talhouk, 17, Junior, City Honors School at Fosdick Masten Park, Buffalo, New York, T: Todd Richards
<b>ENMC052I</b>	<b>Airplane Wing Gust Suppression by Active Flow Control</b>
# #	Scott Alexander Boltt, 17, Junior, Potsdam High School, Potsdam, New York, T: April Yvonne Rossiter
<b>SOFT047I</b>	<b>Optimization of Multileaf Collimator Geometric Parameters to Improve VMAT Plans in Radiation Therapy</b>
#	Hakeem Mohamed Salem, 16, Junior, City Honors School at Fosdick Masten Park, Buffalo, New York, T: Todd Richards
<i>Troy, USNY07, Greater Capital Region Science and Engineering Fair, Inc.</i>	
<b>BMED081I</b>	<b>Stop the Bleeding! Discovery of a Novel Hemostatic Agent</b>
#	Deena S. Mousa, 16, Junior, Emma Willard School, Troy, New York, T: Linda Maier
<b>PHYS040I</b>	<b>Three Dimensional Object Tracking Using a Rapid Scanning Double Droplet System Microscope</b>
# #	John L. Dean, 17, Freshman, Scotia Glenville High School, Scotia, New York, T: Chris Judd
<b>ROBO015I</b>	<b>Robotic Autonomous Experimental Design</b> Rishab Jaggi, 17, Junior, Shaker High School, Latham, New York, T: Nathaniel Covert
<i>Utica, USNY08, Utica College Regional Science Fair</i>	
<b>CELL055I</b>	<b>Optimizing the Culture Conditions for Differentiation of Human-induced Pluripotent Stem Cells into Cardiac Cells</b>
#	Suveer Desai, 18, Senior, New Hartford Senior High School, New Hartford, New York, T: Michael Xavier Doss Jesudoss

- Westchester, USNY05, Regeneron-Westchester Science and Engineering Fair
- BCHM021I** **Investigating the Protective Effects of Interleukin 22 on Intestinal Epithelium: Potential Graft-versus-Host Disease Treatment**  
Juliet Adela Ivanov, 17, Senior, Ossining High School, Ossining, New York, T: Angelo Piccirillo
- BEHA018T** **Examining the Development of Multisensory Integration in Speech Processing through the McGurk Illusion**  
Brinda Ramesh, 17, Senior; Nicole Ruiz, 18, Senior, Ossining High School, Ossining, New York, T: Valerie Holmes
- BMED067I** **Tumor Cell Streaming towards Blood Vessels in the Metastatic Cascade Is Mediated by Endothelial Cell-Secreted Hepatocyte Growth Factor**  
Alice Xue, 16, Junior, Pelham Memorial High School, Pelham, New York, T: Steven Beltecas
- BMED099I** **Neuropeptide-Y Receptor Y2 Antagonism Attenuates Inflammatory Bowel Disease-like Pathology**  
Stephanie Marie Becker, 17, Senior, Ossining High School, Ossining, New York, T: Valerie Holmes
- CELL025I** **Protein "Gene Therapy": Correcting Juvenile Hemochromatosis Using Targeted Delivery of the BMP Co-receptor HJV**  
# Elizabeth Boyle Sobolik, 17, Senior, Sleepy Hollow High School, Sleepy Hollow, New York, T: Janet Longo-Abinanti
- CELL026I** **Understanding the Effects of siRNA Knockdown of ErbB Receptors on GGF2 Signaling Potency**  
Evan Lloyd Caracta Cain, 17, Senior, Dobbs Ferry High School, Dobbs Ferry, New York, T: Thomas Callahan
- ENEV041I** **Recycling Hair: Investigating Flocculation as an Alternate Method of Assembling Hair Fibers for Oil Recovery**  
Dominique Marie Marchini, 17, Junior, Sleepy Hollow High School, Sleepy Hollow, New York, T: Michele Zielinski
- ENMC024I** **Solving the Energy Crisis One Step at a Time**  
Swarnav Pujari, 18, Senior, Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass
- MATS031T** **Application of Flame Retardant Treated Halloysite Nanotubes in Foam and Plastic Polymers**  
Jeffrey Joy Hurd Jr., 17, Senior; Christin Abraham, 18, Senior, Pelham Memorial High School, Pelham, New York, T: Efstathios Beltecas
- MCRO023T** **The Effect of Copper on Apicomplexan Parasites**  
Gowri Viswanathan, 17, Junior; Amba Viswanathan, 17, Junior, Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass
- MCRO024I** **Activation of Pro-Inflammatory Genes Suggests Pathogen-Associated Molecular Pattern (PAMP) Component in Giardia lamblia Recognized by the Murine Innate Immune System**  
Samuel Jeremy Lewis, 17, Senior, Edgemont Junior/Senior High School, Scarsdale, New York, T: Maria DeCandia
- PHYS029I** **Characterization of Light-Matter Interactions in Graphene/MoS2 Photodetectors**  
Michael Thomas Earle, 17, Junior, Ossining High School, Ossining, New York, T: Angelo Piccirillo
- ROBO014I** **Automatic Seizure Prediction and Monitoring Algorithms and Evaluation for a Single, Strategically-placed, Bipolar Electroencephalogram**  
Andrew Ethridge Amini, 16, Junior, Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass
- NORTH CAROLINA**  
Charlotte, USNC01, Charlotte-Mecklenburg Regional Science Fair
- BMED041I** **A Novel Synergistic Approach for Enhancing Immunotherapy in the Treatment of Melanoma**  
# Emily Lorin Ashkin, 17, Senior, Providence Day School, Charlotte, North Carolina, T: Amy Jordan

- CBIO003T** **Introducing Hierarchical Aspect to Protein Residue Principle Component Analysis for Molecular Dynamics Simulation of Recombinant Vaccine to Detect Vital Alpha Carbon Motions**  
Aniket Sachin Palkar, 18, Senior; Prithvi Potharaju #, 17, Senior, Marvin Ridge High School, Waxhaw, North Carolina; Ardrey Kell High School, Charlotte, North Carolina, T: Robin Filter  
*Durham, USNC02, North Carolina Central Region III Science Fair*
- BMED085I** **High Content Analysis and Targeting Cancer-Specific Pathway in Three Dimensional Breast Cancer Tumor Spheroids**  
Arjun Jay Arora, 17, Junior, William G. Enloe High School, Raleigh, North Carolina, T: Mark Dewhirst  
*Durham, USNC03, North Carolina Science Fair Region 3B*
- MATS004I** **Enhancing Photoexcitation Energy Transfer in a Novel Graphene-Colloidal Quantum Dot Interface**  
Alexander Li, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Jonathan Bennett  
*Raleigh, USNC50, North Carolina State Science Fair*
- ANIM052T** **Electroantennogram Assays to Determine *Megacopta cribraria* Response to [E]-2-hexenal, Tridecane, and [E]-2-decenal**  
Abigail Anne Williams #, 17, Freshman; Carly Onnink #, 17, Junior, Brevard Senior High School, Brevard, North Carolina, T: Jennifer Williams
- ANIM060T** **The Search for *Pityophthorus juglandis* and Associated *Geosmithia morbida* in Transylvania County, NC**  
Sarah Branagan, 14, Freshman; Crista Cali, 14, Freshman, Brevard Senior High School, Brevard, North Carolina, T: Jennifer Williams
- CBIO037I** **Novel Application of Microwave Power Transfer for the Recharging of Batteries in Biomedical Devices**  
Daniel Lewis Magley, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Jonathan Bennett
- CELL054I** **The Mechanistic Basis for Recombinase Upregulation in CD4+CD8+ Thymocytes**  
Aaron Carl Kenneth Lucander, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin
- CHEM070I** **Isomer Chemistry: Design Ligands to Adjust Thermodynamics and Kinetics for Rare-Earth Metal Extraction and Rhodium Catalyzed Hydroformylation**  
Caroline Liu, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin
- EAEO078I** **Low-cost Heteronanostructure Semiconductor Uses Visible Light Energy to Efficiently Degrade Toxins Threatening Aquatic Life**  
Joshua Zhou, 16, Sophomore, East Chapel Hill High School, Chapel Hill, North Carolina, T: Wu Dong
- EGCH036T** **Optimization and Understanding of Exciton Diffusion in Organic Solar Cells via Novel Monte Carlo Modeling**  
Taesoo Daniel Lee, 16, Junior; Alexander Nanor, 16, Junior, North Carolina School of Science and Mathematics, Durham, North Carolina; Myers Park High School, Charlotte, North Carolina, T: Myra Halpin
- EGCH042I** **Synthesis of Thinner Electrodeposited Polymer Solar Cell Interfaces in Organic Photovoltaics (OPVs)**  
Adithya Veeraraghavan Iyengar, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin
- EGPH043I** **Reducing Power Consumption Using an Arduino Based Relay Light-Switch through a Dual Laser Tripwire System**  
Rohan Deshpande, 15, Freshman, East Chapel Hill High School, Chapel Hill, North Carolina, T: Anagha Kalvade
- ENEV064T** **A Green and Novel Technology to Recover Copper and Wood from Treated Wood Waste, Part II**  
Sharon J. Chen, 16, Junior; Rohan Patel, 16, Sophomore, North Carolina School of Science and Mathematics, Durham, North Carolina; Mallard Creek High School, Charlotte, North Carolina, T: Myra Halpin, Lehong Jin

- PHYS0501** **Creating a Hybrid Agent/Grid Model of Contact-Induced Force**  
Uday Uppal, 17, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Robert Gotwals
- PLNT0621** **Understanding Parasitism: Plant Transcription Factor Is Regulated in a Strain-Dependent Manner by Root-Knot Nematode**  
Holly Ren, 17, Junior, William G. Enloe High School, Raleigh, North Carolina, T: David Bird

## NORTH DAKOTA

*Bismarck, USND01, Southwest Central North Dakota Regional Science and Engineering Fair*

- BMED0791** **Laparoscopic Post-Operative Pain: A Basic Scientific Approach Investigating the Removal of Carbon Dioxide Gas from the Abdominal Cavity**

Riley A.S. McLean, 16, Sophomore, Saint Mary's Central High School, Bismarck, North Dakota, T: Julie Hein

- PHYS0311** **An Exploration of Antimatter by Observation of Alpha and Beta Decay within Three Distinct Cloud Chamber Apparatuses**

Christopher Ray Dean, 16, Sophomore, Dickinson High School, Dickinson, North Dakota, T: CaraLee Kathryn Heiser

*Fargo, USND03, Southeast North Dakota Regional Science and Engineering Fair*

- ANIM0581** **The Comparative Assessment of Various Feeds on *Capra hircus***

Martin Charles Krump, 17, Junior, Hankinson Public School, Hankinson, North Dakota, T: Patricia M. Kratcha

*Grand Forks, USND05, Northeast North Dakota Regional Science and Engineering Fair*

- EGCH0371** **Sweet Success: Fueling our Future with Fermentation**

Wesley Randall Kemp, 15, Freshman, Valley-Edinburg Public School, Edinburg, North Dakota, T: Chad D. Kemp

*Grand Forks, USND50, North Dakota State Science and Engineering Fair*

- EAEV0611** **An Assessment of Drainage Systems in Richland County Corn Fields**

Lakin Kathleen Mauch, 16, Sophomore, Hankinson Public School, Hankinson, North Dakota, T: Patricia Kratcha

- EGPH0361** **Solar Engine Applications III**

# # Sean Michael Loken, 17, Junior, Wishek Public School, Wishek, North Dakota, T: Joshua Wiest

- PLNT0451** **A Comparative Study on Natural Pesticides for Potatoes**

# Mya Jo Steinwehr, 15, Sophomore, Hankinson Public School, Hankinson, North Dakota, T: Patricia Kratcha

*Jamestown, USND04, Southeast Central North Dakota Science and Engineering Fair*

- EAEV0511** **Grazing for Rain**

Desa Lynn Sand, 14, Freshman, Ellendale High School, Ellendale, North Dakota, T: Peter Sykora

- PLNT0541** **The Application of Herbicides and Nitrogen on Glycine Max**

Cole Trevor Ketterling, 16, Freshman, Wishek Public School, Wishek, North Dakota, T: Josh Wiest

