

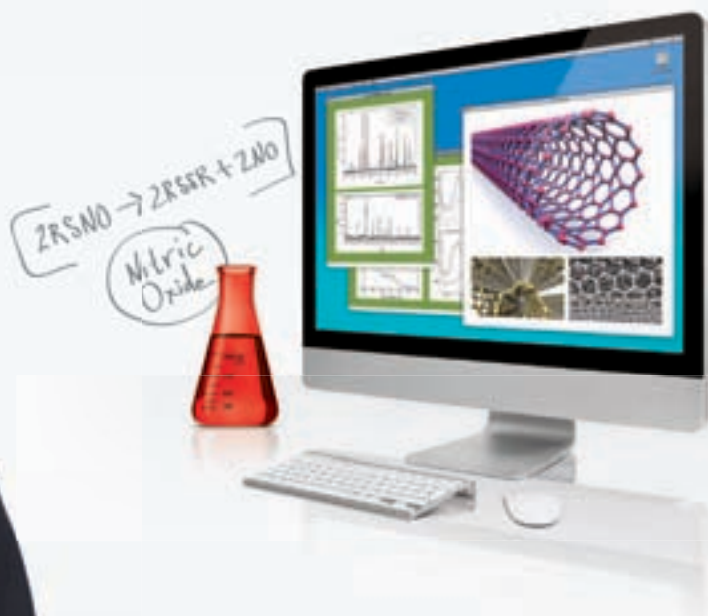
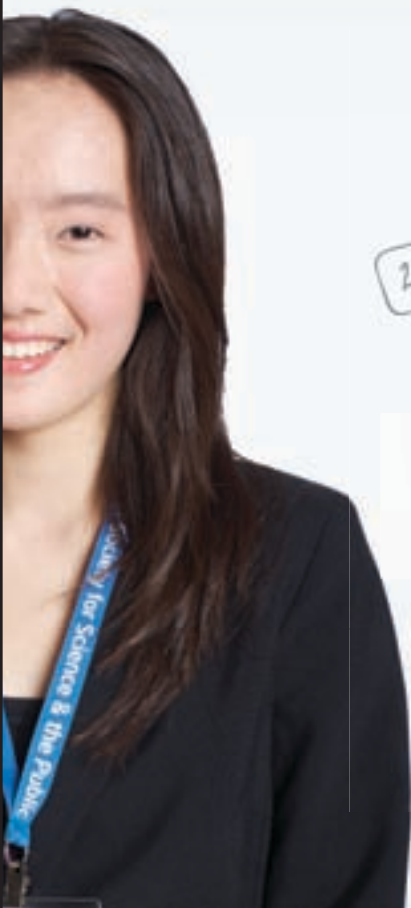
Inspired to Change Our World.



Intel International Science and Engineering Fair 2011

Program

May 8-13, 2011
Los Angeles, California



🔗 [Amy Chyao](#)
2010 Winner: Lights, Quantum Dots, Action!



**INSPIRED TO CHANGE
OUR WORLD.**

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 more than 1,500 high school students from 65 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 over \$4 million in prizes and scholarships annually.

Intel International Science and Engineering Fair 2011

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Intel Corporation

Paul S. Otellini

President and Chief Executive Officer

Welcome to the 2011 Intel International Science and Engineering Fair in Los Angeles. This city is known for being creative and on the cutting edge, making it a perfect venue for showcasing future innovators from around the world such as yourselves. My congratulations to all of you who have worked so hard to compete here this week. You should be very proud of your accomplishment. In addition, I want to thank all of your teachers, parents, mentors and fair directors for their commitment and support of your efforts.

At Intel, we believe strongly that young people like you are the key to solving the toughest global challenges of our times and that a solid education lays the foundation for success. That is why we invest more than 100 million dollars each year in education programs around the world, from professional development for teachers to science competitions like this one.

I hope you will take time this week to meet your fellow Finalists from around the world, share ideas, challenge each other and have fun together. As members of the Intel ISEF Class of 2011, we ask that you take every opportunity to pass on your enthusiasm about science and math to your friends and to younger students who could follow in your footsteps. All of us at Intel encourage you to continue to rely on your spirit of curiosity, to explore new ideas, create new technologies and to take on the scientific challenges that confront our world.

Thank you for allowing Intel to play a small role in your success. Have a great week, and best of luck to all of you.

Sincerely,

A handwritten signature in black ink that reads "Paul S. Otellini". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Paul S. Otellini
President and Chief Executive Officer
Intel Corporation

Society for Science & the Public

Elizabeth Marincola
SSP President and
Publisher, *Science News*



Welcome from Society for Science & the Public

Welcome to the Intel International Science and Engineering Fair 2011, which represents the world's best science from young researchers. In the 62nd year of the science and engineering fair, we congratulate each Finalist for earning the opportunity to participate. Every Finalist has earned this privilege through hard work, perseverance, and ingenuity. As we acknowledge the accomplishments of students, we trust students will acknowledge the critical support of the parents, teachers, and mentors who have been their research partners and enablers.

As we gather in Los Angeles this week, I look forward to meeting many students and learning about their research. By virtue of scientific curiosity and achievement, Intel ISEF Finalists have the potential to help solve many of the world's most vexing problems and, therefore, contribute to the realization of our best global community. No matter what the future holds, I urge every Finalist to continue to communicate the importance of scientific research to family, friends, and the broader community, and to stay involved with the Intel ISEF and Society for Science & the Public (SSP).

We acknowledge the Intel Foundation and the Intel Corporation gratefully for their continued partnership with SSP, which has made the Intel ISEF possible. Intel's global leadership and commitment to science, engineering, and math education is an inspiring example of corporate investment in the future. SSP also acknowledges with gratitude the more than 70 other organizations that have provided support and awards for the Intel ISEF 2011.

SSP salutes the hard-working Intel ISEF volunteers in Los Angeles and around the country. These individuals share an unwavering dedication to scientific research and education and have generously given their time and energy to ensure a successful event.

Congratulations. Enjoy a rewarding, inspiring, and memorable time at the Intel ISEF 2011.

Sincerely,



Elizabeth Marincola
President, Society for Science & the Public, and
Publisher, *Science News*



State of California

Jerry Brown
Governor



OFFICE OF THE GOVERNOR

May 8, 2011

Intel International Science and Engineering Fair

Welcome to all those who have gathered for the 2011 Intel International Science and Engineering Fair.

California is proud to host this prestigious event. To all the participants, I commend your dedication to science, engineering and discovery. You are the leaders of tomorrow and I know that your ideas and actions are going to change the world for the better.

Our Golden State has an incredibly rich history of scientific achievement, and this gathering of young innovators will continue that legacy. I applaud everyone who had a hand in making this event a reality. Thank you for giving these talented youth an opportunity to shine.

On behalf of all Californians, I offer my very best wishes for an unforgettable competition and a great time in Los Angeles.

Sincerely,


EDMUND G. BROWN JR.

State of California
Barbara Boxer
U.S. Senate



Welcome from the U.S. Senate

BARBARA BOXER
U.S. SENATOR

United States Senate

JOHN F. BAKER, JR., CLERK

OFFICE

WASHINGTON, DC 20540-5000

20540-5000

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May 13, 2011

Intel International Science and Engineering Fair
c/o Society for Science & the Public
1719 N Street, N.W.
Washington, D.C. 20036

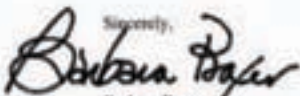
Dear Friends:

I send my warmest greetings as you gather in Los Angeles, California, for the 2011 Intel International Science and Engineering Fair (Intel ISEF). You have my best wishes for a fun and educational competition!

For more than 60 years, the Society for Science & the Public has hosted the International Science and Engineering Fair. As the world's largest international pre-college science competition, the Intel ISEF provides an annual forum for more than 1,600 high school students from over 60 countries, regions, and territories to present their independent research.

I commend all the students who have made it this far in the competition, and applaud them for their hard work and dedication to the sciences. It is students like these who will become America's next generation of top scientific minds. Please know that I am working hard to keep America at the forefront of technological innovation, and that you can count on me to support students who are interested in science, technology, engineering, and math careers.

Again, I send my sincere congratulations to all of the Intel ISEF's student participants on their remarkable accomplishments, and wish them all the best in their future endeavors.

Sincerely,

Barbara Boxer
United States Senator

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PHOTOGRAPH BY [Name]



State of California

Dianne Feinstein

U.S. Senate

DIANNE FEINSTEIN
CALIFORNIA



JOINT COMMITTEE ON BUDGETING
COMMITTEE ON APPROPRIATIONS
COMMITTEE ON THE JUDICIARY
COMMITTEE ON HEALTH AND HUMAN RESOURCES

United States Senate
WASHINGTON, DC 20510-0504
<http://feinstein.senate.gov>

May 8, 2011

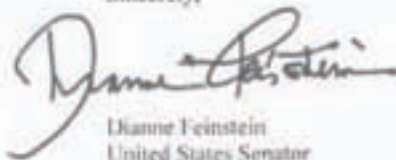
Dear Friends,

It is a pleasure for me to extend a warm welcome to everyone attending the 2011 Intel Science and Engineering Fair (Intel ISEF). I am sorry that I cannot be there with you on this important occasion.

With over 1500 students participating, Intel ISEF is the world's largest pre-college science fair. Those of you competing today represent the next generation of scientific and technical innovators. The dedication and talent you have shown in getting here is truly remarkable and I hope you continue to nurture those exceptional qualities.

As a United States Senator representing the people of California, I congratulate you all on your hard work and wish you the very best for a successful competition.

Sincerely,



Dianne Feinstein
United States Senator

City of Los Angeles
Antonio R. Villaraigosa
Mayor



ANTONIO R. VILLARAIGOSA
MAYOR

April 15, 2011

Dear Friends,

On behalf of the City of Los Angeles, it is my pleasure to welcome all the participants of the Intel International Science and Engineering Fair (Intel ISEF).

With over 1,600 high school students from all over the world exhibiting their scientific talents, Intel ISEF remains one the world's most recognized pre-college science fairs providing over \$4 million in scholarships and prizes. Los Angeles is proud to host these distinguished young minds from all over the globe.

I applaud the brilliant minds taking part in Intel's ISEF and commend all the participants for their hard work and dedication towards the growth of science and engineering. The allegiance and dexterity you've all shown in getting this far is extraordinary.

I extend my best wishes for a successful fair.

Very truly yours,

A stylized, handwritten signature in dark ink, appearing to read 'Antonio R. Villaraigosa'.

ANTONIO R. VILLARAIGOSA
Mayor

Welcome from the Mayor of Los Angeles

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

The Intel Corporation
and
The Intel Foundation

for their support of the Intel ISEF 2011.



In the last decade, Intel has invested more than \$1 billion,
and Intel employees have donated close to 3 million employee
volunteer hours to improve education in more than
65 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.

SSP and Intel thank the following organizations for their generous support of the Intel ISEF 2011 Public Day to be attended by 5,000 local middle school and high school students and their teachers.

**Agilent Technologies Foundation
Lynn Peavey Company
National Museum of Crime & Punishment
Northrop Grumman Foundation
Ricoh Americas Corporation**

Together they are proud to support these students and hope their participation will inspire students, teachers, parents, scientists and others.



Intel ISEF 2010 Grand Award winners Yale Fan and Kevin Ellis

In 2011, more than 1,500 student Finalists earned the right to attend the Intel ISEF in Los Angeles as a result of winning an Intel ISEF-affiliated fair at a local, regional, or national level.

Finalists in 2011 will compete for over \$4 million in awards and prizes. They are judged on their creative ability and scientific thought, as well as the thoroughness, skill, and clarity shown in their projects.

2011 Grand Awards include:

The Gordon E. Moore Award

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

The Gordon E. Moore Award recognizes the Best of the Best among the outstanding students from around the world who participate in the 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 Awards

Intel and SSP will present \$50,000 awards to two Best in 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.

Dudley R. Herschbach SIYSS Award

An all-expense-paid trip enables three Finalists to attend the Stockholm International Youth Science Seminar (SIYSS) (www.fuf.org/siyss), which includes attendance at the Nobel Prize ceremonies, in Stockholm, Sweden. The Dudley R. Herschbach SIYSS Award is a multi-disciplinary seminar highlighting some of the most remarkable achievements by young scientists from around the world. Students must be 18 years old prior to the Nobel ceremony in December to be considered. This award is named for Dudley R. Herschbach, Harvard Professor and 1986 Nobel Laureate in chemistry. He is Emeritus Board Chair of Society for Science & the Public.

European Union Contest for Young Scientists

An all-expense-paid trip enables attendance at the European Union Contest for Young Scientists — located in a new city each year.

Intel Best of Category Awards*

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

Intel ISEF Grand Awards*

Presented in each of the 17 Intel ISEF categories, Grand Awards are presented for:

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

Massachusetts Institute of Technology— Lincoln Laboratory, Ceres Connection

Lincoln Lab has partnered with SSP and the Intel ISEF to promote science education through the 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 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.

**Monetary awards are allocated by project, not by number of Finalists winning the award. For example, a three-person team project that wins 1st place will win \$3,000, to be split evenly among the team members.*



Intel ISEF 2011 Special Award Organizations provide educational scholarships, cash awards, summer internships, scientific field trips and equipment grants. SSP thanks the following organizations for their support of the Intel ISEF.