*Velva, USND02, North Central North Dakota Science and Engineering Fair*

- MCRO0441** **Cyanobacteria: Not Just Green in Color!**

Bryce Rinde Florence, 17, Junior, Velva Public School, Velva, North Dakota, T: Vicki Olson

*Williston, USND06, Northwest North Dakota Regional Science Fair*

- ANIM0531** **Oink-ity Oink**

Cheyenne Liedle, 18, Senior, Tioga High School, Tioga, North Dakota, T: Debra Moe

- ENMC0441** **The Train Illuminator: A Self-powered Visibility Enhancement System for Safer Railroad Crossings**

Keenan Jeffrey Black, 18, Senior, Black Homeschool Academy, Williston, North Dakota, T: Charles D. Black

## OHIO

Archbold, USOH06, Northwest Ohio Science and Engineering Fair

**BEHA0121 Analyzing Female Gender Roles in Marvel Comics from the Silver Age (1960) to the Present (2014)**  
Katherine Janeway Murphy, 17, Junior, Hicksville Exempted Village High School, Hicksville, Ohio, T: Paul Payne

**EBED0071 Using Radio Frequency Energy Harvesting in Near Field EEPROMs to Assist the Blind in Urban Environments**

# # Travis B Lysaght, 17, Junior, Hicksville Exempted Village High School, Hicksville, Ohio, T: Paul Payne

Athens, USOH01, Southeastern Ohio Regional Science and Engineering Fair

**ENMC0381 The Feasibility of Using an Electric Arc Flash as a Propellant**  
Nathanael Joshua Freeman, 17, Junior, Zane Trace High School, Chillicothe, Ohio, T: Jason Z Clark

Cleveland, USOH02, Northeastern Ohio Science and Engineering Fair

**BEHA0321 General Indecisiveness versus Specific Indecision and Their Relationship to Self-Esteem**

Grace Catherine Mascha, 18, Senior, Beaumont School, Cleveland Heights, Ohio, T: Samiha Iskander

**BMED0691 The Effect of Polyphenols in Spices on the Aggregation of the Amyloid-Beta Peptide 1-40, an *in vitro* Study**

Swathi Srinivasan, 15, Sophomore, Beachwood High School, Beachwood, Ohio, T: Stephen Haynesworth

**CELL0471 The Effect of Small Molecule Activators of PP2A (SMAPs) on N-Myc Driven Neuroblastomas**

Hiral Patel, 17, Senior, Mentor High School, Mentor, Ohio, T: Lori Cohen

**EBED0481 SmartNotes: An Intelligent System that Enhances Efficient Social Communication in Learning Environments**

Zeynep Ozgur, 16, Sophomore, Hudson High School, Hudson, Ohio, T: Sheila Baldessari

**EGPH0521 Self-Powered Wireless Sensor Network for Smart Buildings**

Robert Matthew Gray, 18, Senior, Hawken School, Gates Mills, Ohio, T: Robert Shurtz

Columbus, USOH11, Buckeye Science and Engineering Fair

**CBIO0591 Improved Cancer Detection and Diagnosis through a Novel Combination of Cell Segmentation and Artificial Intelligence Techniques**

Sreeram Venkatarao, 15, Sophomore, William Mason High School, Mason, Ohio, T: Karen Young

**CHEM0661 The Viability of Switchable Hydrophilicity Solvents for Lipid Extraction in Algal Biofuel Production**

Pallavi Lanka, 17, Junior, Sylvania Southview High School, Sylvania, Ohio, T: Blythe Tipping

**EGPH0481 Sulfurization of Thin-Film Copper Antimony Sulfide for Low Cost and Environmental Friendly Solar Cells**

Richard B. Jin, 17, Junior, Maumee Valley Country Day School, Toledo, Ohio, T: Jami Barnes

**EGPH0531 Fabrication of Photovoltaic Dress to Power Electronic Devices**

Allison Fern Clausius, 18, Senior, Sylvania Southview High School, Sylvania, Ohio, T: Blythe Tipping

Dayton, USOH04, Montgomery County Science and Engineering Fair

**ANIM0401 Alzheimer's and Drosophila: Effect of Age on Efficacy of Treatment in a Model System**

# # Elise Nicole Paietta, 17, Junior, Carroll High School, Dayton, Ohio, T: Laurie Fuhr

**ENEV0431 Sustainable Water Cleaning System for Point-of-Use Household Application in Developing Countries to Remove Contaminants from Drinking Water**

# # Bluyé DeMessie, 18, Senior, William Mason High School, Mason, Ohio, T: George Sorial

- ROBO009I** **Traffic Camera Distracted Driver Detection (TCD<sup>^</sup>3): Contextually Aware Heuristic Blob Analysis of Traffic Camera Footage to Identify Anomalous Driving**  
Vidur Tenali Prasad, 16, Junior, Dayton Regional STEM School, Kettering, Ohio, T: Kate Cook Whitt  
*Marion, USOH07, Marion Area Science and Engineering Fair*
- BMED087T** **Prophylactic Biochanin A Induces GOT Expression and Protects Against Acute Ischemic Stroke**  
Madeline Rachel Fuller, 17, Senior; Anjali Dubbaka, 18, Senior, Village Academy, Powell, Ohio; Olentangy Liberty High School, Powell, Ohio, T: Jenny Harris, Ron Waterwash
- CELL039I** **Cloning and Sequencing of the Lacc2 Laccase Gene from the Ligninolytic Basidiomycete *Pleurotus ostreatus***  
#  
Srinath Vijay Seshadri, 15, Sophomore, Village Academy, Powell, Ohio, T: Sudhasri Mohanty  
*Shaker Heights, USOH05, Hathaway Brown Upper School Fair*
- BMED014I** **Mesenchymal Stem Cells: Innovations in Infection and Inflammation Therapy**  
Morgan Sutton, 18, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Tracey Bonfield
- BMED121I** **The Role of Deptor in Breast Cancer Metastasis**  
Christine Therese Espinosa, 17, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Hunt
- CBIO008I** **A Nanomedicine Approach for Targeted Thrombolysis**  
Kavya Ravichandran, 16, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Crystal M. Miller  
*Upper Arlington, USOH09, Central Ohio Regional Science and Engineering Fair*
- MATS040T** **Investigation of a Novel, Endothermic, Inorganic Fiber to Improve the High Temperature Performance of Fire-Resistant Protective Apparel**  
Savannah A. Cofer, 17, Junior; Varun V. Vallabhaeni, 16, Junior, Columbus Academy, Gahanna, Ohio, T: Thomas Devore, Thomas Devore  
*Wilberforce, USOH03, Miami Valley Science and Engineering Fair*
- CBIO041T** **Design and Evaluation of a Multisensor Bioelectrical System for Diagnosis of Atrial Fibrillation**  
Karthik Balaji Chakravarthy # # #, 18, Senior; Rohit Vallabh Chakravarthy #, 16, Sophomore, Beaver Creek High School, Beaver Creek, Ohio, T: Dave Yoder
- OKLAHOMA**  
*Ada, USOK07, East Central Oklahoma Regional Science and Engineering Fair*
- BMED011I** **The Effect of Interpupillary Distance on Peripheral Vision**  
Chloe Dawn Reich, 15, Freshman, Sasakwa High School, Sasakwa, Oklahoma, T: Clarence Bradford Story  
*Ada, USOK50, Oklahoma State Science and Engineering Fair*
- BMED113I** **Preferential Cytotoxicity of Groundwater Levels of Arsenic on Tissue-Specific Cancer Cells**  
Hannah Mackenzie Easley, 18, Senior, Cascia Hall Preparatory School, Tulsa, Oklahoma, T: Sally Fenska
- BMED114I** **Evaluating the Viability of Multiple Carcinogenic Cell Lines to Novel Chemotherapeutic TU100 with the Effects of Ascorbate on ROS Generation, a Second Year Study**  
Chase Alexander Antonacci, 19, Senior, Cascia Hall Preparatory School, Tulsa, Oklahoma, T: Sally Ann Fenska
- ENMC065I** **Finding the Safest Shape**  
Greta Melinda Olsen, 15, Freshman, Bartlesville Mid-High School, Bartlesville, Oklahoma, T: Cheryl Fentress  
*Alva, USOK01, Northwestern Oklahoma State University Regional Science Fair*
- PHYS018T** **Physics of Archery**  
Kason Keith Gamble, 15, Freshman; Colton Shane McCracken, 16, Freshman, Vici Public Schools, Vici, Oklahoma, T: Trisha Salisbury

*Bartlesville, USOK02, Bartlesville District Science Fair*

**MCRO0201 Dubious Desks: A Comprehensive Study to Identify and Resolve Microorganism Contamination on Office Desk Surfaces**

Allison Ann Biddinger, 15, Freshman, Bartlesville Mid-High School, Bartlesville, Oklahoma, T: Cheryl Lynn Fentress

**PLNT0411 Quit Bugging Me: The Effects of Capsaicin on *Acheta domesticus* and *Zophobas morio***

James Bryan Martinez, 14, Freshman, Bartlesville Mid-High School, Bartlesville, Oklahoma, T: Cheryl Fentress

*Edmond, USOK03, Central Oklahoma Regional Science and Engineering Fair*

**ANIM0381 Nematode Nightmares: RF Radiation Effects on the *C. elegans* Neuron**

Lauren Nicole York, 17, Junior, Southmoore High School, Moore, Oklahoma, T: Darla Kay Wyatt

*Miami, USOK04, Northeastern Oklahoma A&M Science and Engineering Fair*

**ENEV0191 The Heavy Metal Movement Phase II: A Field and Laboratory Study of *Panicum virgatum* L. and Its Ability to Phytoremediate Soil from the Tar Creek Superfund Site**

# McKalee Steen, 17, Junior, Grove High School, Grove, Oklahoma, T: Keli Dawn Steen

*Muskogee, USOK05, Muskogee Regional Science and Engineering Fair*

**ENMC0481 Improving Multirotor Efficiency and Flight Times**

Waylon Reid Williams, 17, Junior, Muldrow High School, Muldrow, Oklahoma, T: Altha Bell Hall

*Wilburton, USOK09, Eastern Oklahoma Regional Science and Engineering Fair*

**MCRO0521 Evaluating the Antimicrobial Efficacies of Algal Extracts on Antibiotic Sensitivity, Planktonic Cell Growth, and Biofilm Formation in Selected Bacteria**

# Beau Taylor Bingham, 15, Sophomore, Cascia Hall Preparatory School, Tulsa, Oklahoma, T: Sally Ann Fenska

## OREGON

*Bend, USOR08, Central Oregon Community College Regional Science Expo*

**ANIM0121 Pisaster Disaster: Population Infection Dynamics of Sea-Star Wasting Disease in *Pisaster ochraceus***

Cole Alan Fuller, 16, Sophomore, Bend Senior High School, Bend, Oregon, T: David Bermudaz

*Eugene, USOR07, Central Western Oregon Science Expo*

**BMED0181 Cardiac Strain and Left Ventricular Mass Quantification for Hypertrophic Cardiomyopathy Using 4D Echocardiography**

# Hannah Tam, 17, Freshman, Winston Churchill High School, Eugene, Oregon, T: Meihua Zhu

**ENEV0211 The Feasibility of Removing Holden Creek Tidegates to Reduce Municipal Flooding in Tillamook, Oregon**

Kestrel Grace Bailey, 18, Senior, Tillamook High School, Tillamook, Oregon, T: Clair Thomas

*Gresham, USOR01, Gresham-Barlow Science Expo*

**BCHM0181 Treating Alzheimer's Disease: New Proposal for Grayanotoxin Ligand Binding to the Carbonic Anhydrase I Receptor**

Nandini Tondamantham Naidu, 14, Freshman, Valley Catholic High School, Beaverton, Oregon, T: Amy Lacks

**BEHA0171 Comparing the Personality Traits of Dog Owners and Parents**

Austin L. Gardner, 17, Junior, Gresham High School, Gresham, Oregon, T: Kathy Childress

**CHEM0111 A Novel 3D Polymeric Nanoparticle Network for Detecting and Remediating Trace Level Toxic Free Radicals (Propagators and Precursors of Chronic and Degenerative Diseases)**

Arnob Das, 15, Freshman, Jesuit High School, Portland, Oregon, T: Katherine Foulke