Acoustical Society of America
ADA Foundation
Agilent Technologies Foundation
Air Force Research Laboratory on behalf of the United States Air Force
Albert Langdon Swank Experimental Physics Award
American Association for Clinical Chemistry
American Association of Pharmaceutical Scientists
American Association of Physics Teachers and the American Physical Society
American Chemical Society
American Committee for the Weizmann Institute of Science
American Geological 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
American Veterinary Medical Association
Association for Computing Machinery
Association for Women Geoscientists
Astronomical Society of the Pacific and the American Astronomical Society
AVASC-Ashtavadhani Vidwan Ambati Subbaraya Chetty Foundation
CACO Pharmaceutical & BioScience Society
China Association for Science and Technology (CAST)
Coalition for Plasma Science
Drexel University
Endocrine Society
European Organization for Nuclear Research–CERN
Florida Institute of Technology

GE Energy
 Goethe-Institut
 Google
 IEEE Foundation
 IEEE Computer Society
 IIT College of Psychology
 International Council on Systems Engineering-INCOSSE
 King Abdul-Aziz & his Companions Foundation for Giftedness and Creativity
 Medprin Biotech, Inc.
 Mu Alpha Theta, National High School and Two-Year College Mathematics Honor Society
 National Anti-Vivisection Society
 National Collegiate Inventors and Innovators Alliance/The Lemelson Foundation
 National Institute on Drug Abuse, Friends of NIDA, National Institutes of Health
 National Oceanic and Atmospheric Administration-NOAA
 National Taiwan Science Education Center
 Office of Naval Research on behalf of the United States Navy and Marine Corps
 Oregon Institute of Technology
 Patent and Trademark Office Society
 ProConn Power, Inc.
 Psi Chi, The International Honor Society in Psychology
 Ricoh Americas Corporation
 Sigma Xi, The Scientific Research Society
 Society for Experimental Mechanics
 Society of Experimental Test Pilots
 Society of Exploration Geophysicists
 SPIE – The International Society for Optical Engineering
 States United for Biomedical Research (SUBR)
 Synaptics, Inc.
 United States Army
 United States Environmental Protection Agency
 United Technologies Corporation
 University of the Sciences in Philadelphia
 Vacuum Technology Division of the American Vacuum Society

For more information on these awards and organizations, see:
www.societyforscience.org/isef/specialawards



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 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 winner’s field and on the world at large.

Intel Foundation is proud to present the 2011 winner of the Gordon E. Moore Award, who will be recognized with an award in the amount of \$75,000.

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

- Don't 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.
- Don't 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.

About Los Angeles

Los Angeles, California is the entertainment capital of the world, a cultural mecca boasting more than 300 museums, and a paradise of good weather. Attractions include the Walk of Fame's collection of stars (numbering 2,342, and growing by one or two a month) as well as career opportunities like those presented in the expanding biotech industry. It is the only city in North America to have hosted the Summer Olympics twice. Downtown Los Angeles is the largest government center outside of Washington, DC. Los Angeles has the only remaining wooden lighthouse in the state (located in San Pedro's Fermin Park) and the largest historical theater district on the National Register of Historic Places (located Downtown on Broadway).

Hotels	Address	Phone
JW Marriott Los Angeles LA LIVE	710 W. Olympic Boulevard	(213) 742-6855
Figueroa Hotel	939 S. Figueroa Street	(213) 627-8971
Hilton Checkers	535 S. Grand Avenue	(213) 624-0000
Los Angeles Marriott Downtown	333 S. Figueroa Street	(213) 617-1133
Luxe City Center Hotel	1020 S. Figueroa Street	(213) 748-1291
Millennium Biltmore	506 S. Grand Avenue	(213) 624-1001
Ritz Milner Hotel	813 S. Flower Street	(213) 627-6981
Sheraton Los Angeles Downtown	711 S. Hope Street	(213) 488-3500
The Standard Downtown LA	550 S. Flower Street	(213) 892-8080
Westin Bonaventure	404 S. Figueroa Street	(213) 624-1000
Wilshire Grand Los Angeles	930 Wilshire Boulevard	(213) 688-7777

About Los Angeles Convention Center

Intel ISEF participants must wear their name badges to participate in fair activities and events. Admission to the Los Angeles Convention Center (LACC) is restricted to persons wearing an Intel ISEF name badge.

The LACC is a smoke-free environment. Outside food and beverages are prohibited in the LACC Exhibit Halls.

All Intel ISEF 2011 events take place at the Los Angeles Convention Center (LACC) unless otherwise noted.

Event/Group	Location	Day
Advisory Council Meeting	403 B	5/8-5/9, 5/11-12
AP Testing	150 A/B	5/9-5/10
Excellence in Science & Technology Panel Sponsored by Intel Corporation	West Hall A	5/10
Finalist Project Exhibits	Halls H & J	5/8-5/12
Finalist Resource Center	406 A/B	5/8-5/10
Grand Awards Ceremony	West Hall A	5/13
Housing Information	Registration Complex	5/8-5/12
HUB (Center of Exhibit Hall)	Halls H & J	5/9-5/13
IB Testing	150C	5/8-5/13
Information Desk	South Lobby	5/7-5/13
Intel e-Lounge	152, 153 A-C	5/8-5/12
Intel ISEF Expo 2011	Hall G	5/9-5/12
International/Volunteer Office	306 A/B	5/8-5/13
Locator Card Kiosk	Registration Complex	5/9-5/12
Lost and Found	HUB and Registration Complex	5/8-5/13
Medals and Certificates	Registration Complex	5/8-5/13
Official Party Registration	Registration Complex	5/7-5/13
Opening Dinner	West Hall B	5/9
Opening Ceremony	West Hall A	5/9
Press Room	303 A/B	5/8-5/13
Public Visitation	Halls H & J	5/12
Retail Store	151	5/8-5/13
Scientific Review Committee (SRC)	404 A/B	5/8-5/10
Society for Science & the Public Information Booth	Registration Complex	5/8-5/13
Special Award Ceremony	West Hall A	5/12
Student Pin Exchange	J. W. Marriott Hotel	5/8
(Finalists and Student Observers Only)	Diamond Ballroom	
Symposia	409A, 409B, 411	5/9-5/12
Tour Desk	South Lobby	5/7-5/13

By entering the Intel International Science and Engineering Fair (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.

Join the Conversation!

It is easy to share your Intel International Science and Engineering Fair experience with family and friends today.

Blogs:

www.inspiredbyeducation.com

Twitter:

@intel_education, #IntellSEF - www.twitter.com/intel_education

@society4science - www.twitter.com/society4science

Facebook:

intel.ly/intel-edu

www.facebook.com/societyforscience

Flickr:

www.flickr.com/groups/isef2011/

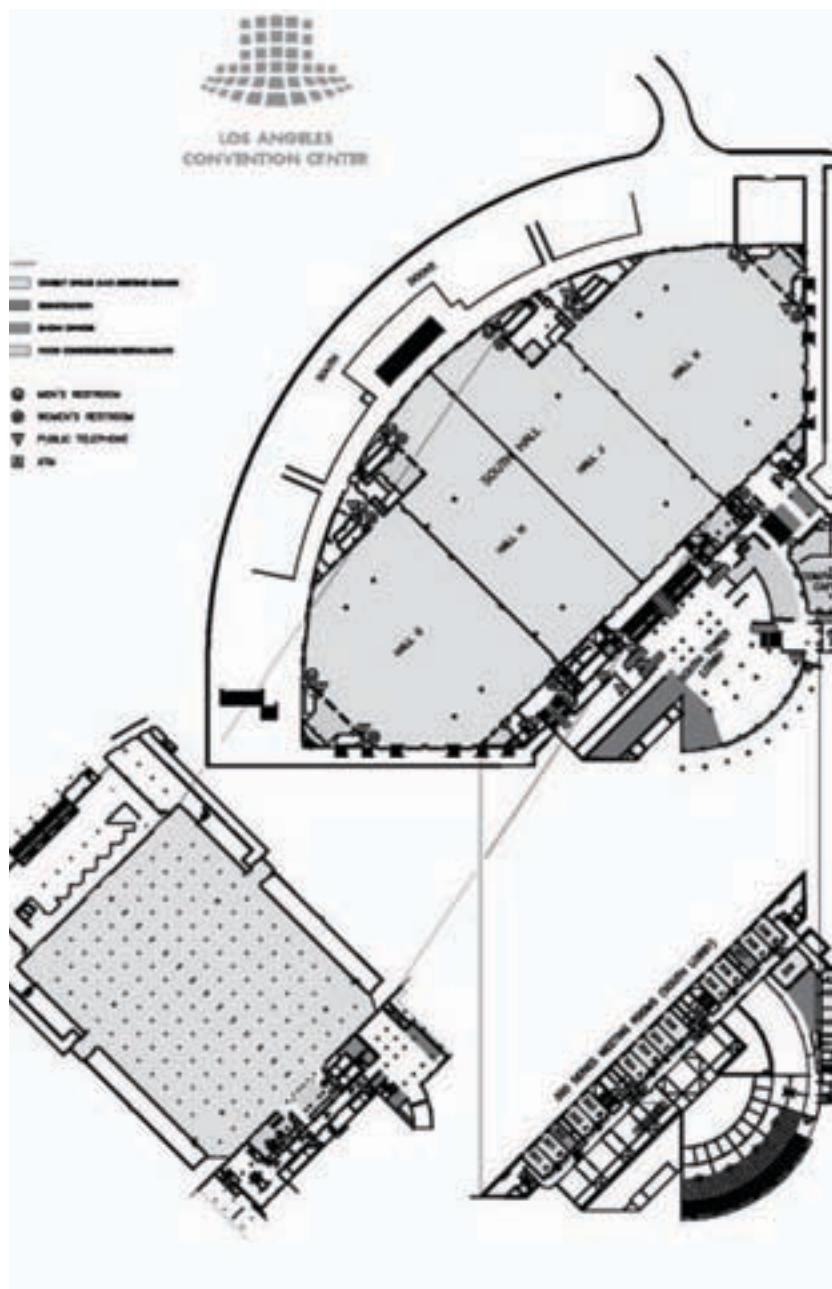
YouTube:

www.youtube.com/user/channelintel

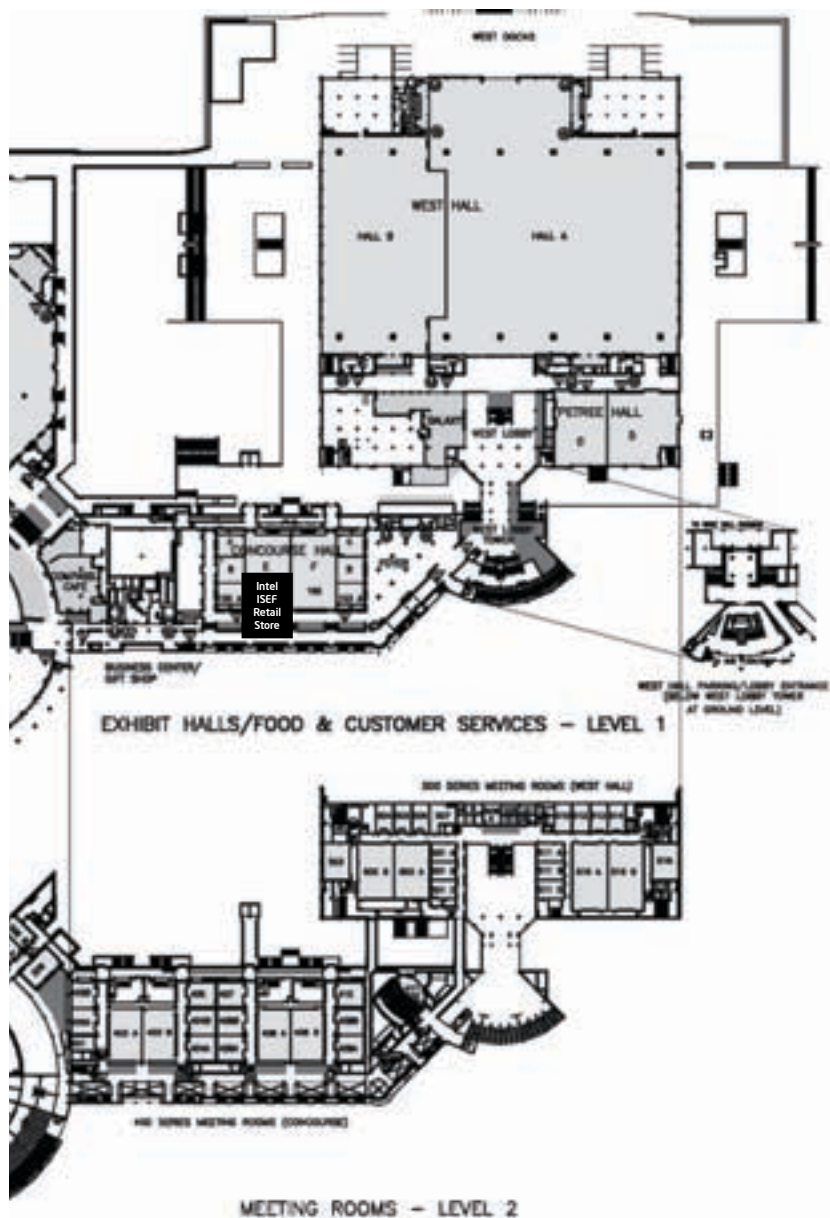
www.youtube.com/societyforscience



Map of Los Angeles Convention Center



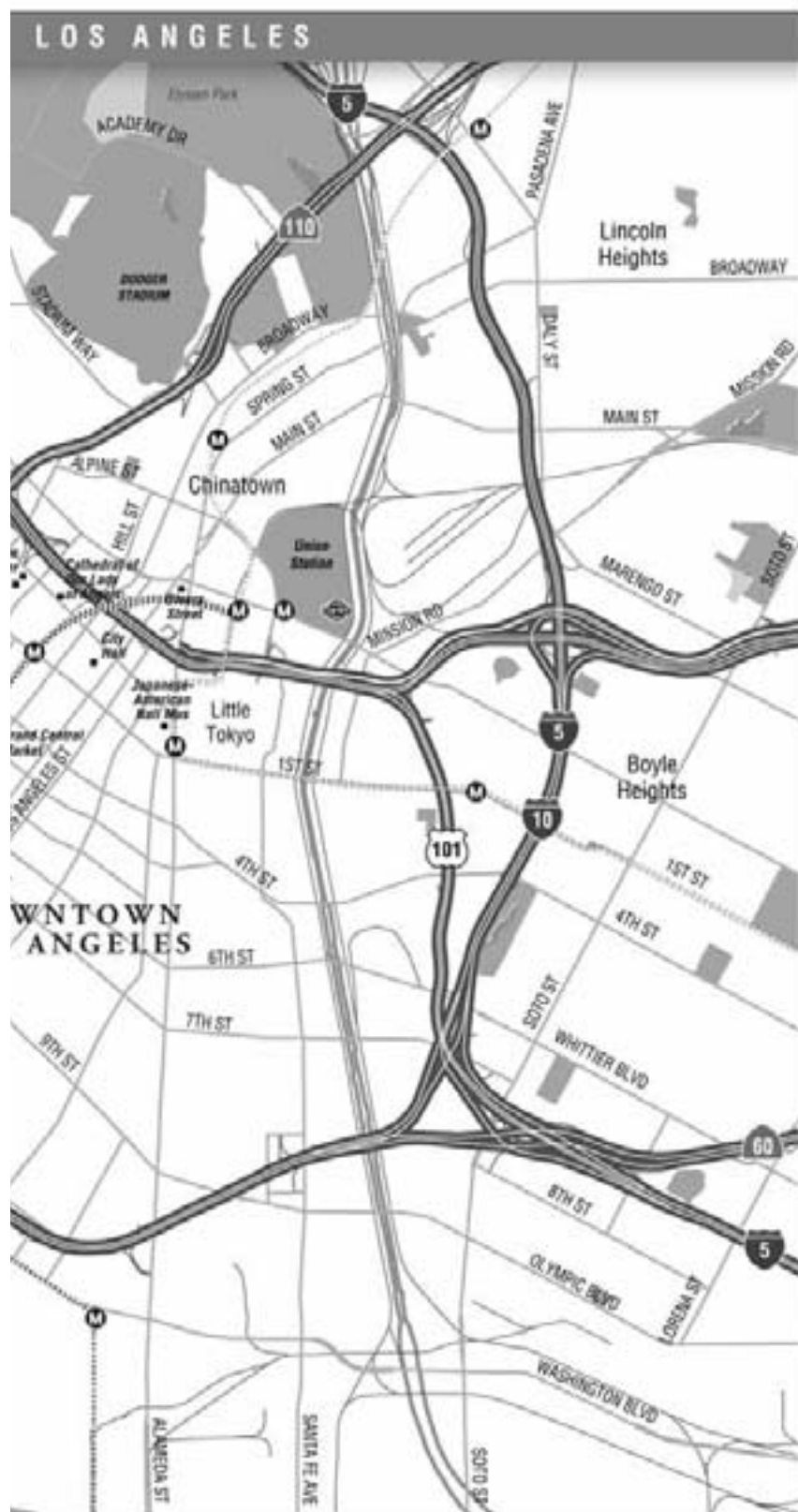
Map of Los Angeles Convention Center



Map of Los Angeles



Map of Los Angeles



Inspired to Change Our World.



Talking Science

A Communications Symposium
for Intel ISEF 2011 Finalists
provided by
Intel Corporation

conducted by
Jack Franchetti Communications

Don't miss this opportunity. Learn how to:

- Positively impact your judging interview.
- Handle questions from the media.
- Talk to the general public without losing them.

All Finalists are encouraged to attend.
Multiple Sessions available—Los Angeles Convention Center

Monday, May 9	12:30 p.m.–2:00 p.m. 2:30 p.m.–4:00 p.m.	411 (theatre)
Tuesday, May 10	10:45 a.m.–12:15 p.m.	411 (theatre)

Jack Franchetti is a communications specialist who presents workshops for Intel ISEF Finalists that teaches guiding principles and techniques to convey the science of your project in lay terms. Students have indicated that this program is helpful with the judging process, media interviews, and conversing with the public about their project.

INTEL ISEF 2011

LOS ANGELES, CALIFORNIA



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.—7:00 p.m.

Sunday—Thursday: 8:00 a.m.—7:00 p.m.

Friday: 8:00 a.m.—3:00 p.m.



APPAREL PROVIDED BY:

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CONNECTION
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www.gcswear.com

Open Daily

Finalist Exhibit Hall and the HUB

Sunday (Project Set-up and D&S Inspections)	8:00 a.m.-8:00 p.m.~OFF	Halls H and J
Monday(Project Set-up and D&S Inspections)	8:00 a.m.-6:00 p.m.~OFF	
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., 1:15 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	Noon-2:00 p.m.~OFF	

Finalist Resource Center

Sunday-Monday	8:00 a.m.-9:00 p.m.	406 A/B
Tuesday	8:00 a.m.-Noon	

Intel e-Lounge

Sunday	3:00 p.m.-10:00 p.m.	Concourse Hall 152-153
Monday-Thursday	8:00 a.m.-6:00 p.m.	

Intel ISEF Expo 2011 booths

Monday	1:00 p.m.-4:00 p.m.	Hall G
Tuesday	9:00 a.m.-5:00 p.m.	
Wednesday	9:00 a.m.-1:00 p.m.	
Thursday	(Free coffee and pastries will be served) 8:00 a.m.-4:00 p.m.	

International/Volunteer Office

Sunday-Thursday	8:00 a.m.-10:00 p.m.	306 A/B
Friday	8:00 a.m.-Noon	

Local Information Desk

Sunday-Tuesday	8:00 a.m.-7:00 p.m.	South Lobby
Wednesday-Thursday	8:00 a.m.-5:00 p.m.	
Friday	Noon- 2:00 p.m.	

Official Party Registration

Saturday	3:00 p.m.-7:00 p.m.	South Hall Lobby
Sunday-Thursday	8:00 a.m.-9:00 p.m.	
Friday	8:00 a.m.-10:00 a.m.	

Retail Store

Saturday	3:00 p.m.-7:00 p.m.	Room 151
Sunday-Thursday	8:00 a.m.-7:00 p.m.	
Friday	8:00 a.m.-3:00 p.m.	

Tour Booth

Sunday-Friday	8:00 a.m.-5:30 p.m.	South Lobby
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**Participants are encouraged to visit
www.societyforscience.org/intelisef2011
 throughout the week for schedule updates.**

Sunday, May 8

See page 24 for hours and locations of daily recurring events and resource desks.
All events take place in the Los Angeles Convention Center (LACC) unless otherwise noted.

- | | | |
|---|--|--|
| 8:00 a.m.—5:00 p.m.
(Afterwards by appt.) | Project Drop-Off
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. | LACC Loading Dock |
| 8:00 a.m.–8:00 p.m. | Setup of Projects/Display & Safety Inspections | Halls H & J |
| 8:00 a.m.–9:00 p.m. | SRC Interviews
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 7 at www.societyforscience.org/intelisef2011 . | 404 A/B |
| 3:00 p.m.–10:00 p.m. | Intel e-Lounge
The Intel e-Lounge provides a wireless hotspot as well as Intel® mobile technology-based notebook computers to access the internet and email while you are at the Intel ISEF. Attendees can also take a break and watch movies in the visual entertainment area. | 152, 153 A-C |
| 4:30 p.m.–6:00 p.m. | Advisory Council Meeting | 403 B |
| 7:00 p.m.–9:00 p.m. | Student Pin Exchange
<i>Finalists and Student Observers Only—Casual Attire</i>
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. | JW Marriott Hotel, Diamond Ballroom |

Monday, May 9

- | | | |
|------------------------------|---|------------------------|
| 8:00 a.m.–Noon | SRC Interviews | 404 A/B |
| 8:00 a.m.–6:00 p.m. | Project Setup/Display & Safety Inspection
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. | Halls H & J |
| 8:00 a.m.–6:00 p.m. | Intel e-Lounge | 152/153 A-C |
| 8:30 a.m.–4:00 p.m. | Symposia
See full schedule on pages 31–36. | 409-411 |
| 1:00 p.m. - 4:00 p.m. | Intel ISEF Expo 2011
All Intel ISEF 2011 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. | Hall G |
| 1:00 p.m.–2:00 p.m. | Advisory Council Meeting | 403 B |
| 3:30 p.m.–6:30 p.m. | Opening Ceremony Dinner
All registered attendees welcome. | West Hall B |

6:30 p.m.–7:00 p.m.	Opening Ceremony Pre-Show <i>Casual Attire—Doors open at 6:10 p.m.</i>	West Hall A
7:00 p.m.–8:30 p.m.	Opening Ceremony Sponsored by Intel Corporation The Intel ISEF Opening Ceremony officially kicks off the week of events for 2011. This high-energy event will be led by master of ceremonies, Chad Zdenek, host of the G4 Network's <i>It's Effin' Science</i> . The keynote will be by Jeffrey Katzenberg, Chief Executive of DreamWorks Animation SKG. Mr. Katzenberg's production company has produced hit movies such as <i>Shrek</i> and <i>Kung Fu Panda</i> . 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 when you tweet your questions.	West Hall A
9:30 p.m.	Final Project Infractions List Posted at Registration, outside of Exhibit Halls, and on www.societyforscience.org/intelisef2011 .	

Tuesday, May 10

8:00 a.m.–9:30 a.m.	Project Infraction Clearance Both the Scientific Review Committee and Display & Safety Committee will have conducted a final review of ALL projects on Monday afternoon. If any problems with a project are identified during that review, the Finalist's booth number will be posted outside the Exhibit Hall. Only those Finalists with identified problems will be permitted in the Exhibit Hall beginning at 8:00 a.m. A project cannot be judged unless all problems have been cleared by 9:30 a.m., Tuesday, May 10.	Halls H & J
8:00 a.m.–6:00 p.m.	Intel e-Lounge	152/153 A-C
8:30 a.m.–5:30 p.m.	Symposia See full schedule on pages 31–36.	409-411
9:00 a.m.–5:00 p.m.	Intel ISEF Expo 2011	Hall G
10:00 a.m.–11:30 a.m.	Press/Public Relations Time with Finalists All Finalists have the opportunity to come to the Exhibit Hall for scheduled press interviews, to be available for impromptu visits from visiting sponsors and dignitaries and to check their booth area.	Halls H and J
2:00 p.m.–4:00 p.m.	Excellence in Science and Technology Panel <i>Presented by Intel Corporation—Casual Attire</i> All attendees are invited to a conversation with Nobel Laureates. Panelists slated to attend are: Paul Berg, J. Michael Bishop, Martin Chalfie, Dudley Herschbach, Robert Horvitz, Douglas Osherooff, and Richard Roberts. The panel will be moderated by NPR Science Correspondent Joe Palca.	West Hall A

Student Observer Caucus is a pilot program for student observers consisting of a full day of interactive activities that will be held in Rooms 408A & 408B.

Wednesday, May 11 from 8:30am to 5:45pm
(with a break for you to join your fair for lunch)

Opening Ceremony

Monday, May 9
Los Angeles Convention Center
West Hall A



INSPIRED TO CHANGE
OUR WORLD.



Jeffrey Katzenberg
Chief Executive Officer and
Co-Founder and Director,
DreamWorks Animation SKG

The Intel ISEF Opening Ceremony officially kicks off the week of events for 2011. This high-energy event will be lead by master of ceremonies,

Chad Zdenek, host of the G4 Network's *It's Effin' Science*. The keynote will be by Jeffrey Katzenberg, Chief Executive of DreamWorks Animation SKG. DreamWorks Animation is the largest animation studio in the world and has released 21 animated feature films, including *Shrek*, *Kung Fu Panda* and *How to Train Your Dragon*.

Be part of the show!
You can participate in the discussion by tweeting questions through Twitter. Make sure you have your Twitter account set up and include the hash tag #intelisef when you tweet your questions.
Start tweeting now!

7:30 p.m.—9:30 p.m.

Intel ISEF Night at LA Live—Club Nokia, Conga Room, ESPN Zone and Lucky Strike: LA Live complex, 800 West Olympic Boulevard (next to the JW Marriott and across from the Staples Center)

All registered Official Party members are invited to this round robin event. At Club Nokia, Finalists and Observers will be able to dance the night away at a DJ-hosted dance party in one of downtown Los Angeles' hottest night clubs. Conga Room will host only those Official Party members who are over 21 and will feature a cash bar. Visitors to Conga Room will enjoy a live Latin band. Students and adults alike may visit ESPN Zone and/or Lucky Strike. ESPN Zone features 150 large-screen HD TVs playing every major sporting event; there are more than 45 interactive games that are free to play. Lucky Strike is an upscale bowling alley featuring 18 lanes and 2 billiards tables. Shoes and bowling are free for Intel ISEF participants during this event. Dinner will be served at all venues. You **MUST** wear your Intel ISEF badge in order to get into any venues. You are encouraged to move among the venues which are adjacent to each other in the LA Live complex.

Wednesday, May 11

8:00 a.m.—6:00 p.m. **Intel e-Lounge** 152, 153 A-C

8:15 a.m.—11:45 a.m. **Exhibit Hall Open** Halls H & J
Finalists at Projects for Interviews—Professional Attire
Finalists & Judges only

8:30 a.m.—4:30 p.m. **Symposia** 409-411
See full schedule on pages 31–36.

9:00 a.m.—1:00 p.m. **Intel ISEF Expo 2011** Hall G
Free coffee and pastries will be served from
9:00 a.m. until 11:00 a.m.

11:45 a.m.—1:00 p.m. **Lunch Break**
No outside food may be brought into the Convention Center.

1:15 p.m.—3:45 p.m. **Finalists at Projects for Interviews** Halls H & J
Finalists and Judges only—Professional Attire

4:15 p.m.—6:00 p.m. **Finalists at Projects for Unscheduled Interviews** Halls H & J
Finalists and Judges only—Professional Attire

7:00 p.m.—Midnight **Intel ISEF Night at Universal Studios Hollywood**
For one night, Universal Studios Hollywood belongs to Intel ISEF. Only Official Party will be admitted to the park. Buses will start departures from the Convention Center at 6:00 p.m. Departures from all of the official Intel ISEF block hotels will begin at 6:15 p.m. Guests will enjoy exclusive access to rides, including the Simpsons, Revenge of the Mummy, Jurassic Park the Ride, and Shrek 4-D. Studio tours will be running until 9:30 p.m. Concession stands will be open and will offer a variety of dining options at no charge. Guests are also welcome to visit Universal Walk, where they will find a number of shopping opportunities as well as restaurants and nightclubs. Universal Walk is open to the general public and is NOT for the exclusive use of Intel ISEF participants. All activities in Universal Walk are at the expense of the participant and not Intel ISEF. Transportation back from the park to all block hotels will be continuous throughout the evening until midnight.