*Hillsboro, USOR04, Beaverton-Hillsboro Science Expo*

**BEHA0131 A Novel Animal Model to Replicate Alcohol-Seeking Behavior in Humans**

Ajitha Mallidi, 16, Sophomore, Westview High School, Portland, Oregon, T: Debbie Cooper



<b>BMED065I</b>	<b>It's a Matter of Life and Breath: A Novel Computer Diagnosis Tool for Early Detection of Lung Cancer SPNs towards Big Data Analysis</b> Aditya Jain, 15, Freshman, Westview High School, Portland, Oregon, T: Debbie Cooper
<b>ENMC012I</b>	<b>An Innovative Method for Protecting Optical and Sensory Devices on NASA's Curiosity Martian Rover and Other Terrestrial Rovers by Using Electrostatic Properties</b> Ashwin Nivas Datta, 16, Sophomore, Glencoe High School, Hillsboro, Oregon, T: Susan Weidkamp
<b>SOFT041I</b>	<b>A Novel Human Machine Interface: Hardware Implementation of the Kalman Filter with Faddeev's Algorithm for Advanced Co-Processing</b> Alan De-Hao Cheng, 17, Senior, Southridge High School, Beaverton, Oregon, T: David Holz
<i>Portland, USOR02, Portland Public Schools Science Expo</i>	
<b>CELL024I</b>	<b>Piperine: A Novel Treatment for Melanoma</b> Yiling Ashley Liu, 16, Junior, Lincoln High School, Portland, Oregon, T: Amala Soumyanath
<b>EAEV044I</b>	<b>Weather or Not, Sometimes It's Hot: Secondary Data Analysis of Northwest Streams</b> Adam C. Nayak, 15, Freshman, Cleveland High School, Portland, Oregon, T: Ronda Marie Royal
<b>ROBO002I</b>	<b>Development of a General Data Mining Methodology based on a Novel Weighted Hierarchical Adaptive Voting Ensemble Method and Its Applications</b>
#	Clemen Zineng Deng, 17, Junior, Lincoln High School, Portland, Oregon, T: Yuchen Huang
<i>Portland, USOR05, Aardvark Science Exposition</i>	
<b>BEHA009T</b>	<b>Capacity Limits of Working Memory: The Impact of Multitasking on Cognitive Control in Digital Natives and Digital Immigrants</b> Alexandra Ulmer #, 18, Senior; Sarayu Caulfield #, 17, Senior, Oregon Episcopal School, Portland, Oregon, T: Peter Langley, Peter Langley
<b>EBED053I</b>	<b>Parallel Implementation of the Convolution Operation in Quotient Polynomial Rings for the NTRU Cryptosystem</b> Vikul Gupta, 16, Junior, Oregon Episcopal School, Portland, Oregon, T: Peter Langley
<b>ENEV047I</b>	<b>The Development of an Oleophilic and Hydrophobic Polystyrene Synthetic Polymer Coated Cotton for High Efficiency Marine Oil Spill Absorption</b>
#	Sahil Veeramoney, 15, Sophomore, Oregon Episcopal School, Portland, Oregon, T: Bevin Daglen
<b>MATS006I</b>	<b>Fabrication, Characterization, and Modeling of an RRAM-Based Synapse for Neuromorphic Applications</b> Vineet Edupuganti, 15, Sophomore, Oregon Episcopal School, Portland, Oregon, T: Bevin Daglen
<i>Portland, USOR50, Intel Northwest Science Expo</i>	
<b>BEHA059I</b>	<b>Concussion Symptoms in Relation to Brain Maturity</b> Krista Wurscher, 16, Junior, West Linn High School, West Linn, Oregon, T: Jonathan Davies
<b>BMED115I</b>	<b>Respiratory Illness Diagnosis through Time and Spectral Based Sound Analysis</b> Joan Marie Hady, 16, Sophomore, Oregon Episcopal School, Portland, Oregon, T: Bevin Daglen
<b>CHEM075I</b>	<b>Reduction of Carbon Dioxide Using a Novel Electrochemical Method with Antimony and Lithium Doped Tin Dioxide Nanoparticles</b>
#	Nikhil Murthy, 15, Sophomore, Catlin Gabel School, Portland, Oregon, T: Veronica Ledoux
<b>EGPH045I</b>	<b>Novel Automated Designs and Rapid Multivariate Optimization of Next-Generation Multijunction Quantum Dot Solar Cells Using Monte Carlo Modeling</b>
# # #	Valerie S. Ding, 18, Senior, Catlin Gabel School, Portland, Oregon, T: Veronica Ledoux

- PHYS057T** **Assessing the Photometry of GSC 03144-00595: A Radially Pulsating, Delta Scuti, Triple Mode Variable Star**  
Grant Hubbard Kresge, 17, Junior; Evan Lavery, 17, Junior, Wilsonville High School, Wilsonville, Oregon; Oregon Episcopal School, Portland, Oregon, T: Bevin Daglen
- PLNT064I** **A Novel Quantification of the Complex Geometries of Low Light Surviving Plants Using Fractal Analysis to Investigate a Basis of a New and Unique Allometric Measure of Plants**  
Chaitanya Dasharathi Karamchedu, 15, Sophomore, Jesuit High School, Portland, Oregon
- West Linn, USOR06, CREST-Jane Goodall Science Symposium*
- BEHA030I** **Development of GAD2 Expressing Cells in the Zebra Finch HVC during Critical Periods of Song Learning**  
Daniel Danhang Tang, 18, Senior, West Linn High School, West Linn, Oregon, T: Nancy Monson
- BEHA046I** **The Economics of Decision-Making: Measuring and Modeling the Effects of Social Pressure on Incentive Selection**  
Henry Li, 18, Senior, West Linn High School, West Linn, Oregon, T: Monica Emerick
- MCRO025I** **Identification of a Crucial Legionnaire's Disease Virulence Factor: The Transmembrane Permease Lpg0730 Is Integral to the Ability of Legionella pneumophila to Infect Protozoan Host Cells**
- #** Nicholas P. Miller, 18, Freshman, West Linn High School, West Linn, Oregon, T: Amy Schaeur

## PENNSYLVANIA

*Harrisburg, USPA01, Capital Area Science and Engineering Fair*

- BEHA036I** **Growing Pains: Long-Term Effects of Physical Activity and Sleep Patterns on Adolescent Health**
- #** Grace W. Hwang, 17, Senior, Hershey High School, Hershey, Pennsylvania, T: Jason Ambler
- MATH024I** **Predicting Cancer: A Mathematical Model for Breast Cancer Progression**  
Agustey Shikhar Mongia, 18, Senior, Hershey High School, Hershey, Pennsylvania, T: Jason Ambler
- MATS038I** **Concrete Solutions**  
Connor M. Lewis, 18, Senior, Mechanicsburg Area Senior High School, Mechanicsburg, Pennsylvania, T: Nick Keith

*Lancaster, USPA02, North Museum Science and Engineering Fair*

- CHEM044I** **The Effect of L-Arginine and Cisplatin on hSOD1 for Treating Amyotrophic Lateral Sclerosis**  
Shohini Banerjee, 16, Sophomore, Warwick High School, Lititz, Pennsylvania, T: Laurel Hess
- EAEV071I** **Instantaneous and Cost-Effective Bacterial Counts Using Copper Oxide Nanocomposites**  
Maya Rao, 18, Senior, Hempfield High School, Landisville, Pennsylvania, T: Neal Kuhn

*Philadelphia, USPA03, Delaware Valley Science Fairs*

- BEHA054I** **The Effect of Bilingualism on the Multitasking Ability of Adolescents**  
Sarah Emma Vicol, 16, Sophomore, High Technology High School, Lincroft, New Jersey, T: Michael T. Roche
- BMED130I** **Novel Method of Circulating Prostate Tumor Cell Separation Using Adhesion Rolling in a Micropatterned, Microfluidic Device**  
Roy Ghosh, 15, Freshman, Parkland High School, Allentown, Pennsylvania, T: Yaling Liu
- BMED137I** **Development of a NGS Assay for Cancer Screening Using Methylated DNA Biomarkers**  
Emily Yijing Cheng, 16, Sophomore, Methacton High School, Eagleville, Pennsylvania, T: Robert Helm
- BMED138I** **Development of a Novel Biomarker Algorithm for the Early Detection of Liver Cancer**  
Jeremy Wang, 14, Freshman, Methacton High School, Eagleville, Pennsylvania, T: Robert Helm

BMED144I	<b>Don't Be Led Ashtray: Toxicological Effects of Electronic Cigarettes on Inflammation and Lung Cell Viability with Comparison by Brand, Flavor, and Generation</b>
#	Ralph Lawton, 16, Junior, Pennsylvania Leadership Charter School–University Scholars Program, West Chester, Pennsylvania, T: Bridgette Huff
EBED049I	<b>Soil Moisture Detection and Notification</b>
	Ashley Rose Resuta, 18, Senior, Central Bucks High School West, Doylestown, Pennsylvania, T: Mark Hayden
EGPH050I	<b>Measuring and GeoMapping Ambient RF Energy for Battery Free Applications</b>
	Vikram I. Pandian, 14, Freshman, Parkland High School, Allentown, Pennsylvania, T: Christopher Gahman
ENEV077I	<b>Developing Effective Solar-Powered Agitators for Mosquito Control in Stagnant Water</b>
	Ananya Joshi, 17, Senior, High Technology High School, Lincroft, New Jersey, T: Michael Roche
MATH040I	<b>Signatures of Multiplicity Spaces in Tensor Products of <math>sl_2</math> and <math>U_q(sl_2)</math> Representations</b>
# #	Shashwat Kishore, 18, Senior, Unionville High School, Kennett Square, Pennsylvania, T: Sandra Litvin
MATS047I	<b>An Efficient Computational Model for Metal Nanowire Transparent Conductors</b>
#	Milind Jagota, 17, Junior, Liberty High School, Bethlehem, Pennsylvania, T: Melissa Waldron
MCRO060I	<b>Isolation of a Bacteriophage for <i>Staphylococcus aureus</i> from Rumen Fluid</b>
	Rachel Danielle Swope, 16, Sophomore, Central Bucks High School West, Doylestown, Pennsylvania, T: Mark Hayden
MCRO061T	<b>The Effect of Phenols in Ginger, Garlic, and Cinnamon on <i>Escherichia coli</i> and <i>Bacillus cereus</i></b>
	Angela F. Zhao, 16, Sophomore; Himani S. Jani, 16, Sophomore, Biotechnology High School, Freehold, New Jersey, T: Ann MacLean
PLNT063I	<b>The Effects of Varying Methods of Gibberellic Acid Exposure on the Growth and Development of Wild-Type and PKL1-1 Mutant <i>Arabidopsis thaliana</i></b>
	Rachel Paige Weinstein, 16, Junior, Biotechnology High School, Freehold, New Jersey, T: Julie Nowicki
<i>Pittsburgh, USPA04, Pittsburgh Regional Science and Engineering Fair</i>	
BMED076I	<b>Targeting Hippo-Related Cell Polarity in Breast Cancer</b>
	Anna Song Wan, 15, Sophomore, Taylor Allderdice High School, Pittsburgh, Pennsylvania, T: Janet Waldeck
ROBO011I	<b>Biologically-Inspired Flying Sensor Platform for Autonomous Emergency Response</b>
	Mihir Garimella, 15, Sophomore, Fox Chapel Area High School, Pittsburgh, Pennsylvania, T: Gregory Schubert
SOFT051T	<b>Automated Illustration of Text to Improve Semantic Comprehension</b>
	Konrad Neal Urban, 16, Junior; Suvir Prakash Mirchandani #, 16, Sophomore, Fox Chapel Area High School, Pittsburgh, Pennsylvania, T: Gregory Schubert
<i>Reading, USPA05, Reading and Berks Science and Engineering Fair</i>	
ANIM043I	<b>Oysters on the Half Shell: The Effect of Intertidal Zonal Habitats on the Health of <i>Crassostrea virginica</i> (Eastern Oyster)</b>
	Marlin Anthony Thomas, 15, Freshman, Governor Mifflin High School, Shillington, Pennsylvania, T: Meredith Carrier
ENMC076I	<b>Recirculating Air Filtration Enclosure</b>
# #	Andrew Gregory Przyjemski, 18, Freshman, Governor Mifflin High School, Shillington, Pennsylvania, T: Jennifer Stinson
<i>York, USPA06, York County Science and Engineering Fair</i>	
BEHA060I	<b>Mental Exercise Coupled with Brainwave Entrainment: Bigger Benefit?</b>
#	Alexander Andres Feistritz, 17, Junior, Central York High School, York, Pennsylvania, T: Dianna Guise
EGCH035I	<b>Investigation of Natural Dye Influence on Solar Cell</b>
	Alec Jason Gayrama, 17, Junior, Red Lion Area Senior High School, Red Lion, Pennsylvania, T: Ben Smith