Don't miss the
**Excellence in Science and
Technology Discussion Panel**

Tuesday, May 10, 2:00 p.m.
Los Angeles Convention Center, West Hall A



Paul Berg
Nobel Prize—Chemistry
1980



J. Michael Bishop
Nobel Prize—Physiology or
Medicine
1989



Martin Chalfie
Nobel Prize—Chemistry
2008



Dudley Herschbach
Nobel Prize—Chemistry
1986



H. Robert Horvitz
Nobel Prize—Chemistry
2002



Douglas Osheroff
Nobel Prize—Physics
1996



Richard Roberts
Nobel Prize—Physiology or
Medicine
1993



Joe Palca
Science Correspondent, NPR
Moderator

presented by
Intel Corporation

Thursday, May 12

8:00 a.m.-6:00 p.m.	Intel e-Lounge	152, 153 A-C
8:00 a.m.-4:00 p.m.	Intel ISEF Expo 2011	Hall G
9:00 a.m.-3:30 p.m.	Symposia See full schedule on pages 31-36.	409-411
9:00 a.m.-9:00 p.m.	Public Visitation Day	Halls H & J
10:00 a.m.-2:00 p.m.	All Finalists Required at Projects Meal vouchers will be provided to Finalists for Lunch.	Halls H & J
1:00 p.m.-3:00 p.m.	Advisory Council Meeting	403 B
7:00 p.m.-10:00 p.m.	Special Award Ceremony (Doors open at 6:30 p.m.)—Professional Attire Ceremony in which Special Award Organizations, academic institutions and government agencies give awards.	West Hall A

Friday, May 13

9:00 a.m.-Noon	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 are announced as well as the top overall winners for Intel ISEF 2011.	West Hall A
Noon-2:00 p.m.	Exhibit Hall Open for Project Teardown Finalists take down and pack projects for return home. Any stored packing material will be at project booth by 12:00 p.m. Finalists transporting their own projects will load them upon completion of packing. Projects being shipped via UPS or Freeman/heavy freight must be packed and processed for shipping by 2:00 p.m. Intel ISEF 2011 nametags required at all times during dismantling. No exceptions will be made.	Halls H & J
1:00 p.m.-Midnight	Tour to Disneyland Not a sponsored event Intel ISEF Attendees may register for this tour for a fee at the Tours Desk in the South Hall Lobby. This is a great opportunity for those staying Friday night to enjoy one of Southern California's premier destinations.	South Hall Lobby

Transportation back to Los Angeles Airport will be provided on Friday, May 13 from the Los Angeles Convention Center immediately following the close of the Grand Awards Ceremony, then from block hotels through the afternoon on Friday and Saturday morning.

Guests must sign up for outbound transportation by Wednesday, May 11 at the Tours Desk located at the registration counter at the Fair. These services are limited to those who reserved their hotel through the official Intel ISEF registration system.

Symposia are an opportunity to share information with students, parents, teachers, fair directors, and faculty. Content is the view and responsibility of the presenter(s), not of Society for Science & the Public nor Intel.

Monday, May 9

8:45 a.m.–9:45 a.m.

Room: 409A

1-Empowering the Teaching Professional through Project Management Planning

Jennifer Carter, Director of Outreach, Society for Science & the Public

The teaching professional will be presented with the concepts of project management, emphasis on a comprehensive project management plan (PMP) for research programs. Teachers attending will gain a more complete understanding of the subject matter while developing essential 21st Century applied skills, such as incorporating new technologies, collaboration, communications and leadership.

Type: Presentation

Audience: Fair Directors & Teachers

9:00 a.m.–10:30 a.m.

Room: 411 (theatre)

2-E-Commerce: Taking Your Innovation to Market

Neelam Patel, The Network for Teaching Entrepreneurship, New York, NY

During this interactive session students will have the opportunity to learn about how to market, promote, and sell their current innovation into the global market place.

Type: Workshop

Audience: Students

9:30 a.m.–10:30 a.m.

Room: 409B

3-Engage More Students in Science through Contextualized and Differentiated Programming and Assessment

Mia Sharma, International Grammar School, Australia

Learn to excite even the most disengaged students through contextualized and differentiated learning. Programs and assessments for 9th and 10th grade will be provided.

Type: Presentation

Audience: Teachers

10:00 a.m.–11:00 a.m.

Room: 409A

4-The SSP Fellows Application—101

Jennifer Carter, Director of Outreach, Society for Science & the Public, Washington, DC

Are you new to the SSP Fellows application process? Fellows Application-101 will show you how to begin, some common hints for preparing your award proposal, and reasons why some proposals aren't funded.

Type: Presentation

Audience: Fair Directors & Teachers

11:00 a.m.–Noon

Room: 409B

5-Digging Deeper into Your Data

Christopher J. Malone, Winona State University, Winona, MN

This presentation will help students, parents, and teachers identify what is gained when appropriate statistical analyses are done for science fair projects.

Type: Workshop

Audience: Fair Directors, Teachers & Students

11:00 a.m.–Noon

Room: 411 (theatre)

6-Judging at the Intel ISEF

Robert Yost, Volunteer Judging Ombudsman

Michele Glidden, Director, SSP Science Education Programs

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 & Students

Cancelled

12:30 p.m.–2:00 p.m.

Room: 411 (theatre)

7-Talking Science

Jack Franchetti, Jack Franchetti Communications, Inc.

A communications specialist teaches guiding principles and techniques to convey the science of your project in lay terms. Students consider this program helpful with the judging process, media interviews, and conversing with the public about their project.

Type: Presentation

Audience: Fair Directors, Teachers & Students

1:00 p.m.–1:30 p.m.

Room: 409A

8-Success with Science: A Peer-to-Peer Approach to High School Research

Shiv Gaglani, Harvard/Johns Hopkins Student

An Intel ISEF 2004–2006 participant enthusiastically champions peer-to-peer encouragement as a vital method to benefit individual students and, in turn, the economy and society.

Type: Presentation

Audience: Fair Directors, Teachers & Students

1:30 p.m.–2:30 p.m.

Room: 409B

9-Next-Generation Device Design-The Fuse Mobile Concept Phone

Andrew Hsu, Synaptics, Inc., Santa Clara, CA

A presentation on the design methodology used for the Fuse mobile concept phone, its technologies, and its impact on the mobile handset ecosystem.

Type: Presentation

Audience: Teachers & Students

2:15 p.m.–3:15 p.m.

Room: 409A

10-From Science to Science News: Writing about the Unknown

Tom Siegfried, Editor-in-Chief, *Science News*, Society for Science & the Public

Science News staff discuss decisions on which stories to write about, logistics behind reporting, and writing the news that appears online and in print.

Type: Presentation

Audience: Teachers & Students

2:30 p.m.–4:00 p.m.

Room: 411 (theatre)

11-Talking Science

Jack Franchetti, Jack Franchetti Communications, Inc.

A communications specialist teaches guiding principles and techniques to convey the science of your project in lay terms. Students consider this program helpful with the judging process, media interviews, and conversing with the public about their project.

Type: Presentation

Audience: Fair Directors, Teachers & Students

Tuesday, May 10

8:30 a.m.–10:00 a.m.

Room: 411 (theatre)

12-Protecting Your Inventions

Markus Steiner, European Patent Office, Munich, Germany

Susan Anthony and James Housel, U.S. Patent and Trademark Office, Washington, DC

Introduction into the US and European Patent systems and how existing patent documentation can help inventors.

Type: Presentation

Audience: Teachers & Students

8:30 a.m.–9:30 a.m.

Room: 409B

13–Portal to the Public: Helping Scientists Communicate Face-to-Face with the Public

James Ringlein, North Museum of Natural History and Science, Lancaster, PA

This session briefly outlines the award winning Portal to the Public initiative and gives participants an active experience with one of its workshop elements.

Type: Presentation

Audience: Fair Directors, Teachers & Students

10:00 a.m.–11:00 a.m.

Room: 409B

14–Three Steps to Systemic Improvement in Science Education and Increased School Participation in Science Fairs

Cora Beth Abel, Director, Massachusetts State Science and Engineering Fair

Learn about a new Massachusetts model for increasing inquiry-based learning and science fair participation. Explore a hands-on activity from TSIP, our foundational course on inquiry.

Type: Workshop

Audience: Fair Directors & Teachers

10:00 a.m.–11:00 a.m.

Room: 409A

15–Science Buddies: An Online Library of Tools and Resources Empowering Students, Parents, and Teachers to Explore High-quality Science Projects

Kenneth Hess, Science Buddies, Carmel, CA

sciencebuddies.org helps millions of students and teachers prepare for science fairs. Learn about our newest resources, exciting future plans, and the best ways to use our site.

Type: Presentation

Audience: Fair Directors, Teachers & Students

10:45 a.m.–12:15 p.m.

Room: 411 (theatre)

16–Talking Science

Jack Franchetti, Jack Franchetti Communications, Inc.

A communications specialist teaches guiding principles and techniques to convey the science of your project in lay terms. Students consider this program helpful with the judging process, media interviews, and conversing with the public about their project.

Type: Presentation

Audience: Fair Directors, Teachers & Students

11:15 a.m.–12:15 p.m.

Room: 409B

17–2011 SSP Fellows Program

Jennifer Carter, Director of Outreach, Society for Science & the Public

Society for Science & the Public (SSP), with generous support from Intel, is pleased to announce the third year of its Fellows Program. The SSP Fellows Program provides funds and training to selected U.S. science and math teachers who serve under-resourced students, to enable interested and motivated students to perform high-quality independent scientific research.

Type: Presentation

Audience: Fair Directors & Teachers

12:30 p.m.–1:30 p.m.

Room: 409A

18–Science from the Student's Perspective

Stephen Trusheim, Intel STS and Intel ISEF Alumnus, Stanford, CA

In this moderated discussion, accomplished Intel ISEF students will share their perspectives on what makes science fairs, projects, and their educational experiences great. Come with questions.

Type: Panel Discussion

Audience: Fair Directors, Teachers & Students

1:00 p.m.–1:30 p.m.

Room: 409B

19-Engineering for Intel ISEF Competition

Kenneth Abel, Southwest Virginia Governor's School, Pulaski, VA

The process of engineering and design including some suggested projects for the Intel ISEF.

Type: Presentation

Audience: Fair Directors & Teachers

4:15 p.m.–5:15 p.m.

Room: 409A

20-Implementing an Electronic SRC Process: Experience and Lessons Learned

Ken Lyons, AT&T Shannon Labs, Florham Park, NJ

One of the roadblocks to full electronic processing at regional fairs is the SRC process. We made our first attempt in 2011 to run the SRC process completely online. It was largely successful, but we learned lessons, too. This talk will describe the experience and our future plans.

Type: Presentation

Audience: Fair Directors & Teachers

4:15 p.m.–5:15 p.m.

Room: 409B

21-Intel Science Talent Search Information Session

Caitlin Sullivan, SSP Program Manager, Intel Science Talent Search

Andrew Yeager, Chair, Intel Science Talent Search Judges Panel

Nancy Aiello, Chair, Intel ISEF SRC and Intel STS Rules Advisory Committee

A summary of the Intel STS program and a general review of eligibility, rules, and the judging process.

Type: Presentation

Audience: Teachers & Students

4:15 p.m. - 5:15 p.m.

Room: 411

NEW SESSION —Data.gov: Research You Need to Solve Hard Problems

Jeanne Holm, NASA/JPL, Pasadena, CA

Data.gov, the open government flagship project for the White House, hosts >380,000 government datasets and provides tools for your research. Learn how to jump start your project today?

Type: Demonstration

Audience: Teachers & Students

Wednesday, May 11

8:30 a.m.–10:00 a.m.

Room: 411 (theatre)

22-Scientific Review Committee — 2012 Rules and Guidelines

Nancy Aiello, Intel ISEF SRC Chair

Meet with members of the Intel ISEF Scientific Review Committee to learn of changes in the Intel ISEF 2012 Rules and Guidelines.

Type: Presentation

Audience: Fair Directors & Teachers

10:00 a.m.–10:30 a.m.

Room: 409A

23-It's Your Turn to Conduct Research: The STARs Experience at Oak Ridge National Laboratory

Andy Harshman, Sarasota High School, Sarasota, FL

An overview of the Siemens Teachers as Researchers (STARs) program experience at Oak Ridge National Laboratory from a 2010 participating teacher.

Type: Presentation

Audience: Teachers

11:00 a.m.–Noon

Room: 409A

24-Teaching Science Research in the High School

Leonard Behr, University at Albany (SUNY), Albany, NY

A description of the Science Research in the High School Program of the University at Albany and awareness session for teachers from other states.

Type: Demonstration

Audience: Fair Directors, Teachers & Students

11:00 a.m.–Noon

Room: 409B

25-Scientific Review Committee — Project Review

Nancy Aiello, Intel ISEF SRC Chair

Meet with members of the Intel ISEF Scientific Review Committee to discuss project review by local and regional SRCs. There will be small group sessions where participants will walk through the review of sample abstracts with ISEF SRC members.

Type: Panel Discussion

Audience: Fair Directors & Teachers

1:15 p.m.–2:45 p.m.

Room: 411 (theatre)

26-Scientific Review Committee 101

Nancy Aiello, Intel ISEF SRC Chair

The Scientific Review Committee will present an overview of rules and guidelines. The presentation will be beneficial for fair directors and teachers who are new to Intel ISEF or for veterans who want a rules review.

Type: Presentation

Audience: Fair Directors, Teachers & Students

3:00 p.m.–4:00 p.m.