**ENMC060I**     **The Development and Use a Control System Which Uses Hand Motions**  
 Omkar Kane, 16, Sophomore, Central York High School, York, Pennsylvania,  
 T: Dianna Guise

## RHODE ISLAND

*Warwick, USRI50, Rhode Island Science and Engineering Fair*

**BMED080I**     **Allelopathy: The Future of Antibiotic Medicine**  
 Sabrina DaSilva, 17, Junior, Mt. Hope High School, Bristol, Rhode Island,  
 T: Joseph Wendaline Koger

**ENEV048I**     **Can the Design of Natural Aquifers Be Used to Filter Run-off on the Roads in Communities and Wetlands?**  
 Morgan Elizabeth Kane, 15, Sophomore, Mt. Hope High School, Bristol, Rhode Island, T: Joesph Wendaline Koger

## SOUTH CAROLINA

*Aiken, USSC01, Central Savannah River Area Science and Engineering Fair*

**MATH025I**     **On the Minimal Reset Words of Synchronizing Automata**  
 David Walter Stoner, 17, Senior, South Aiken High School, Aiken, South Carolina, T: Jason Rodgers

*Beaufort, USSC02, Sea Island Regional Science Fair*

**ENMC073T**     **The Determination of Aerodynamic Degeneration of Aircraft Design Characteristics Necessitated by the Amalgamation of Stealth Aircraft Design Constraints**  
 Decker Michael Paulmeier, 15, Freshman; Andrew Joseph Lee, 15, Freshman, Bluffton High School, Bluffton, South Carolina, T: Susan Dee

**ENMC077T**     **Engineering a Soccer Headgear that Utilizes Non-Newtonian Fluid in Order to Better Reduce G-forces**  
 Adam Alan Schauss, 18, Senior; Lucas Patrick McMillan #, 18, Freshman, Hilton Head Preparatory School, Hilton Head, South Carolina, T: Tina Webb-Browning

**MCRO063I**     **The Effect of Fibroin Proteins in Spider Silk on *Escherichia coli***  
 Alexis Natalie Voulgaropoulos, 16, Sophomore, Hilton Head Preparatory School, Hilton Head, South Carolina, T: George Gilbert Ramseur

**PHYS063I**     **Light Speed: A Measure of Ocular Phototransduction Using a High Peak Power Pulsed Laser**

**# # #**     Ashley Maye Hamlin, 17, Junior, Hilton Head Island High School, Hilton Head Island, South Carolina, T: Melanie Williams

*Charleston, USSC03, Low Country Science Fair*

**EBED035I**     **Objective Assessment Criteria for Median Based Filtering of Impulse Noise Corrupted Images**  
 Bertrand Z. Zhang, 17, Senior, Academic Magnet High School, North Charleston, South Carolina, T: Tyson McCormick

*Columbia, USSC04, USC Central South Carolina Region II Science and Engineering Fair*

**BEHA035I**     **The Correlation Between Level of Self-determination and Severity of Post-traumatic Stress Disorder in Veterans**  
 Dorothy Grace Smith, 17, Junior, Spring Valley High School, Columbia, South Carolina, T: Michelle Spigner

**CHEM041I**     **The Effect of Fire Retardant Spray, CPVC Cement, and Starch and Amorphous Sodium Polyborate on Increasing the Fireproof Ability of Clothing in Searching for a Cheaper Substitute for Nomex®/Kevlar®**  
 Jacob Cooney, 16, Sophomore, Spring Valley High School, Columbia, South Carolina, T: Dale Soblo

*Spartanburg, USSC07, Piedmont South Carolina Region III Science Fair*

**ENEV022I**     **Reducing the Environmental Impact of Roofing Shingles**  
 #     Jessica Morgan Kusher, 18, Senior, Spartanburg Day School, Spartanburg, South Carolina, T: Jason Lonon

## SOUTH DAKOTA

*Aberdeen, USSD01, Northern South Dakota Science and Math Fair*

**ANIM047I** **Viability of Bovine Semen, Phase II**  
Sadie Renee Vander Wal, 14, Freshman, Northwestern High School, Mellette, South Dakota, T: Denise Mary Clemens

**ENMC068T** **Effects of Construction on Efficiency of a Multi-Stage Coil Gun**  
John Nelson Wieland #, 18, Freshman; Robert Marc Seitz #, 18, Freshman, Central High School, Aberdeen, South Dakota, T: Charles Hermansen

**MATH044I** **A Mathematical Model of Ethanol's Impact on Fecal Decaying Bacteria**  
Omar Elkhader, 17, Junior, Central High School, Aberdeen, South Dakota, T: Amy Dix

*Brookings, USSD02, Eastern South Dakota Science and Engineering Fair*

**BEHA038I** **Nomophobia: Effects of Smartphone Dependence and Separation on Stress, Anxiety, Memory and Cognition in Developing Adolescent Brain**  
Kashfia Nehrin Rahman, 14, Freshman, Brookings High School, Brookings, South Dakota, T: Lee Schmidt

**EAEV080T** **Sphagnum Moss and Drinking Water Quality**  
Dhwani Kharel, 15, Freshman; Kia Marie Witt, 14, Freshman, Brookings High School, Brookings, South Dakota, T: Cynthia Murphy, Cynthia Murphy

**EGPH041I** **Fuel Ethanol Potential of Barley**  
Morgan Marcella Kohl, 15, Freshman, Waverly South Shore High School, Waverly, South Dakota, T: Ryon Gross

**ENMC047I** **Building an Engineered Beam: An Investigation in Design-it-Yourself Beam Performance**  
Rylan Brue, 14, Freshman, Unity Christian High School, Orange City, Iowa, T: Mark Kauk

*Mitchell, USSD04, South Central South Dakota Science and Engineering Fair*

**ANIM046I** **Analyzing the Effectiveness of De-wormers in Sheep, Phase Two**  
Rachel Renne Blaha, 17, Junior, Avon High School, Avon, South Dakota, T: Paul Kuhlman

**EAEV054I** **Microspheres: Micro or Mega Problem?**  
Madison Rose Hetland, 15, Freshman, Mitchell Senior High School, Mitchell, South Dakota, T: Julie Ann Olson

**EGPH040T** **Shake Light**  
Abbigail J. Patton, 16, Sophomore; Masey Lynn Lambert, 16, Sophomore, Mitchell Senior High School, Mitchell, South Dakota, T: Julie Ann Olson

*Rapid City, USSD03, High Plains Regional Science and Engineering Fair*

**BEHA037I** **Is Academic Performance in Primary Grades an Indicator for Performance in Secondary Grades?**  
Kyra Holzer, 18, Senior, Timber Lake High School, Timber Lake, South Dakota, T: LuAnn Lindskov

## TENNESSEE

*Chattanooga, USTN01, Chattanooga Regional Science and Engineering Fair*

**BMED084I** **The Translation of Phenylephrine HCl to Edible Plants**  
Brelyn Grant, 17, Junior, Sequatchie County High School, Dunlap, Tennessee, T: Terri Grant

**MCRO038I** **Study of the Cellular and Molecular Signaling Processes which Influence Algal-Cnidarian Symbiosis and Bleaching**  
Andrew Aultman, 15, Sophomore, The McCallie School, Chattanooga, Tennessee, T: Karah Nazor

*Clarksville, USTN06, Middle Tennessee Science and Engineering Fair*

**BCHM026T** **Optimization of the BETA-glucosidase Enzyme and Inhibition by Glucose in Various Fungal Species**  
Xiuya Yao, 17, Junior; Jennifer N. Cottle, 17, Junior; Saba Rehman, 17, Junior, The School for Science and Math at Vanderbilt, Nashville, Tennessee; T: Angela Michelle Eeds

**EGCH027I** **Biomass to Biofuel: Optimal Enzymes**  
# Rachel M. Baker, 17, Junior, Camden Central High School, Camden, Tennessee, T: Karen Gauthier

Cookeville, USTN02, Cumberland Plateau Regional Science and Engineering Fair

**ENEV046I** **Tsunami Protection**

Caleb Velker, 16, Sophomore, HomeLife Academy, Crossville, Tennessee,  
T: Patricia Renee Velker

**MATH023I** **Let Go of Binary**

Barrett Ransom Velker, 18, Senior, HomeLife Academy, Crossville, Tennessee,  
T: Randy Velker

Knoxville, USTN04, Southern Appalachian Science and Engineering Fair

**EAEO093I** **Metal Menace! An Analysis of Water Quality and Biota in Birds Creek**

Sterling Isaac Fisher, 17, Junior, Gatlinburg-Pittman High School, Gatlinburg,  
Tennessee, T: Alice Brooks Fisher

**MATS057I** **Developing an Automatic Nonrigid Image Registration Algorithm for Nanoscience Research**

Melissa Amber Yu, 18, Senior, Farragut High School, Knoxville, Tennessee,  
T: Neely R. Tonos

Memphis, USTN05, Memphis-Shelby County Science and Engineering Fair

**PLNT068I** **What Effect Will Microgravity vs. Gravity Have on the Reishi**

**Mushroom's (*Ganoderma lucidum*) Ability to Weaken, Damage, or Destroy *E. coli* Bacteria?**

Mark William Montague, 16, Sophomore, Fayette Academy, Somerville,  
Tennessee, T: Donna Lynne Burrus

**TEXAS**

Austin, USTX13, Austin Energy Regional Science Festival

**BEHA020I** **Effects of Collaboration on Student Productivity, Accuracy, and Retention**

Katelynne Giulia Marsan, 16, Sophomore, Dripping Springs High School,  
Dripping Springs, Texas, T: Alissa Nevin

**CBIO005T** **Identifying DNA Methylation Variation Patterns for Breast Cancer Biomarker Genes**

Lily Xu # #, 18, Senior; Simantini Mitra-Behura, 17, Senior, Liberal Arts and  
Science Academy, Austin, Texas; Michael E. DeBakey High School for Health  
Professions, Houston, Texas, T: Alison Earnhart

**CHEM028I** **Probing the Molecular Mechanism of Cerium Oxide Nanoparticles in Protecting Against the Neuronal Cytotoxicity of A $\beta$ 1-42 with Cu Ions**

Yingxuan (Jason) Tan, 16, Sophomore, College Station High School, College  
Station, Texas, T: Casey Akin

**ENEV024I** **Effective Remediation of Air Pollution through an Algal System Integrated with Carbon Mineralization Technology, Phase I: Selection of Algal Strains that Perform Well in a Flue Gas Derived Bicarbonate Environment**

Sai Sameer Pusapaty, 16, Sophomore, Liberal Arts and Science Academy,  
Austin, Texas, T: Amy Moore

**MATS018I** **Synthesis and Characterization of Bioinspired Materials Using Nanotechnology**

Sasaank Bandi, 18, Senior, Westwood High School, Austin, Texas,  
T: Laura Sanders

**MCRO029I** **Designing a Fluorescent Precursor to Test the Partial Hairpin Insertion Model of Tat Protein Transport**

Antara Dattagupta, 18, Senior, A&M Consolidated High School,  
College Station, Texas, T: Michelle Leigh Jedlicka

Brownsville, USTX04, Rio Grande Valley Regional Science and Engineering Fair

**BMED071T** **The Effect of Forced Leg Movement on Heart Rate**

Juancarlos Sandoval, 17, Senior; Ayane Ito, 18, Senior, Idea College Prep–  
San Benito, San Benito, Texas, T: Adrian Correa

**EBED034T** **SmartGuard: An Emergency Alert System for Android-OS**

Jaime Angel Hernandez, 17, Junior; Aleida Olvera, 17, Junior, Veterans  
Memorial Early College High School, Brownsville, Texas, T: Lorena Lozano

**MCRO016I** **Selective Adhesion to Protein-Coated Surfaces for Bacterial Cell Enrichment and Separation**

# # Mashad Arora, 17, Senior, Science Academy of South Texas, Mercedes, Texas,  
T: Saraswathy Nair

*Corpus Christi, USTX15, Coastal Bend Regional Science Fair*

**ENEV075I** **Fracking a Safer Way: A Novel Analysis of Potential Innocuous Alternatives for Chemical Compounds Currently Utilized in the Composition of Hydraulic Fracturing Fluids**

# Roger Christian Garcia, 16, Junior, Taft High School, Taft, Texas,  
T: Peter Bosquez

**SOFT052I** **Image Analysis for Part Recognition Based on Pixel Formation and Coloration**

Francisco Haces-Garcia, 16, Sophomore, Academy High School, Kingsville, Texas, T: Amy Clubb

*Dallas, USTX01, Beal Bank Dallas Regional Science and Engineering Fair*

**ANIM034I** **The Treatment of Neurodegeneration in Chemosensory Neurons of *Caenorhabditis elegans***

Dominique Marie Mellone, 16, Sophomore, Jasper High School, Plano, Texas,  
T: Pamela Grow

**BEHA007I** **The Winner's Curse: The Effect of Standard Auction Features and Behavioral Factors on Overbidding**

Rachel Shi, 16, Sophomore, R. C. Clark High School, Plano, Texas,  
T: Farzana Sikora

**EBED008I** **"Keyboardless Keyboard": A Virtual Typing System Using Accelerometers**

Malav H. Shah, 15, Freshman, R. C. Clark High School, Plano, Texas,  
T: Farzana Sikora

**EBED010I** **EyeMove: Using Electrooculography to Provide Mobility for the Disabled**

Burzin Poras Balsara, 15, Freshman, R. C. Clark High School, Plano, Texas,  
T: Farzana Sikora

**MATH005T** **Mathematical Fire Fighting: Combating Fire with Delaunay Triangulation and Longitudinal-Reversible Cellular Automata**

Vishal Rajesh, 16, Junior; Nisha Rajesh, 15, Sophomore, Plano Senior High School, Plano, Texas; Jasper High School, Plano, Texas, T: Pat Kite

**MATS007I** **A Novel Approach for Tuning Chiral Nematic Structures in Cellulose Nanocrystal Films**

Nicky Wojtania, 15, Sophomore, Jasper High School, Plano, Texas, T: Pat Kite

**MCRO012I** **Biophysical Characterization of Hydrocarbon Transport Systems as a First Step in Marine Oil-Degradation by Hydrocarbonoclastic Bacteria**

# Swapnav Dekka, 18, Senior, Plano East Senior High School, Plano, Texas,  
T: Julie Baker

**PHYS004T** **Vortex Ring State Simulation in a Wind Tunnel: Drone Flight Stability and Rotor Lift**

Vivianne Tu, 18, Senior; Claire Goeckner-Wald, 18, Senior, Plano Senior High School, Plano, Texas, T: Kim Wolff

**PLNT008T** **Enhanced Hydrogen and Third-Generation Biofuel Production from Modified Algae**

Anoop Vemulapalli #, 17, Senior; Wenjia Dara Li #, 17, Junior, Plano West Senior High School, Plano, Texas, T: Neil Milburn

*El Paso, USTX02, Sun Country Science Fair*

**ENEV006I** **Using Methods of Phytoremediation to Decrease Levels of Radon-222 in Soil Samples**

# Bianca Montano, 18, Senior, El Dorado High School, El Paso, Texas,  
T: Antonio Castruita

**MATS033I** **Improved Truss Strength through Design Optimization**

Lucero Buendia, 17, Senior, Mission Early College High School, El Paso, Texas,  
T: Hellen Geller

*Fort Worth, USTX03, Fort Worth Regional Science and Engineering Fair*

**CBIO007I** **A Novel Coevolution Data-based Approach for Computational Drug Design to Target Intrinsically Disordered Proteins**

# # Niranjana Balachandar, 18, Senior, Texas Academy of Mathematics and Science, Denton, Texas, T: Gil Alterovitz



- EAEV019I** **Water You Drinking? Development of a Novel Filter Utilizing Nanotechnology and Porous Materials to Remove Bacteria and Heavy Metals from Polluted Water for Third World Country and Military Applications**  
Raashi Thakkar, 16, Junior, Texas Academy of Mathematics and Science, Denton, Texas, T: Sweta Manek
- MATS035I** **Perfecting Bone Implants: A Novel Method to Create Lighter and Stronger Porous Materials Using Nanorod Reinforcements**  
Akilesh Babu, 17, Senior, Texas Academy of Mathematics and Science, Denton, Texas, T: Srinivasan Srivilliputhur
- MCRO011I** **NANO Today, HUGE Tomorrow: Improving Antibiotic Drug Delivery with Nanoparticles**  
Afeefah Fatimah Khazi-Syed, 15, Sophomore, Harmony School of Innovation-Fort Worth, Fort Worth, Texas, T: Yavuz Ceylan
- PHYS007I** **Physics of the Future: Demonstrating Quantum Entanglement**  
Emily Ottilia Baker, 14, Freshman, Gallifrey Home High School, Keller, Texas, T: Christina Ann Baker
- Houston, USTX05, Science Engineering Fair of Houston*
- BCHM015I** **Elucidating the Molecular Mechanisms of Arrhythmogenesis**  
Kushal Tushar Kadakia, 18, Senior, Clear Lake High School, Houston, Texas, T: Brenda Pinchbeck
- BEHA028I** **Game Theoretic Model of Genetic Discrimination**  
Margaret Caroline Steiner, 17, Junior, Academy of Science and Technology, The Woodlands, Texas, T: Larry Walker
- BMED061I** **Targeting the Cell II**  
Reagan Spexarth, 16, Junior, Academy of Science and Technology, Conroe, Texas, T: Susan Caffery
- EAEV028I** **Water Contaminant Removal: Will It Glow?**  
Kaitlyn Rose Ramirez, 16, Sophomore, The John Cooper School, The Woodlands, Texas, T: Stef Groves
- EGPH015I** **Riding the Wave: Energy in Motion II**  
# Matthew Caffet, 18, Senior, Academy of Science and Technology, The Woodlands, Texas, T: Susan Caffery
- EGPH027T** **Solar Thermal Solutions II**  
Christine Marie Castagna #, 16, Junior; Matthew Frangos, 17, Junior, Academy of Science and Technology, The Woodlands, Texas, T: Susan Caffery
- ENMC025I** **Effect of Simulation Covert Feathers on Airfoil Lift and Drag**  
Jenny Nisha Schlauch, 18, Senior, Clear Brook High School, Friendswood, Texas, T: Alaina Garza
- ENMC042I** **Particle Enhancements for Greener Stronger Cement**  
Michael Richard Bohnet, 15, Sophomore, Academy of Science and Technology, The Woodlands, Texas, T: Larry Walker
- PHYS021I** **Trapped Field Magnets with Thin Film Superconductor Tapes**  
# Kavita Selva, 15, Sophomore, Clear Lake High School, Houston, Texas, T: Brenda Pinchbeck
- Kilgore, USTX06, East Texas Regional Science Fair*
- EAEV012I** **Effects of Probiotics and Aquatic Vegetation on the Growth of Cyprinidae**  
Cameron Brett Gipson, 15, Freshman, Gilmer High School, Gilmer, Texas, T: Donna Sue Perkins
- Laredo, USTX07, United Independent School District Regional Science Fair*
- ENMC069I** **3-D Electrical Cast**  
Linda Marie Santos, 17, Junior, John. B. Alexander High School, Laredo, Texas, T: Linda Marie Santos
- Laredo, USTX14, Laredo Independent School District Science Fair*
- BMED044I** **Natural vs. Synthetic Antibiotics**  
Aneysa Rodriguez, 17, Senior, Joseph W. Nixon High School, Laredo, Texas, T: Itzel Hinojosa

Lubbock, USTX08, South Plains Regional Science and Engineering Fair

**ENMC029I Robo F-Pads**

Alberto Garcia, 18, Senior, Shallowater High School, Shallowater, Texas,  
T: Leslie Maxwell Griffis

**PLNT007I Evaluation of Varying Irrigation Rates on *Gossypium hirsutum* L. for Growth and Greatest Yield**

Abbigail Rita Hines, 17, Senior, Christ the King Cathedral High School,  
Lubbock, Texas, T: Alicea Chaloupka

Odessa, USTX09, Permian Basin Regional Science Fair

**BEHA021I Oz's Emerald Bean: An In-Depth Study Over the Thermogenic Effects of Green Coffee Bean Extract**

Salma Abril Flores, 17, Junior, Andrews High School, Andrews, Texas,  
T: Hilary Haygood

**ENMC030I Determining Maximum Carpool Potential: A Study of Car Sharing Efficiency**

Anthony John Dragun, 17, Freshman, Trinity School of Midland, Midland,  
Texas, T: Charles Bell

San Antonio, USTX11, Alamo Regional Science and Engineering Fair

**ANIM042I Miticide Microencapsulation: Evaluating the Effect of Microencapsulation of Thymol Miticide Treatments on Honey Bee [*Apis mellifera*] Colonies**

Samuel Burton Gostomski, 18, Senior, Bandera High School, Bandera, Texas,  
T: Joseph Alan Burke

**BMED033I The Therapeutic Potential of Estrogen Receptor Beta Agonists in Lung Cancer**

Akash Srichandan, 18, Senior, Northside Health Careers High School,  
San Antonio, Texas, T: Daniel G. Bump

**CBIO014I Understanding the Role of CCR2 during Inflammation Associated with Metabolic Syndrome Using Next-Generation Sequence Analysis**

Adithya Mummidi, 14, Freshman, Keystone School, San Antonio, Texas,  
T: Jason Russell Nydegger

**CBIO026I Utilizing Cardiac and Pulmonary Function with Piezoelectricity to Power a Cardiac Pacemaker**

# Isuru Ashan Somawardana, 16, Sophomore, Keystone School, San Antonio,  
Texas, T: Jason Russell Nydegger

**CHEM006I Chemical Sensing and Peculiar Redox Properties of Calcium Barium Cobalt Oxide Thin Films as a Viable Cathode Material for Solid Oxide Fuel Cells**

Changxiao Xie, 17, Freshman, Louis D. Brandeis High School, San Antonio,  
Texas, T: Christina Rivera

**EGPH013I The Investigation of the Evaporation Effect on On-Demand Cooling of Solar Panels**

# Christopher Rafael Botello, 16, Junior, John Jay Science and Engineering  
Academy, San Antonio, Texas, T: Jenny Ostos

**ENMC022T The Oily Truth: A Study Testing Molecular Resistance in Common Diesel Engine Lubricants**

Daniella Anna Burlison, 17, ; Joshua Robert Saleen, 17, Freshman, James  
Madison High School, San Antonio, Texas, T: Joshua Ian Anderson

San Antonio, USTX50, Texas Science and Engineering Fair

**BEHA051I Determining the Role of Visual Signals in the Neurological Aspect of Speech: Implications for the Treatment of Speech Motor Programming Disorders**

Divya Prabhakaran, 16, Sophomore, Plano East Senior High School, Plano,  
Texas, T: Julie Baker

**BMED128I Detecting Early Stage Metastatic Breast Cancer: A Novel Approach to the Engineering of a Gold Nanorod Based Point-of-Care Biosensor**

Grace Katherine Ranft-Garcia, 16, Sophomore, STEM Academy at  
Robert E. Lee, San Antonio, Texas, T: Lane Smiley