Room: 409A

27-Function of the Intel ISEF D&S

John Cole, Intel ISEF Display & Safety Chair

Select members of the Intel ISEF D&S Committee will explain: 1) Purpose and Duties of D&S; 2) Inspection; 3) Approval for Judging; 4) Major Infractions of 2011; and 5) Rule Changes for 2012.

Type: Presentation

Audience: Fair Directors, Teachers & Students

4:00 p.m.–4:30 p.m.

Room: 409B

28-Building a Competitive Science Program on a Shoestring Budget

Kristin J. Gregory, West Geauga High School, Chesterland, OH

Short on money, but big on ideas? Hear how West Geauga High uses people, programs, partnerships, and various funding sources to support a competitive science program.

Type: Presentation

Audience: Fair Directors & Teachers

Thursday, May 12

9:00 a.m.–10:00 a.m.

Room: 409A

29-Information Session on SSP's New Middle School Program —

Broadcom MASTERS

Stephanie Lemnios, Program Manager, Society for Science & the Public, Washington, DC

Learn more about SSP's New Middle School Program — Broadcom MASTERS. Brief presentation followed by a Q&A session.

Type: Presentation

Audience: Fair Directors & Teachers

Intel ISEF Recording Notice

Please be advised that you may appear on camera during certain events at Intel ISEF 2011. With your attendance, you consent to the reproduction and use of your photograph, image, voice or a reproduction thereof, either in whole or in part to be used by Society for Science & the Public, Intel, and others they may designate, for any and all advertising, trade, or art purposes and in any and all publications and other advertising media without limitation or reservation.

If you do not wish to be recorded, please exit the area until all filming is completed.

10:00 a.m.-11:00 a.m.

Room: 409B

30-Biosafety Level 1 Checklist

Nancy Aiello, Intel ISEF SRC Chair

The Scientific Review Committee will present a draft of a BSL 1 self-assessment safety checklist. Participant input will be sought prior to the publication of a final document.

Type: Presentation

Audience: Fair Directors & Teachers

11:15 a.m. - 11:45 a.m.

Room: 409A

31-The Research and Entrepreneurial Sciences Program at the Bergen County Academies in New Jersey

Robert G. Pergolizzi, PhD, Bergen County Academies, Hackensack, NJ

This presentation will describe the philosophy and implementation of the nationally-recognized programs at the Bergen County Academies.

Type: Presentation

Audience: Fair Directors & Teachers

2:30 p.m.-3:30 p.m.

Room: 411 (theatre)

32-So, You Want to be an Astronaut?

Mike Melvill, Fellow, Society of Experimental Test Pilots (SETP), Tehachapi, CA

On June 21, 2004, Mike Melvill piloted SpaceShipOne into space, making history as the world's 434th astronaut and first recipient of commercial astronaut's wings conferred by the FAA. As an example of the "ultimate science fair project" that brought human spaceflight within reach of private enterprise, Melvill presents the incredible journey of SpaceShipOne from initial concept to culminating spaceflight.

Type: Presentation

Audience: Fair Directors, Teachers & Students

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www.societyforscience.org/intelisef2012



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Los Angeles Restaurants

Arena Sports Bar and Grill	6121 E. Telegraph Rd	(323) 728-3600
Azalea Restaurant and Bar	120 S. Los Angeles St.	(213) 253-9235
Back Porch	333 S. Figueroa St.	(213) 617-6090
Bonaventure Brewino Co.	404 S. Figueroa St., Suite 418A	(213) 238-0802
Bottle Rock—Downtown LA	1050 Flower St.	(213) 747-1100
The Brasserie	711 S. Hope St.	(213) 488-3500
Café Pinot	700 W. Fifth St.	(213) 239-6500
California. Pizza Klitchen	735 S. Figueroa St.	(213) 228-8500
Cardini	930 Wilshire Blvd.	(213) 896-3822
Chaya Downtown	525 S. Flower St.,	(213) 236-9577
Checkers Downtown	535 S. Grand Ave.	(213) 891-0519
City Grill	930 Wilshire Blvd.	(213) 821-4288
Corkbar	403 W. 12th St.	(213) 748-0050
Corner Bakery Cafe	801 S. Figueroa St.	(213) 239-0424
Courtyard Cafe—Beverly Hills	10320 W. Olympic Blvd.	(310) 556-2777
Daily Grill—Downtown	612 S. Flower St.	(213) 622-4500
Drago Centro	525 S. Flower St., Ste. 120	(213) 228-8998
Eden Lobby Restaurant	6121 E. Telegraph Rd.	(323) 728-3800
Engine Co. No. 28	644 S. Figueroa St.	(213) 624-6996
The Farm of Beverly Hills (LA Live)	800 W. Olympic Blvd.	(213) 747-4555
First & Hope	710 W. First St.	(213) 617-8555
Fox Sports Sky Box	1111 S. Figueroa St., Suite 1600	(213) 742-7345
Grand Cafe	251 S. Olive St.,	(213) 617-3300
The Grill	711 S. Hope St.	(213) 683-1234
The Grill Room	431 W. Seventh St.	(213) 625-2211
Kendall's Brasserie & Bar	135 N. Grand Ave.	(213) 972-7322
Lakeview Bistro	404 S. Figueroa St.	(213) 624-1000
Las Vegas Buffet	6121 E. Telegraph Rd	(323) 728-3600
Lawry's Carvery (LA Live)	1011 S. Figueroa St., Suite B115	(213) 763-5441
Magnolia—Downtown	825 W. Ninth St.	(213) 362-0880
Main Dining Room	431 W. Seventh St.	(213) 625-2211
McKay's	3540 S. Figueroa St.,	(213) 748-4141
Moody's Bar & Grille	333 S. Figueroa St.	(213) 617-1133
New Zealand Natural Ice Cream	(LA. Live) 1011 S. Figueroa St.	(213) 763-5441
Noe Restaurant & Bar	251 S. Olive St.	(213) 356-4100
The Orchid Gardens	1256 W. Seventh St.	(213) 484-9789
The Original Pantry Cafe	877 S. Figueroa St.	(213) 972-9279
Patina	141 S. Grand Ave.	(213) 972-3331
Pete's Cafe & Bar	400 S. Main St.	(213) 617-1000
Phillipe The Original	1001 N. Alameda St.	(213) 628-3781
Plum Tree Inn	913 N. Broadway	(213) 613-1819
Rendezvous Court	508 S. Grand Ave.	(213) 624-1562
The Restaurant at the Standard	550 S. Flower St.	(213) 439-3030
Rosso's	3540 S. Figueroa St.,	(213) 748-4141
Roy's Hawaiian Fusion Cuisine	800 S. Figueroa St., Ste. 100	(213) 486-4994
Sal Sal Modern Asian Cuisine	501 S. Olive St.	(213) 624-1100
Shinpachi	328 E. First St.	(213) 617-2000
Smeraldi's Restaurant	506 S. Grand Ave.	(213) 612-1582
Starbucks At LA Live	800 W. Olympic Blvd.	(213) 783-5441
Terranova Restaurant	5757 Telegraph Rd.	(323) 887-4305
Trader Vic's at LA Live	800 W. Olympic Blvd., Ste. A120	(213) 785-3330
Urban Noodle	118 W. Fourth St.	(213) 626-0662
Wokcano—Downtown	800 W. Seventh St.	(213) 623-2288
Wolfgang Puck Bar & Grill	(LA. Live) 800 W. Olympic Blvd.	(213) 748-9700
Wolfgang Puck LA Bistro	830 W. Sixth St.	(213) 614-1900
WP24	900 W. Olympic Blvd.	(213) 743-8800
Yard House At LA Live	800 W. Olympic Blvd.	(213) 763-5441

Locations of Noted Attractions

California Science Center	700 Exposition Park Dr.	(323) 724-3623
Grammy Museum	800 W. Olympic Blvd.	(213) 765-6800
Griffith Observatory	2800 E. Observatory Rd.	(213) 473-0800
La Brea Tar Pits	5801 Wilshire Blvd.	(323) 934-7243
Leonard Da Vinci Exhibit @ Hollywood & Highland	6801 Hollywood Blvd.	(888) 998-4624
NASA Jet Propulsion Laboratory	4800 Oak Grove Drive, Pasadena	(818) 354-4321
Natural History Museum	900 Exposition Blvd.	(213) 763-DINO
Olvera Street	Main Street/Cesar Chavez Blvd.	(213) 625-7074

Banks

Bank of America	888 7th Street @ Figueroa	(213) 312-9000
	333 S. Hope Street @ 3rd St.	(213) 912-9000
Bank of the West	915 Wilshire Blvd. @ Francisco St.	(213) 986-7865
	300 S. Grand Ave. @ Hope Pl.	(213) 972-0200
Chase Bank	725 S. Figueroa St. @ 7th St.	(213) 624-1403
City National Bank	555 S. Flower St. @ 5th St.	(818) 227-4300
US Bank	633 W. 5th Street @ Grand Ave.	(213) 612-6300
Union Bank	445 S. Figueroa St. @ 4th St.	(213) 236-7700
Wells Fargo	717 W. Olympic Blvd. @ Figueroa	(213) 688-2680
	707 Wilshire Blvd. @ Hope St.	(213) 483-2681
	333 S. Grand Ave. @ 3rd St.	(213) 253-6600

Copy and Mail Services

FedEx Office Print and Ship Center	735 S. Figueroa St. @ 7th St.	(213) 624-9409
	801 Grand Ave. @ 5th St.	(213) 623-8129
PIP Printing & Marketing Services	700 Wilshire Blvd.	(213) 489-2333
Universal Reprographics	2706 Wilshire Blvd. @ Hope St.	(213) 365-7750
The UPS Store	645 W. 9th St. @ Flower	(213) 620-0081
US Post Office	750 W. 7th St. @ Macy's Plaza	(800) 275-8777

Drugstores

Rite Aid	900 W. 7th St. @ Hope St.	(213) 986-0083
Walgreens	917 W. 7th St. @ Grand Ave.	(213) 694-2880
Urgent Care Medical Pharmacy	1127 Wilshire Blvd. @ Grand Ave.	(213) 482-0644

Grocery Store *Outside food cannot be brought into the LACC*

Famimal	727 W. 7th St. @ Fower St.	(213) 627-7334
	700 Wilshire Blvd. @ Hope St.	(213) 622-2006
	525 W. 6th St. @ Grand Ave.	(213) 629-5100
Ralphs Grocery Store	645 W. 9th St. @ Flower St.	(213) 452-0840

Medical/Dental

California Hospital Medical Center	1401 S. Grand Ave. @ 14th St.	(213) 748-2411
Good Samaritan Hospital	1136 W. 6th St. @ Lucas Ave.	(213) 977-2121
Los Angeles Urgent Care	929 Georgia St. @ Olympic Blvd.	(213) 785-7982
USC Care Medical Group	1400 S. Grand Ave. @ 14th St.	(213) 744-0801
Universal Care Medical Group	1111 W. 6th St. @ Bixel St.	(213) 975-9626
Plaza Dental Care	505 S. Flower St. @ 5th St.	(213) 626-6161

Miscellaneous Stores

Staples Office Supply	835 Wilshire Blvd. @ Figueroa St.	(213) 243-5792
Target	3535 S. La Cienega	(310) 895-1131
Walmart	4101 S. Crenshaw Blvd.	(323) 299.8014

**Society for Science & the Public thanks the dedicated members
of the Los Angeles Local Arrangements Committee who have
worked hard in preparation for the
Intel ISEF 2011:**

Milena Acosta—Education Outreach

Dan Aldrich—Fundraising

Denise Antrim—Education Outreach

Dave Bader—Education Outreach

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Thank You

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A black and white photograph of a young girl with curly hair, smiling and looking down at a small plant she is holding in her hands. The background is a soft, out-of-focus grey.

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Alphabetical order of countries, regions, and territories participating in the Intel ISEF 2011

indicates previous ISEF participation
T: precedes the name of the Teacher-Sponsor of the Finalist
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ALBANIA

Tirana, ALB001, Albania Science and Engineering Fair

EM053 Reinforcing the Concrete by Cleaning the Environment from Waste Product
Blerand Ismaili, 17, Junior, Shkolla e Mesme "LIRIA", Elbasan, Albania,
T: Fatih Karaosmanoglu

EN318T The Use of Ground Blast Furnace Slag, Chrome Slag and Corn Stem Ash as a Coating against the Corrosion

Geraldo Braho, 17, Junior; Agri Tusha, 17, Junior; Ledion Gorrica, 17, Junior
Shkolla e Mesme Liria Elbasan, Elbasan, Albania, T: Fatih Karaosmanoglu

AMERICAN SAMOA

Pago Pago, TEAS01, American Samoa Science Fair

AS057 The Effects of Three Factors of Target Prey on Field Efficacy of a Native Biological Control Agent, *Anisops tahitiensis*, against *Aedes polynesiensis*, the Major Dengue and Filariasis Vector in American Samoa

Faalolo'i Te'o, 17, Senior, Tafuna High School, Tafuna, American Samoa,
T: Joserose Jyothibhavan

EM054 Impact of Possible Nonpoint Source Pollutants on Freshwater Snails Found in American Samoa

Grace Lanu Felise, 17, Senior, Tafuna High School, Pago Pago, American Samoa,
T: Joserose Jyothibhavan

EV047 Salinity Tolerance of Seashore Gastropods Found in Pala Lagoon, American Samoa

Marymargaretrose Cheung-fuk, 17, Senior, Tafuna High School, Tafuna, American Samoa, T: Joserose Jyothibhavan

ARGENTINA

San Miguel de Tucumán, ARG001, National Science Fair of Argentina

BE314T Masons: "God's Builders"

Leonardo Alberto Sorasio, 18, Senior; Nahuel Mirande, 18, Senior
E.E.M. NO 5 Esteban Echeverria, Azul, Buenos Aires, Argentina, T: Maria Rosario Molina

CH309T T.A.OX. (Technica Avanzada de Oxidacion)

Federico Raul Cuilliere, 19, Senior; Sebastian Semenza, 17, Senior
Industrial School No 1 General Mosconi, Caleta Olivia, Santa Cruz, Argentina,
T: Gustavo Daniel Maglio

EE315T Security in Your Hands

Erick Gabriel Zalazar, 19, Senior; Luis Antonio Zampar, 19, Senior
Escuela de Educacion Tecnica Numero 2, Barranqueras, Chaco, Argentina,
T: Marcos Eduardo Sanchez

EM324T What's Happening with Our Beaches?