**CBIO042I IntelliGenome: Using Artificial Intelligence to Diagnose Genetic Diseases on the Genomic Level**

# Michael Farid, 16, Sophomore, McMillen High School, Murphy, Texas,  
T: Judith Rochefort

<b>CBIO052I</b>	<b>Computer-Aided Oral Cancer Diagnosis</b> Aditya Tushar Mohile, 17, Senior, Friendswood High School, Friendswood, Texas, T: Theresa A. Lawrence
<b>CHEM071T</b>	<b>Freestanding Carbon Nanofiber Electrodes Derived from Electrospun Polyacrylonitrile/ZIF-8 Composite for Supercapacitors</b> Megan Yanjia Li, 16, Sophomore; Joycelyn Chung-Yan Yiu, 16, Sophomore, R. C. Clark High School, Plano, Texas, T: Farzana Sikora
<b>ENEV073I</b>	<b>International Oil Spill Remediation: The Numerical Simulation of an <i>in-situ</i> Subsea Separator, Part II</b>
<b>#</b>	Karan Jerath, 18, Senior, Friendswood High School, Friendswood, Texas, T: Dawne Welch
<b>MATH035I</b>	<b>Boolean AIGenebra: A Nature-Inspired Framework for the Analysis of Cancer Genes</b> Krithika Iyer, 16, Sophomore, iSchool High STEM Academy, Lewisville, Texas, T: Yaritza Ortiz-Carrillo
<b>PHYS054I</b>	<b>Energetic Particles from 10B and Li Fusion Reactions</b> Miriam Lea Matney, 17, Junior, Clear Lake High School, Houston, Texas, T: Brenda Pinchbeck
<i>Waco, USTX12, Central Texas Science and Engineering Fair</i>	
<b>BCHM016I</b>	<b>Competitive Inhibition of DNA Polymerase by XNA Nucleosides</b> Edward Sangyoon Kim, 15, Sophomore, Midway High School, Waco, Texas, T: Kathy McMillan
<b>CBIO063I</b>	<b>Assessing Reverse Cholesterol Transport Levels Association to Early-Onset Compared to Late-Onset Alzheimer's Disease</b> Lauren Elizabeth Willey, 17, Junior, C. H. Yoe High School, Cameron, Texas, T: Toni Lafferty
<b>UTAH</b> <i>Cedar City, USUT02, Utah Science and Engineering Fair</i>	
<b>BEHA042I</b>	<b>Memory and Behavioral Function Progression in Tau <i>Mus musculus</i></b> Brianna Brammer, 16, Junior, SUCCESS Academy DSU, Saint George, Utah, T: Charmain Brammer
<b>BMED106I</b>	<b>Muscle Exertion of Running Heel and Toe Strike on Gastrocnemius and Tibialis Anterior</b> Alissa Jean Van Valkenburg, 17, Junior, SUCCESS Academy DSU, Saint George, Utah, T: Charman Brammer
<b>EAEV053I</b>	<b>Sorption Properties of Natural and Synthetic Materials</b> Jacob Daniel Jackson, 17, Junior, SUCCESS Academy DSU, Saint George, Utah, T: Charmain Brammer
<b>MATS037I</b>	<b>The Effect of Three and Four Point Uniaxial Bend Tests on Germanium Wafer Break Strength Data Variability</b> Logan Troy Mathews, 17, Junior, SUCCESS Academy DSU, Saint George, Utah, T: Charmain Brammer
<i>Layton, USUT01, North Davis Area Science and Engineering Fair</i>	
<b>ANIM032I</b>	<b>How Grooming a Horse in Different Areas Affects the Heart Rate</b> Abigail Louise Faz, 14, Freshman, Northridge Senior High School, Layton, Utah, T: Carleen McNees
<b>EGPH025I</b>	<b>Wave Power, Phase II</b> Neldon Jacob Hamblin, 15, Sophomore, Clearfield High School, Clearfield, Utah, T: Debra Titmus
<b>EGPH026T</b>	<b>A Novel Application of the Thermoelectric Effect in Mobile Devices</b> Davis Robert Johnson # #, 18, Senior; Parker Logan Murray # #, 18, Senior, Woods Cross High School, Woods Cross, Utah, T: Janette Duffin
<b>PHYS026I</b>	<b>Blown Away: How Motor Speed Relates to Optimum Propeller Pitch</b> Andrew Bennett, 15, Freshman, Bountiful High School, Bountiful, Utah, T: Seletha Deru
<b>PHYS027I</b>	<b>Observational Determination of Near Earth Asteroid Rotation Rates</b>
<b>#</b>	Kelsey Mackenna Barber, 15, Sophomore, Bountiful High School, Bountiful, Utah, T: James Armstrong
<b>PLNT032I</b>	<b>Tillandsia and Indoor Air Pollutants</b> Heather Ann Mills, 16, Junior, Woods Cross High School, Woods Cross, Utah, T: Janette Duffin

*Logan, USUT06, Bridgerland Science and Engineering Fair*

**BMED083I** **Using Spices to Inhibit the Formation of Carcinogenic Heterocyclic Amines in Grilled Chicken**

Varun Garg, 15, Sophomore, InTech Collegiate High School, North Logan, Utah, T: Stephanie Kawamura

**BMED140I** **Dietary Supplementation with Canary Seed Powder to Prevent Development of Diabetes in Mice**

Crystal Denise Vejar, 17, Junior, InTech Collegiate High School, North Logan, Utah, T: Abby D. Benninghoff

*Ogden, USUT03, Weber Area Science and Engineering Fair*

**CHEM034T** **Creating Biofuel from Food Waste**

Riley Paul Midgley, 16, Sophomore; Tyler Michael Staten #, 16, Sophomore, Bonneville High School, Ogden, Utah, T: Benjamin Prall

**EAEV040I** **Use of Invasive Plants for Enhancing Nutrient Removal During Water Treatment**

Stephanie Ranae Vaughn, 15, Sophomore, Weber High School, Pleasant View, Utah, T: Carolyn Robertson

**EGCH021I** **Determining the Optimal Growing Conditions for Nannochloropsis Algae for Economically Feasible Biofuel Production**

Samuel Brent Good, 16, Junior, Weber High School, Pleasant View, Utah, T: Carolyn Robertson

**EGPH024I** **Passive Acquisition of Energy through the Utilization of a Fluid Turbine**

# # Caid Lunt, 18, Senior, Weber High School, Pleasant View, Utah, T: Matthew Patterson

**ENEV060I** **The Environmental Enhancements Reclaimed Rubber Has on Roads**

Ashley Flitton, 16, Junior, Bonneville High School, Ogden, Utah, T: Benjamin Prall

*Ogden, USUT07, Harold W. & Helen M. Ritchey Science and Engineering Fair of Utah*

**EAEV046I** **The Effect of Pollution on the Number of Tardigrada in Lichen and Moss**

Sonja Rose Stevenson, 15, Freshman, Mount Ogden Junior High School, Ogden, Utah, T: Macie Wolfe

**EBED030I** **Development of a Cost Effective Swept-Frequency Capacitive Sensor as a Gesture Recognizing Touch Interface**

# Logan G. Eastman, 17, Junior, Northern Utah Academy for Math Engineering and Science, Layton, Utah, T: Karl Medinger

**ENEV086I** **Using Light Emitting Diodes as Light Sensors for the Detection of NO<sub>2</sub>**

Daria Sondossi, 15, Freshman, Mount Ogden Junior High School, Ogden, Utah, T: Macie Wolfe

**MCRO039I** **Suppression of Antimicrobial Resistance Using CRISPRs**

# Karissa Wang, 16, Junior, Northern Utah Academy for Math Engineering and Science, Layton, Utah, T: Matthew Nicholaou

*Provo, USUT04, Central Utah Science and Engineering Fair*

**ANIM041I** **Total Iodine Concentration and Neoteny in the Barred Tiger Salamander**

Kenen Brysen Goodwin, 17, Junior, Timpanogos High School, Orem, Utah, T: Josh Heward

**BCHM037I** **A Study of the Genotoxicity of Caffeine Using the Comet Assay**

Jason Cade Manning, 17, Junior, American Fork High School, American Fork, Utah, T: Robert Adamson

**ENEV057T** **The Chemical Mechanism of the Reduction and Recycling of Polystyrene Using an Organic, Eco-Friendly Solvent**

Elizabeth Finlayson #, 17, Senior; Cherise Noelle Cantrell, 18, Senior, Lone Peak High School, Highland, Utah, T: Heather Riet

**MCRO058T** **Genomic Library Construction for the Archae *Halorubrum salsolis* Recently Discovered in the Great Salt Lake**

Dakota Ted Carter, 17, Senior; Sarah Marie van Dijk, 17, Junior, Pleasant Grove High School, Pleasant Grove, Utah

**PHYS048I** **Analyzing the Surface of Mercury in Three-Dimensions**

Elena Jayne Mitchell, 18, Senior, Walden School of Liberal Arts, Provo, Utah, T: David V. Black

*Salt Lake City, USUT05, Salt Lake Valley Science and Engineering Fair*

**BMED1021 Investigating Metastatic Characteristics of Candidate Dissemination Genes on a Medulloblastoma Cell Line**

Chelsea L. Li, 16, Sophomore, West High School, Salt Lake City, Utah,  
T: Crystal King

**CBIO0531 Modeling of fMRI Data to Diagnose Patients with Autism Spectra Disorder**

Alexander Ethan George-Kennedy, 16, Junior, Juan Diego Catholic High School, Draper, Utah, T: Christine Celestino

**EAEV0641 Modeling and Analyzing Melting Arctic Sea Ice with Percolation Theory**

Anthony Lu Cheng, 16, Junior, Hillcrest High School, Midvale, Utah,  
T: Alexander Mettler

**EGCH0291 Natural Additive-Enhanced Development of Novel All-Solid-State Batteries for Sustainable and Scalable Energy Storage**

Kathy Liu, 16, Sophomore, West High School, Salt Lake City, Utah,  
T: Maren Hansen

**MATS0361 Characterization of a Terahertz Metamaterial Waveguide Plus the Development of Composite Right/Left-Handed Devices**

# # Brandon Cui, 18, Freshman, Hillcrest High School, Midvale, Utah,  
T: Alexander Mettler

**ROBO017T Functional Neural Networks Evaluated by Weierstrass Polynomials**

Phillip Kuznetsov, 17, Senior; William Hebgen Guss, 18, Senior;  
Patrick Bo Chen, 17, Senior, West High School, Salt Lake City, Utah,  
T: Enrique Arce-Larreta

**VERMONT**

*Northfield, USVT50, Vermont State Science and Mathematics Fair*

**BMED1221 The Effects of Vitamin D on Pancreatic BETA-cells Under Glucotoxic Stress**

Sajani Sivakumar, 15, Sophomore, South Burlington High School, South Burlington, Vermont, T: Curtis Belton

**CBIO0551 A Computer Model to Project the Outbreak of *Agrilus planipennis* in New Hampshire**

Nathan Karras Kakalec, 16, Sophomore, South Burlington High School, South Burlington, Vermont, T: Curtis Belton

**EBED040T Competing with the Cloud**

Benjamin David Meagher, 14, Freshman; Vincent Paul August Moeykens, 15, Freshman, Windsor High School, Windsor, Vermont, T: Raina White

**VIRGINIA**

*Arlington, USVA01, Northern Virginia Science and Engineering Fair*

**BMED0301 Brace for It: The Effect of Q-angles on ACL Stress with Prototype and Development of Arduino Software to Create Smart Brace to Protect at Risk Patients**

Megan Guinn O'Briant, 17, Junior, Yorktown High School, Arlington, Virginia,  
T: Aaron Schuetz

**ROBO0041 Convolutional Neural Network Structure for Ocean Health**

Evan Cater, 17, Junior, Yorktown High School, Arlington, Virginia,  
T: Aaron Schuetz

*Ashburn, USVA07, Loudoun County Science and Engineering Fair*

**BMED068T Testing the Efficacy of the Antioxidants, Ascorbic Acid, Glutathione, Alpha Tocopherol, on Reducing Ethanol's Toxic Effects on Anterior Development in *Danio rerio***

Vikram Seshadri, 16, Junior; Padmini Yerramasu, 17, Senior, Stone Bridge High School, Ashburn, Virginia, T: Janet Cascio

**CBIO0291 Optimizing the Infill Pattern in Spinal Discs to Resolve Long-term Back Pain within Patients**

Dor Friedman, 17, Senior, Loudoun Academy of Science, Sterling, Virginia,  
T: Michael Tomlinson