Florencia Allen Baudry, 17, Freshman; Aylen Rocio Caballero, 17, Freshman
Instituto San Bernardo, San Bernardo, Buenos Aires, Argentina, T: Analia Graciela Degange

EM325T All We Are Saying Is Give "Green" a Chance: Make a Sustainable Use of *Gleditsia Amorphoides*

Clara Esther Duarte, 16, Freshman; Emilcen Juana Espinoza, 15, Freshman
EPES No 78, Formosa, Argentina, T: Jose Delfino Martinez

EV313T A.W.S.S. (Autonomus Water Sanitization System)

Jorge David Varlotta, 19, Freshman; Ruth Maurente Jamie, 17, Junior;
Elisa Bustamante, 20, Freshman
Escuela Tecnica N012 "Libertador General Jose de San Martin", Ciudad Autonoma de Buenos Aire, Buenos Aires, Argentina, T: Daniel Martin Frijon

EV314T Pesticides, A Latent Threat?

Nahuel Gaillard, 17, Freshman; Karen Daniela Itati Mogni, 17, Freshman
Escuela Secundaria Numero 18, Colonia San Cipriano, Entre Rios, Argentina,
T: Selva Guadalupe Dimier

MA306T The World of Irrationals

Leandro Matias Perez, 18, Senior; Jose Daniel Sales, 19, Senior
Escuela Provincial de Comercio No. 7, San Pedro de Jujuy, Jujuy, Argentina,
T: Irma Carolina Rojas

MA307T M÷bius: Art, Rhythm and Movement through Math

Cintia Paola Branca, 18, Senior; Yanina Gisela Mansilla, 18, Senior
Escuela de Enseñanza Media No. 318 "Antartida Argentina", Diaz, Santa Fe,
Argentina, T: Carina Alejandra Ciamprone

PS025 Ask the Elm for Cereal: A New Feeding Supplement

Braian Leandro Lescano, 19, Senior, Centro De Educacion Tecnica 14, Allen, Rio
Negro, Argentina, T: Julia Patricia Borda

AUSTRALIA

Melbourne, AUS003, BHP Billiton Science Awards

EV003 The Use of *Sarcocornia quinqueflora* as a Bioindicator of Soil Salinity in Wetlands

Tanvi Srinivasan, 17, Senior, The Queensland Academy for Health Sciences,
Gold Coast, Australia, T: Denise Crook

PH005 Microwaves Destroy the Nutritional Content of Prepackaged Foods—Fact or Fiction?

Abdul Hamid Kassem, 16, Junior, Redeemer Baptist School, North Parramatta, New
South Wales, Australia, T: Stuart Malcolm Garth

Sydney, AUS002, Young Scientist

BE006 The Effects of Violent Media on Aggression Levels in Teenage Boys

Nicolas William Johnston, 15, Junior, Sydney Church of England Grammar School,
Sydney, NSW, Australia, T: Nick Van Vliet

EM004 Tree Flammability Research and Application

Samuel Lee Bishop-Taylor, 17, Junior, Great Lakes College, Tuncurry Senior
Campus, Tuncurry, NSW, Australia, T: Matt Avery

AUSTRIA

Austria, AUS001, Vienna International Science and Engineering Fair

EE321T Hydraulic Crane Console

Christian Pichler, 19, Senior; Josef Dunst, 20, Senior
College of Mechanical Engineering Modling, Modling, Austria,
T: Gunther Horlesberger

BANGLADESH

Dhaka, BGD001, Bangladesh Regional Science Fair

EN309T Natural Nanocomplexes: Role as an Imaging Probe, Chaperone and Genoprotectant

Farzana Tasreen Synthia, 18, Senior; # Aritra Chowdhury, 18, Senior
Chittagong Grammar School, Chittagong, Bangladesh, T: Sheikh Muhammad Ali
South Point High School, Kolkata, West Bengal, India, T: Sharmila Dutta Bose

BELARUS

Minsk, BLR001, BelJunior

CS011 Additional POV Display for Your Computer

Dmitry Alexandrovich Kabak, 17, Junior, Polytechnical Gymnasium N6, Minsk,
Belarus, T: Inna Borisovna Gradobaeva

EE018 The Composite Panel with Adjustable Acoustic Properties

Michail Dmitryevich Yekelchik, 16, Junior, General Educational School No.166 of
Minsk, Minsk, Belarus, T: Alexey Rmanovich Baev

MA302T Combinatorial Analogue of a Tomography Problem

Mikhail Khursevich, 17, Junior; Aliaksandr Nekrashevich, 17, Junior
Middle School 41, Minsk, Belarus, T: Barys Zadvorniy

BRASIL

Campinas, BRA003, Escola Americana De Campinas

CB015 Identification of Differentially Expressed Olfactory Receptors in the Females and Males of the Malaria Vector *Anopheles* sp.

Bruna Favetta, 17, Senior, Escola Americana de Campinas, Campinas, Sao Paulo, Brasil, T: Raquel Gebara Lima

EN306T Preparation of Hyaluronic Acid Nanoparticles with *A. chica* for Applications in Wound Healing

Lorraine da Silva Campos, 16, Junior; # Vanessa Estefano Uriza, 16, Junior
Escola Americana de Campinas, Campinas, Sao Paulo, Brasil, T: Raquel Gebara Lima

ME056 Improving the Visibility of Needle Tips in Ultrasound Images

Laura Lane Menezes, 17, Junior, Escola Americana de Campinas, Campinas, Sao Paulo, Brasil, T: Raquel Gebara Lima

Novo Hamburgo, BRA001, International Fair of South America–MOSTRATEC

BE015 The Technologies as a Resource for the Effective Learning of the Adolescents and Bearers of ADHD (Attention Deficit Hyperactivity Disorder)

Matheus Manuppella, 17, Junior, Colegio Hebraico Brasileiro Renascenca, Sao Paulo, Brasil, T: Rogerio Giorgion

BE016 Problematic Pedagogy as a Nutritional Education Strategy: A Social Constructivist Approach

Heitor Geraldo da Cruz Santos, 16, Sophomore, Colegio GGE, Recife, Pernambuco, Brasil, T: Ana Raquel Lucato Cianflone

BE303T Educational Robotics: An Innovation that Qualifies Learning in Physics and Mathematics

Wanderson Magalhaes da Costa, 17, Junior; William Braga de Sousa, 16, Junior
Colegio Estadual de Maracanau, Maracanau, Ceara, Brasil, T: Maria das Gracas Franca Sales

CH303T An Expanded Polystyrene-based Ion-exchange Resin and Analysis of Its Retention of Heavy-metal Ions

Amanda De La Rocque Rodrigues, 19, Senior; # Carlos Henrique Leite da Silva, 19, Senior; # Paolo Damas Pulcini, 19, Senior
Escola Tecnica Getulio Vargas, Sao Paulo, Brasil, T: Roberto Sanches

EM010 Sustainable Usage of Buriti (*Mauritia flexuosa*): An Alternative to the Development of Rural Communities of the Western Maranhao

Emily Ferreira Soares, 16, Senior, Edison Lobao Educacion Center, Imperatriz, Maranhao, Brasil, T: Zilmar Timoteo Soares

EM308T Bioremoving of Chrome in Leather Shavings

Marcelo Jung Eberhardt, 18, Senior; Patrick Comassetto Fuhr, 18, Senior
Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brasil, T: Carla Kereski Ruschel

ET018 Clean Production of Biodiesel Using the Microalgae *Nannochloropsis oculata*

Vitoria Rech Astolfi, 17, Senior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brasil, T: Carla Kereski Ruschel

ME025 Fabric to Health Treatments Impregnated of Zirconium Oxide and Silver Nanoparticles with Chitosan II

Kawoana Trautman Vianna, 18, Senior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brasil, T: Silvia Staniscuaski Guterres

MI008 Weaving Health: The Weaving of Antimicrobial Substances from the Ootheca of the Banana Spider II

Leonardo de Oliveira Bodo, 16, Senior, Dante Alighieri, Sao Paulo, Brasil, T: Sandra Maria Rudella Tonidandel

Sao Paulo, BRA002, FEBRACE–Feira Brasileira de Ciencias e Engenharia

BE044 The Constitutionality Index: A Judiciary and Macroeconomic Guidance for International Entrepreneurs When Investing in National Economies

Ana Sofia Cardoso Monteiro, 16, Sophomore, Colegio Marista Sao Luis, Recife, PE, Brasil, T: Ursula Moema Chaves Melo Veras

- CH310T Standardization and Use of “Filter Sulfitometer” for Rapid Detection of Sulfites on Fish**
Giovanna Calcada Tanniguchi, 15, Sophomore; Gabriela Ono, 15, Sophomore; Angela Di Gianni, 15, Sophomore
Colegio Jean Piaget, Santos, SP, Brasil, T: Mara Zucheran Silvestri de Carvalho
- EE065 TouchingNotes II: Music for the Senses**
Vinicius Guilherme Muller, 19, Senior, Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, RS, Brasil, T: Anderson Jean de Farias
- EM042 Thermoprocessing Prototype Plant for the Sugar Cane Bagasse Aiming the Production of Dimethylether**
Lucas Ribeiro Mata, 17, Junior, Instituto Federal de Educacao, Ciencia e Tecnologia Aluminen, Macae, RJ, Brasil, T: Margarida Lourenco Castello
- EM043 Alternative Coal: A Sustainable Energy Production**
Carlos Guilherme Lopes Grotto, 17, Senior, Complexo Educational Dom Bosco, Imperatriz, MA, Brasil, T: Thalita Rodrigues Lima
- EM326T Oilchemistry: Recycling of Soybean Oil to Produce Alkyd Resins and Paint**
Adriana Ferreira Santana, 17, Senior; Tiago Tolone Craveiro de Oliveira, 17, Senior
ETEC Getulio Vargas, Sao Paulo, SP, Brasil, T: Silvia Helena Fernandes
- EM327T ARVO Automatic Recycling of Vegetable Oil: Turning Oil into Biodegradable Soap**
Allan Soares de Sousa, 16, Junior; Libia Ezagui Torres de Brito, 17, Junior; Marcel de Almeida Siqueira, 16, Junior
Fundacao Nokia de Ensino, Manaus, AM, Brasil, T: Izac Gomes da Silva
- ET309T Positive Energy Project: The Utilization of Small Aero-generators in Production and Sustainable Consumption of the Wind Potential in Acarau**
Rivan Rocha Para, 15, Sophomore; Arbiston de Sousa Borges, 17, Junior
EEEE Tomaz Pompeu de Sousa Brasil, Acarau, CE, Brasil, T: Emanuel Freitas Bento
- ME079 Study of Larvicidal Action of “Melao-de-Sao-Caetano” (*Mormodica charantia*) in Aedes aegypti Vector Control**
Rafael Carmo da Costa, 17, Sophomore, EEEFM Profa Benvinda de Araujo Pontes, Abaetetuba, PA, Brasil, T: Maria Gorete Abreu Costa da Paz

CANADA

Canada, CAN002, Youth Science Canada—Team Canada

- BE050 Growing Up ‘In Sync’: Connecting a Bridge to an Autistic Mind’s World**
Adelina Corina Cozma, 15, Sophomore, Bayview Secondary School, Richmond Hill, Ontario, Canada, T: Gerry Trefler
- BI032 Inhibition of the ATPase Activity of the Hepatitis C Virus NS3 Protein by Human Lactoferrin**
Sabrina Bouchard, 17, Junior, Seminaire de Sherbrooke, Sherbrooke, Quebec, Canada, T: Louise Letendre
- CB038 Interactions among P53, BRCA1, Estrogen and TGF-beta as Risk Factors for Ovarian Cancer**
Emma Jean Graham, 17, Junior, Elmwood School, Ottawa, Canada, T: Tobin Kelly
- CB039 Identification of Ezrin as a Colonic Substrate for Protein Tyrosine Phosphatase Sigma**
Howard Feng, 15, Sophomore, Bayview Secondary School, Richmond Hill, Ontario, Canada, T: George Halkidas
- CB040 Racing to Find Molecular Markers to Differentiate Pathogen Races Attacking Lentil Crops**
Rui Song, 15, Sophomore, Walter Murray Collegiate Institute, Saskatoon, Saskatchewan, Canada, T: Lone Buchwaldt
- CS053 Probabilistic Inference of Pathways of Infection**
Anqi Dong, 16, Junior, Walter Murray Collegiate Institute, Saskatoon, Saskatchewan, Canada, T: Nathaniel Osgood
- EE073 Indoor Ground Manifold Tracking through Low-Cost Stereoscopy**
Christopher Stephen Nielsen, 17, Senior, Homeschool, Calgary, Alberta, Canada, T: John Nielsen

- EE074 Winds of Change: A Novel Approach to Wind Electricity Generation Systems for Developing Regions**
Megan Kathleen Schlorff, 18, Senior, Sacred Heart High School, Walkerton, Ontario, Canada, T: Brad Lacey
- EE075 Traffic Lights Fuzzy Controller**
Zeyu Liu, 15, Sophomore, Sir Winston Churchill High School, Calgary, Alberta, Canada, T: Deborah Miller
- EN039 Computer-Aided Telepathic Communications**
Nicholas Anthony Johnston, 16, Sophomore, Semiahmoo Secondary School, Surrey, British Columbia, Canada, T: Lynne Porpacz
- EN314T Cellulose Crystals Clean and Cure**
Janelle Tam, 15, Junior; # Vivienne Tam, 18, Senior
Waterloo Collegiate Institute, Waterloo, Ontario, Canada, T: Herbert Deruyter, T: Michael Tam
- ET058 Reducing the Cut-In Wind Speed of Wind Turbine Blades by Redirecting the Boundary Layer Airflows**
Lauren Heather Reid, 15, Freshman, O'Neill Collegiate and Vocational Institute, Oshawa, Ontario, Canada, T: Scott Field
- ET059 Photoelectrochemical Approach to PEM Fuel Cells Using Hydrodynamic Voltammetry**
Dheevesh Arulmani, 15, Sophomore, Gordon Graydon Memorial Secondary School, Mississauga, Ontario, Canada, T: Bradley Easton
- EV041 Niagara Regions Environmental Impact on Water Quality of Lake Ontario**
Alexandria Nicole Penny, 15, Freshman, Grimsby Secondary School, Grimsby, Ontario, Canada, T: Dave Wyatt
- ME086 Trinovopan: Pre-Clinical Development of a Novel Anti-Cancer Combinational Therapy**
Lingjie (Linda) Wei, 16, Junior, Sir Winston Churchill Secondary School, Vancouver, British Columbia, Canada, T: Dr. Geoffrey Gabbott
- ME087 Modulation of ERK5 in Inhibiting Breast Cancer Cell Migration and Invasion**
Grace Yang Wang, 17, Junior, A. B. Lucas Secondary School, London, Ontario, Canada, T: Colleen Fletcher
- ME314T Efficient Generation of Dopaminergic Neurons from Skin-derived Precursors: Novel and Autologous Treatment for Parkinson's Disease**
Mohamed Reda Bensaidane, 18, Senior; Alexandre Lemieux, 18, Senior
Champlain College St. Lawrence, Quebec City, Quebec, Canada; Cegep de Sainte-Foy, Sainte-Foy, Quebec, Canada, T: Remi Parenteau Bareil
- PH049 The Mysterious Behavior of KF3- and Its Relevance to 41Ca Analysis**
Michael Thomas Lemanski, 16, Junior, Royal St. George's College, Toronto, Ontario, Canada, T: Albert Edward Litherland
- Hamilton, ON, CAN001, Bay Area Science and Engineering Fair*
- EM035 Plants Purify Pee**
Yiquan Lok, 14, Freshman, Hillfield Strathallan College, Hamilton, Ontario, Canada, T: Kimberley Krasevich
- EM036 Will EMF Stunt Your Growth?**
Janelle van Leeuwen, 14, Freshman, Hillfield Strathallan College, Hamilton, Ontario, Canada, T: Kimberley Krasevich
- EN028 Simplifying SODIS: Reduction of UV-impeding Turbidity through Macroscopic Filtration**
Sarah Joyce Flaherty, 14, Freshman, Westdale Secondary School, Hamilton, Ontario, Canada, T: Anne-Marie Wilson
- Montreal, CAN004, Montreal Regional SciTech Fair*
- EM319T Implementation of Appropriate Desalination Technology**
Marianne Dina Theriault, 16, Junior; Katherine France Haentjens, 16, Junior
Villa Maria High School, Montreal, Quebec, Canada, T: Carla Goodine
- EV021 Embrace Air with Algae Repair**
Chloe Anassis, 15, Sophomore, The Study School, Westmount, Quebec, Canada, T: LaTasha Amisial

- ME057 A Novel Approach to Wound Therapy: The Effect of Plant Stem Cells on Mesenchymal Stem Cells When Exposed to UV Radiation**
Meagan-Helen Henderson, 16, Junior, Miss Edgar's and Miss Cramp's School, Westmount, Quebec, Canada, T: Karen Commerford

CHILE

Concepcion, CHL001, 7th EXPLORA National Youth Science Conference

- AS302T Studying True Bugs Metamorphosis: The Life Cycle of *Ditomotarsus punctiventris* Spinola, 1852**
Giannina Andrea Osorio, 16, Junior; Mariom Adriana Carvajal Morales, 15, Junior
Liceo Maria Auxiliadora, Punta Arenas, Region de Magallanes, Chile, T: Hilda Raquel Carrera
- EV310T Removal of Crude Oil from Different Substrates Using Biosolvents**
Consuelo Esperanza Gatica, 17, Senior; Valentina Llanca, 17, Senior
Windsor School, Valdivia, Region de los Rios, Chile, T: Mercedes del Pilar Carrasco

CHINA

Beijing, CHN001, Children Science Fair of Beijing

- BI301T Research on Functional Dietary Fibre of Wheat Bran**
Fubin Li, 17, Senior; Yakang Li, 18, Junior; Zhongning Hao, 15, Sophomore
Zhengzhou No.11 Middle School, Zhengzhou, Henan, China, T: Xueling Zheng;
Henan Experimental High School, Zhengzhou, Henan, China, T: Lin Li
- MI010 A GFP-labeled *Streptococcus suis*: A Tool to Track the Bacteria for Pathogenesis Study**
Xu Cheng, 18, Senior, High School Affiliated to Tsinghua University, Beijing, Beijing, China, T: Yuxin Gong
- PH010 The Flow Feature around Insects and Bionic Wing Based on Wind Tunnel Test**
Yimeng Shi, 18, Senior, The High School Affiliated to Renmin University of China, Beijing, Beijing, China, T: Keke Fan
- Beijing, CHN004, CASTIC-(China Adolescents and Technology Invention Contest), Beijing*
- AS006 Study on Mechanism of Controlling Whitefly Using the Leaching Solution of Lemon Leaves**
Xiaoyang Yu, 15, Sophomore, Beijing No. 101 High School, Beijing, Beijing, China, T: Li-Xia Ma
- BE304T Is *Nephila clavata* a New Species of Social Spiders? A Preliminary Study on Behaviors of *Nephila clavata***
Jiaqi Duan, 17, Junior; Zihan Zhang, 18, Senior; Sihan Jiang, 17, Junior
Henan Experimental High School, Zhengzhou, Henan, China, T: Yao Niu
- EN008 Rare Earth Based Multicolor Emitting Nanomaterials: Synthesis and Potential Anti-counterfeiting Applications**
Yue Yin, 18, Senior, The Experimental High School Attached to Beijing Normal University, Beijing, China, T: Chunhua Yan
- Fuzhou City, CHN006, CASTIC (China Adolescents Science & Technology Invention Contest), Huanan*
- AS007 Endocrine Disruption and Population Inhibition Effect of Plant Essential Oil on the Diamondback Moth**
Lin Gan, 18, Senior, Fuzhou NO.1 High School, Fuzhou, Fujian, China, T: Lin Qun Zhang
- EE304T Infrared-three-dimensional Ultrasonic Positioning and Virtual Control System (PVCS)**
Jinze Li, 18, Sophomore; Junqi Liu, 16, Sophomore; Xin Zhi, 16, Sophomore
No.2 Changchun High School, Changchun, Jilin, China, T: Li Jinhua
- ET030 VIN-based Road Accident Dynamic Alert (VIN-RADAS)**
Tianghe Xie, 16, Junior, High School Attached to Northeast Normal University, Changchun, Jilin, China, T: Jin-hua Li

- Guangzhou, CHN005, CASTIC (China Adolescent Science & Technology Invention Contest),
Xinan
- EE020 **Assistant of Walking Aid: Walking Aid Facility for the Old and the Relevant Patients**
Zehong Weng, 18, Senior, Guangdong Experimental High School, Guangzhou, Guangdong, China, T: Zhongyi Liu
- PS007 **Research of Trilobana Wedelia Effects in Prevention and Cure of *Cuscuta japonica***
Anan Qiu, 16, Junior, Shenzhen Senior High School, Shenzhen, Guangdong, China, T: Zhifang Li
- Shanghai, CHN002, CASTIC (China Adolescents Science and Technology Invention Contest),
Shanghai
- CS012 **An Efficient, Real-time Computer-aided Stereoscopic Parallax Prediction Solution and Its Implementation**
Sheng Zhu, 18, Senior, No.2 Secondary School Attached to East China Normal University, Shanghai, Shanghai, China, T: Quan Zu
- CS303T **The Research on the Space Interactive 3D Mapping Method**
Yizheng He, 18, Senior; Haoyan Kang, 18, Senior; Jiayi Wang, 17, Senior
Northeast Yucai School, Shenyang, Liaoning, China, T: Peng Gong
- EE019 **Electronic Skateboarding Assistant**
Haoyang Fan, 18, Senior, Northeast Yucai School, Shenyang, Liaoning, China, T: Peng GONG
- Shanghai, CHN007, The Children Science Fair of Shanghai
- EE021 **Glass Wall Cleaning Robot Driven by Double Ropes**
Shu Zhang, 18, Senior, High School Attached to Harbin Normal University, Harbin, Heilongjiang, China, T: Jiawei Chen
- ET019 **New Concept to Improve the Photovoltaic Conversion Efficiency**
Bowen Zhu, 18, Senior, High School Affiliated to Shanghai Jiao Tong University, Shanghai, China, T: Dean Liu
- MI011 **Production of Valuable Sialic Acid from Trashed Chalaza of Hen's Egg with Sialidase Produced by Newly Isolated Strain LXS6**
Yulin An, 18, Senior, Dalian Yuming High School, Dalian, Liaoning, China, T: Xianzhen Li
- Tianjin, CHN008, Sichuan Science Fair
- CS030 **Efficient Implementation of Tilt Compensated Compass and Depth Camera in Interactive Augmented Reality**
- ## **Lai Xue, 18, Senior, Chengdu International School, Chengdu, Sichuan, China, T: Glen Robert Walenda**
- CS304T **Markerless Finger Detection**
Chan Yeoh, 16, Junior; Kevin Chow Kaiyi, 14, Freshman
Chengdu International School, Chengdu, SiChuan, China, T: Glen Robert Walenda
- ME045 **RT-PCR Genotypic Analysis of Four Mex Efflux Pumps in Pan-resistant *P. aeruginosa* and Development of Novel Phenotypic Detection Method by MIC with Efflux Pump Inhibitors**
Kevin Z. Xin, 16, Junior, Shanghai American School, Shanghai, China, T: Alan Bud Chan
- Wuhan, CHN003, CASTIC: (China Adolescent Science & Technology Invention Contest),
Huadong
- CH304T **Study on the Preparation of CdSe Quantum Dots and Its Application on the Detection of Bisphenol A in PC and Paper Cups**
Mengdi Su, 17, Junior; Hanqing Xu, 16, Junior
Hubei Wuchang Experimental High School, Wuhan, Hubei, China, T: Shuangqing Qu
- EV009 **Rice Straw Biochar: A Potential New Material for Reducing CH4 Emission from Paddy Soil**
Yimin Wu, 17, Junior, Hangzhou No.2 High School of Zhejiang Province, Hangzhou, Zhejiang, China, T: Suhao Lin
- EV304T **Research on Effect of Urban Rainfall Runoff Pollution on Water Environment and Amount Accounting**
Yixin Zhang, 17, Junior; Yumeng Li, 16, Junior; Anqi Wang, 17, Senior
Anhui Bengbu No. 2 High School, Bengbu, Anhui, China, T: Guofeng Song

CHINESE TAIPEI

Taipei, TWN001, Middle Taiwan Regional Science Fair

- AS014 Seeing What You Want to See: Visual Experience and Top-down Processing in Honeybee**
Kevin Sean Chen, 17, Senior, The Affiliated Senior High School Of National Kaohsiung Norm, Kaohsiung, Chinese Taipei, T: Kuei-Fang Chen
- CH010 Lighting Insulin with Gold Nanodots**
Yun-Chen Chien, 17, Senior, Taipei First Girls' High School, Taipei, Taipei City, Taiwan (R.O.C), Chinese Taipei, T: Li-Fen Chan
- CS017 Maintaining Viewing Quality with Lower Number of LEDs**
Yu-Jung Chen, 18, Senior, The Affiliated Senior High School of National Kaohsiung Norm, Kaohsiung City, Chinese Taipei, T: Yu-Cheng Chien
- EA302T Is Global Warming Real?: An In-depth Analysis on Regional Details**
Chih-yu Lee, 16, Junior; Sze-Ying Chen, 17, Junior
National Hsin Tien Senior High School, New Taipei City, Chinese Taipei, T: Pei-I Pai
- EV306T Bio-degradation of Poly(ethylene terephthalate)/Poly(lactic acid) Blends**
Yi-Ying Tsai, 18, Senior; Kai-Li Hsieh, 18, Senior
National Taichung First Senior High School, Taichung, Chinese Taipei, T: Chia-Ching Liu
- MA007 How to Discover Infinitely Many Theorems Related to the Pedal Circle**
Wayne Liao, 17, Junior, National Taichung First Senior High School, Taichung City, Chinese Taipei, T: Jian Zhang Ke
- MA008 Perfect Tiling of a Rectangle into Rectangles**
Tzu-Hsuan Su, 16, Sophomore, Taipei Municipal Jianguo High School, Taipei City, Chinese Taipei, T: Peng-Yu Shen
- MI019 State Transition Mechanism Protects Photosynthetic Light Reaction in Thermophilic Cyanobacteria**
Kuang-Ming Shang, 16, Junior, Taipei Municipal Jianguo High School, Taipei City, Chinese Taipei, T: Hsiu-An Chu
- PH304T Studies of Cell Elasticity by Nonlinear Damping**
Janet Yun-Chen Sung, 18, Junior; Nai-Wen Hu, 16, Junior
Taipei First Girls High School, Taipei City, Chinese Taipei, T: Wen-Sheng Chen

COLOMBIA

Bogota, COL002, Colombia Science and Engineering Fair—I

- EE302T OPTIMUSITI**
Julian Andres Poveda, 15, Junior; Camilo Andres Calderon, 13, Freshman
IED Instituto Tecnico Industrial Francisco Jose de Caldas, Bogota, Cundinamarca, Colombia, T: Victor Hugo Bernal
- EE303T Preservation, Aroma and Ingenuity—Processor of Aromatic Plants (P.P.A.)**
Vivian Nicole Perez, 16, Junior; Camilo Fernando Kaligare, 16, Junior
Colegio Sorrento Institucion Educativa Distrital, Bogota, Cundinamarca, Colombia, T: Milagros Del Rosario Ortega