**CBIO0301 Low-Cost Field-Based Sensor for the Detection of Atherosclerotic Biomarkers of Coronary Heart Disease**

# Adriel Sumathipala, 16, Junior, Broad Run High School, Ashburn, Virginia,  
T: Karen Swanchara

<b>EGCH026T</b>	<b>Investigating Alternative Fermentation and Pretreatment of Residual Rice Hulls to Optimize Ethanol Yield</b> Kayla Renelle Wright-Freeman, 17, Senior; Rachel Yi, 18, Senior, Loudoun Academy of Science, Sterling, Virginia, T: Jennifer Flynn <i>Charlottesville, USVA02, Virginia Piedmont Regional Science Fair</i>
<b>BCHM025I</b>	<b>Cardioprotective Effects of Quercetin in Ischemia-Reperfusion Injury: The Role of Oxidized CaM Kinase II</b> Monika Grabowska, 17, Senior, Albemarle High School, Charlottesville, Virginia, T: Kirsten Fuoti
<b>ENMC041T</b>	<b>Gills: The Use of Electrolysis for Extended Underwater Exploration</b> Ishpreet Singh, 16, Sophomore; Seth Wijesooriya Liyanage, 16, Sophomore, Albemarle High School, Charlottesville, Virginia, T: Jeff Prillaman <i>Fairfax, USVA03, Fairfax County Regional Science and Engineering Fair</i>
<b>BCHM022T</b>	<b>Development of a Novel Near-Infrared Fluorescent Theranostic Anticancer Prodrug</b> John Han #, 17, Junior; Kongwen Li, 16, Sophomore; Jake Yee Cui #, 16, Junior, James Madison High School, Vienna, Virginia; Fairfax High School, Fairfax, Virginia; Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Omar Acio, Kyle T. Hayne, Padma Iddamalghoda
<b>CBIO054I</b>	<b>A Novel Approach to Gene Expression Analysis of Ethnicities</b> Prathik Naidu, 16, Sophomore, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Thomas Larson
<b>CELL046I</b>	<b>Sorting Nexin 27, a Novel Target Gene to Prevent Tumor Metastasis in Highly Aggressive Breast Cancer Cells</b> Kendy Li, 16, Junior, Langley High School, Mclean, Virginia, T: Jeromy Gilman
<b>EBED047I</b>	<b>Constructing a Single Camera Triangulation System for Capturing 3D Point Clouds with Color</b> Stephanie Shi-Ning Mui, 15, Junior, Oakton High School, Vienna, Virginia, T: Grace Wang
<b>ENMC063I</b>	<b>Assistive Rehabilitation Device</b> William Makinen, 14, Freshman, West Potomac High School, Alexandria, Virginia, T: Joseph Franco
<b>MATH037I</b>	<b>Connected Matchings in Graphs with Independence Number 2</b> Jung Yoon Kim, 17, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Peter Csikvari
<b>MATS032I</b>	<b>Self-assembly and Characterization of Macroscopic Monolayer Films Composed of Ligand Gold Coated Nanospheres</b> Devashis Das, 18, Senior, James W. Robinson Junior Secondary School, Fairfax, Virginia, T: Steve Bartlett
<b>MATS044I</b>	<b>Pressure-Assisted Microwave Sintering for Production of Transparent Polycrystalline Spinel: Experimental Study on Non-Thermal Ponderomotive Effect and Uniaxial Pressure</b> Richard Joonyup Oh, 18, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Arne Woolsey Fliflet
<b>SOFT049I</b>	<b>Self-Driving Car Intersection</b> Neal Vinay Agarwal, 17, Junior, Chantilly High School, Chantilly, Virginia, T: Gregory Reiter
<b>SOFT053T</b>	<b>Development of a Rapid, Accurate, and Private Contact Tracing System Utilizing Intercellular Proximities</b> Clarissa Sophie Scoggins, 16, Freshman; Rohan Suri, 16, Sophomore, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Paul Kosek <i>Harrisonburg, USVA04, Shenandoah Valley Regional Science Fair</i>
<b>EAEV023I</b>	<b>The Determination of Biologically Facilitated Atrazine Removal in Lentic Microcosms</b> # Abigail Ella Johnson, 18, Senior, Shenandoah Valley Governor's School, Fishersville, Virginia, T: Janet Hamilton
<b>MATS017I</b>	<b>The Effect of Recycled Micronized Rubber Powder Filler on the Abrasion and Tensile Properties of Rubber</b> # Jon Andrew Gustafson, 18, Senior, Sherando High School, Stephens City, Virginia, T: Susan Saylor

Lexington, USVA50, Virginia State Science and Engineering Fair

- CBIO0181** **Prognostic and Diagnostic Measure for Circuit Disruption in Alzheimer's Disease**  
Kacey Renay Price, 18, Senior, Roanoke Valley Governor's School for Science and Technology, Roanoke, Virginia, T: Lee Ann Russell
- CBIO027T** **Combating Liver Cancer with DeepMine, a Novel Deep Learning Algorithm**  
Michael Retchin, 17, Junior; Matthew Retchin, 17, Junior, Mills E. Godwin High School, Richmond, Virginia, T: Vicki Hiner
- MATS046T** **Synthesizing an Artificial Biological Leaf Capable of Evolving Oxygen via Photosynthesis**  
Wyatt Martin Pontius, 17, Junior; Liam Alexander Wallace, 17, Junior, Loudoun Academy of Science, Sterling, Virginia, T: Daniel Crowe
- MCRO055I** **Detecting Novel Strains of Lassa Virus via an Interdisciplinary Modernization Based on Genomic Sequencing**  
Matthew Dae-Young Park, 17, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Laura Locklear
- ROBO027I** **Brain-Actuated Robotics: Controlling and Programming a Humanoid Using Electroencephalography**  
Ava Carmen Lakmazaheri, 17, Junior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Dan Burden

Lynchburg, USVA05, Central Virginia Regional Science Fair

- MATH015I** **A Mathematical Analysis of the Transmission of Ebola Hemorrhagic Fever Using Intuitive Graphical Representations and a Stochastic SEIR Epidemiological Model**  
Robert Brooks Carlson, 16, Junior, Rustburg High School/Central Virginia Governor's School for Science and Technology, Rustburg, Virginia, T: Michelle Douglass
- MCRO028I** **Comparing the Efficacy of Alternative Treatments in Inactivating Escherichia coli O157:H7**  
Bronson George Aznavorian, 18, Senior, Staunton River High School/Roanoke Valley Governor's School, Moneta, Virginia, T: Cynthia Bohland

Manassas, USVA06, Prince William-Manassas Regional Science Fair

- CHEM057I** **Amoxicillin Derivative for Treatment of Lyme Disease**  
Meron Aboye, 19, Senior, Governor's School @ Innovation Park, Manassas, Virginia, T: Josanne-Dee Woodroffe

Norfolk, USVA09, Tidewater Science and Engineering Fair

- CBIO028I** **Analyzing Hemagglutinin Protein Sequences of H3N2 Influenza Viruses to Predict Antigenic Variants**  
Matthew Zhang Trepte, 17, Junior, New Horizons Governor's School for Science and Technology, Hampton, Virginia, T: Jana Eggleston
- MATS027I** **Nanotechnology Based Wrinkled Graphene for Flexible Electronics**  
Suparnamaaya S. Prasad, 15, Freshman, York High School, Yorktown, Virginia, T: Rita J. Fletcher

Radford, USVA10, Blue Ridge Highlands Regional Science Fair

- ANIM019I** **Slaying the "Destructor": The Effectiveness of Alternative Varroa Mite Treatments**  
Emily Elizabeth Llaneras, 16, Junior, Southwest Virginia Governor's School, Pulaski, Virginia, T: Krista Stith
- EAEV022T** **The Correlation between Surface Temperature and Sea Ice Thickness**  
Ashley Nicole Jordan, 18, Senior; Austin Tolliver Owen, 17, Senior, Southwest Virginia Governor's School, Pulaski, Virginia, T: Daniel Blake

Richmond, USVA11, Metro Richmond STEM Fair

- BCHM024I** **Squashing the Superbug: Computer-Aided Drug Discovery of SrtA Inhibitors to Combat Antibiotic-Resistant Bacterial Infections**  
David M. Lu, 17, Junior, Mills E. Godwin High School, Henrico, Virginia, T: Samantha Cope
- BEHA031I** **The Mapping of Emotional Dimensions: Toward a Neuro-Thermal Biometric System for the Diagnosis of Emotional Flexibility**  
Michelle Marie Marquez, 16, Sophomore, Mathematics and Science High School at Clover Hill High School, Midlothian, Virginia, T: Jeremy Lloyd



- EAEV063I**    **The Effect of an Elevated pCO<sub>2</sub> Level on the Protein Expression of the Pacific Oyster *Crassostrea gigas***  
Nidhi Kumar, 16, Junior, Science, Math, and Technology Center at Mills E. Godwin High School, Henrico, Virginia, T: Vicki Hiner
- MATH022I**    **Mathematical Modeling and Simulation of Cardiac Tissue Electrophysiology: Effect of Cardiac Deformation on Action Potential Duration**  
Swapnil Pande, 16, Junior, Mills E. Godwin High School, Henrico, Virginia, T: Vicki Hiner
- PHYS030I**    **The Periodic Effect of a Star's Change in Magnitude Due to a Planet's Transit: A Search for Habitable Planets**  
Emily Wroblewski, 16, Sophomore, Mathematics and Science High School at Clover Hill High School, Midlothian, Virginia, T: Jeremy Lloyd
- Roanoke, USVA08, Western Virginia Regional Science Fair*
- EGPH017I**    **Utilizing a Piezoelectric Crystal Tree to Harvest Electrical Energy from Rain Water**  
#    Kelly Devens, 16, Junior, Roanoke Valley Governor's School for Science and Technology, Roanoke, Virginia, T: Brent Holt
- PLNT036T**    **The Allelopathic Effects of *Ailanthus altissima* on Nuisance Species**  
Abigail Jane Rigatti, 16, Junior; Emily Morgan Spickard, 17, Junior, Roanoke Valley Governor's School for Science and Technology, Roanoke, Virginia, T: Mark Fraizer
- Warrenton, USVA12, Fauquier County Regional Science & Engineering Fair*
- EGPH049I**    **Parabolic Equation Impact on Solar Reflector Conversion Efficiency**  
Hana Pross, 17, Senior, Mountain Vista Governor's School, Warrenton, Virginia, T: Dee Thompson
- WASHINGTON**  
*Bellevue, USWA03, Central Sound Regional Science & Engineering Fair*
- CBIO043I**    **Vaccine Design Using in silico Tools: A Novel Influenza Vaccine with Adjuvant**  
Gokul Sethu Gowri, 16, Junior, Inglemoor High School, Kenmore, Washington, T: Suzanne Black
- ENEV045T**    **Implementation of a Carbon Dioxide Refrigeration System as a Cogeneration Appliance and Alternative to Halocarbon-based Refrigeration Systems**  
Sonia Krishna Murthy, 17, Freshman; Ethan Benjamin Perrin, 17, Junior; Sophia Tevosyan, 17, Junior, Nikola Tesla STEM High School, Redmond, Washington, T: Kate Allender
- Bremerton, USWA50, Washington State Science and Engineering Fair*
- ANIM045I**    **A Novel Phenotypically-Anchored Bioindicator for Assessing the Developmental Marine-Life Impacts of Urban Stormwater Runoff**  
# #    Meera Radha Srinivasan, 17, Senior, Interlake High School, Bellevue, Washington, T: Tia Thiel
- CBIO056I**    **Implementation of a Machine Learning Tool for Better Resistance Prediction in Acute Myeloid Leukemia**  
Mahalaxmi Elango, 16, Junior, Interlake High School, Bellevue, Washington, T: Tia Thiel
- CHEM043I**    **Novel Design of Water Soluble Porphyrin Containing Supramolecular Complex Nanoparticles for Enhanced Photodynamic Cancer Therapy**  
# #    Swetha Vanathy Shutthanandan, 17, Junior, Richland High School, Richland, Washington, T: Brent Potter
- EGPH044I**    **Application of Tetrahedrite and Magnesium Silicide in a Novel Thermoelectric Unicouple to Generate Electricity from Industrial Waste Heat**  
Sriharshita Vani Musunuri, 15, Freshman, Henry M. Jackson High School, Mill Creek, Washington, T: Andrew Sevald

- PHYS049T** **Optical Ion Reflector: Investigating the Elastic Collision Relationship between Ions and the Chamber Walls during Nuclear Fusion in Order to Enhance Plasma Density by Focusing a Plasma Beam**  
Rosemichelle Marzan, 17, Senior; Cameron David Beardsley, 17, Junior;  
Hyrum Gordon Bock, 16, Sophomore, Northwest Nuclear Consortium,  
Federal Way, Washington, T: Carl Greninger  
*Kennewick, USWA01, Mid-Columbia Regional Science and Engineering Fair*
- ENEV042I** **Development of a Filtration System for Simulated Wastewater Treatment to Reduce Microplastic Pollution in a Freshwater Ecosystem**  
Payton Sherilyn Sample, 18, Senior, Sunnyside High School, Sunnyside,  
Washington, T: Joyce E. Stark
- ENMC028I** **Development of Novel Process for Large-Scale Fabrication of High Surface Area MOF (Metal Organic Framework) Membranes for CO<sub>2</sub> and H<sub>2</sub> Capture**  
# Naveena Bontha, 15, Sophomore, Hanford High School, Richland,  
Washington, T: Ben Koch  
*Tacoma, USWA02, South Sound Regional Science and Engineering Fair*
- EBED028I** **NapX: Safety Alert Mobile Application to Detect Drowsy Drivers**  
Mehar Kaushik Nallamalli, 17, Junior, Capital High School, Olympia,  
Washington, T: Michael Jansen
- MCRO037I** **Comparative Analysis of Bacteriophages, Natural Antibacterials and Pharmaceutical Antibiotics Against *Escherichia coli*, *Bacillus cereus* and *Enterobacter aerogenes***  
# Anjali Vasisht, 16, Sophomore, Olympia High School, Olympia, Washington,  
T: Michelle Whittaker
- ROBO010I** **MyGlove: Assisting Hand Movements, Grip, and Tremor Detection**  
# Surabhi Gopal Mundada, 15, Sophomore, Olympia High School, Olympia,  
Washington, T: Brian Wright  
*Vancouver, USWA04, Southwest Washington Science and Engineering Fair*
- BCHM012I** **The Effect of Grilling Method on Concentrations of Seven Carcinogenic Polycyclic Aromatic Hydrocarbons in Grilled Chicken Breasts**  
Courtney Therese Stump, 16, Junior, Columbia River High School, Vancouver,  
Washington, T: Kelly Cameron
- CELL048I** **Identification and Characterization of a Novel Immune Response against AIDS Virus**  
# Reesab Pathak, 17, Freshman, Camas High School, Camas, Washington,  
T: Kimberly Newman
- WEST VIRGINIA**  
*Fairmont, USWV50, West Virginia State Science and Engineering Fair*
- ANIM063I** **Studying the Resilience of Ants through the Effects of Food in an Ant Colony's Environment**  
Robert Donald Phillips, 17, Junior, Musselman High School, Inwood,  
West Virginia, T: Brenda Waterworth
- BMED123I** **3D Tumor Model for Testing Anticancer Drugs**  
Anisha Priya Valluri, 17, Junior, Cabell Midland High School, Ona,  
West Virginia, T: Loretta Hayes  
*Keyser, USWV01, West Virginia Eastern Panhandle Regional High School Science Fair*
- BEHA027I** **A Splotch of?**  
Samantha L. Dodson, 16, Sophomore, Spring Mills High School, Martinsburg,  
West Virginia, T: Karen Williams
- CHEM040T** **Pill Solubility**  
Sophia Anne Bakar, 16, Junior; Christiana Pettit, 17, Junior, Spring Mills High  
School, Martinsburg, West Virginia, T: Jana Woofter  
*West Liberty, USWV03, West Liberty State University Regional Science and Engineering Fair*
- MATS011I** **Safe and Sound Housing: A 2nd Year Study Using Rice Byproducts as a Substitute for Adobe in Seismically-Active Regions in Developing Nations**  
# Miriam Terese Demasi, 16, Sophomore, Wheeling Park High School,  
Wheeling, West Virginia, T: John Chacalos

## WISCONSIN

*Glendale, USWI02, Nicolet Science and Engineering Fair*

**BMED060I Predicting the Prevalence of Diabetes in Wisconsin Using System Dynamics**

Julian Nazareth, 16, Sophomore, Nicolet High School, Glendale, Wisconsin,  
T: Eliot Scheuer

*Madison, USWI04, Capital Science and Engineering Fair*

**BMED116I Diabetic Stem Cell Derived Cardiomyocytes in Disease Modeling and Therapeutic Discovery**

# Karina Schmidt, 18, Senior, Divine Savior Holy Angels, Milwaukee, Wisconsin,  
T: Betty Jo Azpell

*Milwaukee, USWI03, University School of Milwaukee – Science Fair*

**BMED029I The Reduction Oxidation Effect on the Binding of Osteonectin (SPARC) and Platelet Derived Growth Factors (PDGF) in Atherosclerosis**

Arundhati Pillai, 16, Sophomore, University School of Milwaukee, Mequon, Wisconsin, T: Robert Juranitch

**BMED066T Mammographic Breast Density: Association with Gail Risk Model and Genetics Referral in a Recently Screened Clinical Sample, and Association with Sonographic Lymph Node Type on Breast Ultrasound**

Jack Karkar Collison #, 17, Junior; Davis Helene Collison, 15, Sophomore, University School of Milwaukee, Milwaukee, Wisconsin, T: Erin Heaney, Robert Juranitch

**MATS005I Using Self-Cleaning Materials to Extend the Life of Stents and Catheters**

Anshul Bhatnagar, 16, Sophomore, University School of Milwaukee, Mequon, Wisconsin, T: Robert Juranitch

*Milwaukee, USWI50, Badger State Science and Engineering Fair*

**BMED109I Myocardial Regeneration Potential of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes**

Zheng Yan, 17, Junior, Brookfield Central High School, Brookfield, Wisconsin, T: Louise Thompson

**ENMC020I A Study of Novel Spanwise Modifying Incomplete Spiroid Winglets**

# Robert Joseph Hermanoff, 17, Junior, University School of Milwaukee, Mequon, Wisconsin, T: Robert Juranitch

## WYOMING

*Greybull, USWY01, Northern Wyoming District Science Fair*

**CELL028I Evaluating Inhibitory Actions on the NF-KB Pathway Associated with Reduced CD4 Protein Availability Generated by the Application of Delphinidin**

# Emma R. Nelson, 18, Senior, Greybull High School, Greybull, Wyoming, T: Joel Kuper

**EGCH004I Generation of Energy through Pellet Combustion: Organic Recyclables as a Novel Fuel Source**

Julianne Marie Carlson, 16, Sophomore, Greybull High School, Greybull, Wyoming, T: Joel M. Kuper

*Laramie, USWY50, Wyoming State Science Fair*

**BEHA014I Using Video to Judge Criminal Intent: Effects of Slow Motion and Jury Instructions**

Fiachra Rottinghaus, 14, Sophomore, Lander Catholic Homeschool, Lander, Wyoming, T: Mallory Ann Hayes

**CELL011I Simultaneous Inhibition of the PI3K/mTOR and Raf/MEK/ERK Pathways in Melanoma**

Darbi Schlenker, 16, Junior, Meeteetse High School, Meeteetse, Wyoming, T: Mike Power

**EGPH028I Large Scale Output Predictions for Small Emplacement Renewable Energy**

# Katrina Marie Haines, 18, Senior, Southeast Goshen County High School, Yoder, Wyoming, T: Roger Spears

**PHYS020I AGN Properties and Host Galaxy Star Formation Rate in Palomar-Green Quasars**

# Lia Eggleston, 15, Junior, Home School, Laramie, Wyoming, T: Erin Klauk

## UNITED STATES VIRGIN ISLANDS

St. Croix, TEVIO2, Good Hope Country Day School Science Fair

### CELL045I **The Implications of Hemorrhagic Shock on the Expression of Sirtuin 1 and Sirtuin 3**

Kira Griffith, 14, Sophomore, Good Hope Country Day School, Kingshill, United States Virgin Islands, T: Mary Jane Coles

### CHEM062I **Antioxidants in Dried and Fresh Herbs**

Isabelle Elise Stamper, 16, Sophomore, Good Hope Country Day School, Kingshill, United States Virgin Islands, T: Mary Jane Coles

## URUGUAY

Montevideo, URY001, Feria Nacional de Clubes de Ciencia

### BEHA001T **Teaching Young Chefs**

Isabel Geymonat, 18, Senior; Stefania Geymonat, 18, Senior; Ana Jorcin, 18, Senior, Liceo Agustin Urbano Indart Curutchet, Rosario, Uruguay, T: Gabriela Florin

### EBED009T **Sonda ALFA**

Juan Beracocha, 19, Sophomore; Michael Romero, 19, Sophomore, Escuela Tecnica de Minas, Minas, Uruguay, T: Wilder Martinez

### MCRO002T **Wastewater Treatment with Efficient Microorganism**

Pablo Guala, 17, Junior; Lucas Garance, 18, Junior; Leticia Mendieta, 17, Junior, Liceo Doctor Medulio Perez Fontana, Nueva Palmira, Uruguay, T: Laura Vico

## VIET NAM

Ha Noi City, VNM001, Ha Noi Science Fair 2012

### BCHM033T **AC-COOL, the Key to a New Green Process for Making Biodegradable Bioplastic from Agricultural By-products**

Dinh Bao Ngoc, 17, Senior; Le Minh Hieu, 16, Junior, High School for Gifted Students of Hanoi National University of Education, Ha Noi, Viet Nam, T: Nguyen Ngoc Ha

### BMED101T **Intranasal Insulin Enhances Spatial Memory and Cognitive Adjustment**

Tran Minh Hieu, 17, Senior; Le Hoang Nhat, 17, Senior, Lam Son High School for the Gifted, Thanh Hoa, Viet Nam, T: Trinh Thi Lan Anh

### CHEM055T **Study on Synthesis Material Containing Nano Magnetite Iron Oxide**

Hoang Minh Quang, 16, Junior; Dinh Tien Dung, 16, Junior, Nguyen Tat Thanh Lower and Upper Secondary School, Hanoi, Viet Nam, T: Dung Tien Nguyen

### ENMC059T **An Ultrasonic Sensor Based Travel Aid Glove for the Blind**

Lam Vu Hoang, 16, Junior; Tran Quoc Co, 17, Junior, Le Hong Phong High School for the Gifted, Ho Chi Minh, Viet Nam, T: Hung Manh Vo

### MCRO046T **Screening of Bacillus Strains Isolated from the Gastrointestinal Tracts of Shrimp to Develop Novel Probiotics for Improving Shrimp Quality and Yield**

Nguyen Minh Quang #, 17, Senior; Tran Van Anh #, 18, Senior, HUS High School for Gifted Students, Hanoi, Viet Nam, T: Anh Thi Van Nguyen

### PLNT046T **Application of Light-emitting Diode (LED) on *in vitro* Chrysanthemum morifolium Quality Improvement**

Phan Mau Thuy Tien, 18, Senior; Doan Ngoc Anh Thu, 18, Senior, Thang Long High School for the Gifted, Dalat, Viet Nam, T: Nhut Tan Duong

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# NOTES

Notes



## SOCIETY FOR SCIENCE & THE PUBLIC

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### **Intel STS Symposia Tuesday, May 12, 2015**

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Intel Science Talent Search  
Application Season Kickstart  
Rm. 403/404 –  
Finalist Resource Center

4:15pm – 5:15pm  
Intel Science Talent Search  
Rules and Judging Overview  
Rm. 410

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## Intel Corporation

The foundation of tomorrow's innovation is education. That's why making quality education available to more students around the world — with the help of technology — has inspired Intel's commitment to education for 40 years. We do more than make contributions. Intel gets directly involved in developing and helping to change policy, training teachers, offering free curricula, providing kids with a place to explore technology, and encouraging young innovators. Intel believes that students at all levels everywhere deserve to have the skills they need to become part of the next generation of innovators.

In the last decade, Intel has invested more than \$1 billion, and Intel employees have donated more than four million hours, toward improving education in more than 75 countries, regions, and territories. We are actively involved in education programs, advocacy, and technology access to help tomorrow's innovators.

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