Cartagena, COL003, Colombia Science and Engineering Fair—II

- EM016 Nursery Forest: A Teaching Strategy to Investigate Environmental Problems**
Arturo Javier Gonzalez, 15, Sophomore, Escuela Normal Superior Santa Ana de Baranoa, Baranoa, Atlantico, Colombia, T: Miguel Angel Rodriguez navarro
- ME034 Establish of an Experimental Plot with Flower from Jamaica (*Hibiscus sabdariffa*) as Productive Alternative in the Municipality of San Juan Nepomuceno, Colombia**
Amilkar De Jesus Rodriguez, 15, Junior, Institucion Educativa Diogenes A. Arrieta, San Juan Nepomuceno, Bolivar, Colombia, T: Ermis Maria Arrieta Herrera
- Medellin, COL001, Colombia Science & Engineering Fair
- EE305T Design of a Toilet Water Saving Device**
Sebastian Tangarife, 17, Junior; Daniel Andres Villa, 17, Junior
Colegio Divino Salvador, Medellin, Antioquia, Colombia, T: Claudia Munoz
- ME035 Side Effects of Alcohol via Vagina in Teenage Woman in Four Schools of the City of Medellin**
Carla Valentina Vanegas, 16, Junior, Colegio San Jose de las Vegas, Medellin, Antioquia, Colombia, T: Adriana Isabel Gonzalez

- PS305T Evaluation of Bio-Fungus Preparations *Trichoderma spp.* in Tomato Seed**
Karen Margarita Viloria, 15, Sophomore; Yeiner David Mendoza, 16, Junior
Institucion Educativa San Pedro de Uraba, San Pedro de Uraba, Antioquia,
Colombia, T: Claudia Viloria

COSTA RICA

San Jose, CRI001, Feria Nacional de Ciencia y Tecnologia

- EE023 Solar Energy Conversion into Mechanical Power**
Francela Maria Rojas-Simpson, 15, Freshman, Centro Educativo Bilingue del Caribe,
Limon, Costa Rica, T: Francisco Javier Rojas-Rojas

- ME306T Entomopathogenic Fungus *Metarhizium anisopliae* (*Ascomycota: Hypocreomycetidae*) as a Tool for the Biological Control of the *Aedes aegypti* (*Diptera: culicidae*) Mosquito**

Franklin Chacon-Huete, 17, Junior; Dylan Andres Bartels-Mora, 17, Junior;
Juan Carlos Cambronero-Heinrich, 18, Junior
Colegio Cientifico - sede San Pedro, San Jose, Costa Rica, T: Adrian Avendano-
Lopez

- PS304T Genetic Improvement of Edible Aroids by Isolation and Electrofusion of Protoplast (*Xanthosoma spp.* and *Colocasia sp.*)**

Franklin Blanco-Solano, 17, Junior; Alessa Mariel Calderon-Acuna, 17, Junior;
Jose Fabian Badilla-Cambronero, 18, Junior
Colegio Cientifico-sede San Carlos, Santa Clara, Alajuela, Costa Rica,
T: Wainer Montero-Carmona

San Jose, CRI002, Feria de Tecnologia e Ingenieria

- EE017 A Distance Controlled Robot to Handle Hazardous or Fragile Material**
Luis Gerardo Leon-Vega, 16, Freshman, Jose Maria Gutierrez, Guayabo de Bagaces,
Guanacaste, Costa Rica, T: Luis Gerardo Leon-Solano

- EE301T Musical Score Interpreter to Facilitate Teaching Music to People with Visual Impairment by Using Vibrations**

Jose Miguel Gonzalez-Arias, 17, Junior; # Nicole Alexandra Mena-Mora, 17, Junior
Colegio Tecnico Profesional Don Bosco, San Jose, Costa Rica, T: Alejandro Gerardo
Loria-Jimenez

CZECH REPUBLIC

Chrudim, CZE001, Provincial Science Fair of Buenos Aires

- CH002 A New Way in Diagnostics of Bronchial Asthma**
Erika Gedeonova, 19, Senior, Sportovni Gymnazium Kladno, Kladno, Czech
Republic, T: Marie Pokorna

- EE002 Design of Portable X-ray and Computed Tomography Scanner**
Tomas Svoboda, 19, Senior, High School of Electrotechnical Studies, Brno,
Bohemia, Czech Republic, T: Ing. Robert Lanicek

- EN003 EFFY: The Cell Phone for Children**
Charlota Blunarova, 19, Senior, Gymnazium, Vyskov, Vyskov, Czech Republic,
T: Marta Kubacakova

Prague, CZE002, AMAVET Czech Republic Science Fair

- CS004 Eye-Controlled Cursor**
Filip Naiser, 18, Freshman, Gymnazium Aloise Jiraska, Litomysl, Czech Republic,
T: Martina Kunderova

- EN302T Study of Steels Suitable for Reactor Pressure Vessels**
Marek Kovar, 19, Senior; Tomas Petak, 19, Senior
Gymnazium Karla Sladkovskeho, Prague, Czech Republic, T: Anton Florek

- ME010 Comparison of Men's Sperm Quality**
Tereza Agata Vesela, 18, Senior, Gymnazium, Brno-Reckovice, Terezy Novakove 2,
Brno-Reckovice, Czech Republic, T: Katerina Cibulkova

DENMARK

Odense, DNK001, Unge Forskere

- ET020 Drag'n'ball: How the Humpback Whales Bumped Flippers Can Help Us to Renewable Energy**

Hanne Binder, 19, Senior, Vejle Technical High School, Vejle, Denmark,
T: Birgitte Merci Lund

- ME026 Obesity**

Marie Emilie Kaas Ibsen, 20, Senior, Naerum Gymnasium, Nørum, Denmark,
T: Helle Jarden

EGYPT

Alexandria, EGY002, BA Science and Engineering Fair

- AS027 The Miracle of Living by Termites**

Ahmed Hassan Hussein, 17, Junior, Moubarak Secondary School, Alexandria, Egypt,
T: Sarah Alaa Elshater

- BE030 Assessing the Indirect Impact of False Memories on Human Development through Developing Criminals**

Sara Mohamed Samir Mohamed, 16, Sophomore, El Raml Secondary School For Girls, Alexandria, Egypt, T: Ahmed Kamal Mohamed

- EE039 Car Protector**

Mohamed Magdy El Bltagy, 16, Freshman, Hamza Experiment Languages School, Alexandria, Egypt, T: Mohamed Aly Ebady

Cairo, EGY001, SAS Science and Engineering Fair

- ET029 Production of Biodiesel from Jatropha Oil**

Yomna Yasser Mohamed, 17, Senior, El Quadah Leaders American School, 6 October, Giza, Egypt, T: Amal Sobhi Hamamo

- ET038 Carbon Footprint 0**

Abdel Rahman Ahmed Korayem, 18, Senior, Manor House School (IGCSE), Dokki, Giza, Egypt, T: Nada Foad Hassan

- MA022 Is There a Relationship between Chords and Triangles Drawn Inside a Circle Which Can Prove the Equality of Chords and Congruence Triangles?**

Abd Al-Rahman Mohamed Mostafa, 17, Junior, Alsaadia Secondary School for Youth, Giza, Cairo, Egypt

ESTONIA

Tartu, EST001, Estonian Young Scientist Contest

- CB033 Dependence of GFP-GST Fusion Protein Expression on IPTG Concentration in *Escherichia coli***

Michael Florea, 18, Junior, Tallinn Secondary Science School, Tallinn, Harju, Estonia,
T: Kersti Veskimets

FRANCE

Paris, FRA002, C.GEnial

- MA309T From the Around the World Sailing Record to Black Holes: Strange Geometries**

Clement Martinez, 15, Freshman; Arnaud Vespa, 16, Junior; Marine Auriol, 15, Freshman

College Albert Camus, Miramas, France, T: Francis Loret

Paris, FRA001, Olympiades de Physique

- PH310T Determination and Modeling of the Shape of an Asteroid by Analysis of Its Light Curve**

Florian Livet, 17, Senior; Corentin Pasquier, 17, Senior; Titouan Coislier, 17, Senior
LGT Leonard de Vinci, Montaigu, France, T: Jean-Jacques Rives

GERMANY

Essen, DEU001, Jugend Forscht

- EA002 "High Noon" Is Not Twelve Sharp!: (which Complicates) the Development of a Precise Sundial**

Martin Herbert Dehn, 19, Senior, Hanns-Seidel-Gymnasium Hosbach, Hosbach, Bavaria, Germany, T: Claus-Peter Horn

EE006 Ball Robot—An Instable System in Balance

Jan Kaeberich, 18, Senior, Campe-Gymnasium Holzminden, Holzminden, Niedersachsen, Germany, T: Klaus Friedrich Nortrup

HONG KONG SAR OF THE PEOPLE'S REPUBLIC OF CHINA

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

CH029 Revolution of Household Quantitative Food Testing—'Nitr analyzer'

Chun So, 16, Junior, La Salle College, Hong Kong, Hong Kong, T: Wah Shun Lam

EE316T The Untouchable: A Safety Feature for Workshop Machines and Electrical Appliances

Shi Ting Pan, 18, Junior; Ying Chan, 18, Junior; Ching Man Ng, 17, Junior
Sheng Kung Hui Li Ping Secondary School, Hong Kong, Hong Kong, T: Kin Yip Ho

EE317T Eye of Horus (True Voice Color Recognizer for Visually Impaired, TVCR)

Chung Yeung Jeremy Ho, 19, Freshman; Chung Hin Leung, 16, Sophomore
Aberdeen Technical School, Hong Kong, Hong Kong, T: Shek Nin Wong

EM328T Fast Fabulous Flush

Cheuk Yan Chui, 16, Sophomore; Wai Sum Ma, 16, Sophomore; Hei Tung Sung, 15, Sophomore

Heep Yunn School, Hong Kong, Guangdong, Hong Kong, T: Tat Fai Choi

EN311T Rustworthy

Ho Kwan Lui, 18, Senior; Sze Nga Cheung, 18, Senior; Tsz Kwan Regina Lau, 18, Senior

Heep Yunn School, Hong Kong, Hong Kong, T: Yu Lam Sit

HUNGARY

Budapest, HUN001, Innovation Contest for Young Scientists

ME078 New Screening Method for Colon Cancer—Detection of Colorectal Cancer in Peripheral Blood by mRNA Expression Markers

Anna Molnar, 18, Senior, Fazekas Mihaly Fovarosi Altalanos Iskola es Gyakorlo Gimnazi, Budapest, Hungary, T: Kinga Toth

INDIA

Mumbai, India, IND001, Initiative in Research and Innovation in Science

CH034 Drug Synthesis: Braving Legendary Challenges

Raghavendra Ramachandran, 16, Junior, St. John's International Residential School, Chennai, India, T: Kishore Kumar

EM331T Eco-friendly Ink from *Terminalia chebula*

Pramoda Nekkare Vishnumurthy, 15, Sophomore; Bhargava Chakarakodi Subbanna, 14, Junior

Sri Ramakrishna High School, Puttur, India, T: Vasanthi Kedila -

Sri Ramakrishna High School Puttur, Puttur Karnataka, Karnataka, India, T: Vasanthi Kedila

EM332T Recycling Rexine Waste—A Novel and Economical Approach

Hetal Kanjibhai Vaishnav, 18, Senior; Ankur Kanjibhai Vaishnav, 16, Junior
Late Shree S. G. Dholakiya Memorial High School, rajkot, Gujarat, India, T: Vaibhav Narendrabhai Ramani

EM333T *Acmella oleracea*: A Naturally Growing Weed as Effective Pest Controller

Akansha Verma, 16, Sophomore; Abhishek Khanna, 17, Junior
Maharaja Agarsain Public School, Delhi, Delhi, India, T: Sonika Verma

MA048 Integer Partitions and Sequences

Manosij G Dastidar, 18, Senior, South Point High School, 700019, India, T: Sharmila Roy

MI060 An Eco-friendly Antifungal Agent: Leaf extract of *Girardinia diversifolia*

Diksha Gupta, 17, Senior, Maharaja Agarsain Public School, Delhi, India, T: Sonika Verma

INDONESIA

Jakarta, IDN001, Youth Science Competition

- BE318T 30 Days Being Fisherman's Children: Study of Social-Culture and Economic Life of Fisherman's Family in Muara-Binauangrun, Wanasalam, Lebak-Banten**

Pebrian Pebrian, 18, Senior; Alanikika Pratyaksa, 16, Junior
1st Malingping State Senior High School, Lebak, Banten, Indonesia,
T: Raden - Supardan

- EA305T Opak River Mouth: A Unique Deflection**

Yan Restu Freski, 19, Senior; Darmadi Darmadi, 20, Senior
1st State Yogyakarta High School, Yogyakarta, Yogyakarta, Indonesia, T: Srijono

- EN317T Bamboo-based Composites for Earthquake-Resistant Building Materials**

Andrey Irawan Halim, 18, Senior; Reyner Jong, 17, Junior
Santa Laurensia High School, Tangerang Selatan, Banten, Indonesia, T: Anne
Meylani Magdalena Sirait

IRELAND

Dublin, IRL001, BT Young Scientist & Technology Exhibition

- CH006 Adventures in the Dendritic Crystallization of Potassium Bromide**

Jack Daniel Francis McCann, 15, Sophomore, Loreto College, Coleraine, Northern
Ireland, United Kingdom, T: Brian McKenna

- EM334T An Investigation Into Sea Lettuce Briquettes**

Muireasa Anne Carroll, 17, Junior; Denise Marie Hurley, 17, Junior; Mairead Maeve
Kingston, 17, Junior
Sacred Heart Secondary School, Co. Cork, Cork, Ireland, T: Claire Helen Holland

ISRAEL

Jerusalem, ISR001, The Israeli Young Scientists Contest

- CH011 Photostabilization of an Organic Dye via Adsorption to Clay Minerals**

Maya Ellen Samuels, 17, Senior, Har Va'Gai Regional High School, Upper Galilee,
Israel, T: Giora Rytwo

- CS018 Cedar: When Prolog Meets Flash**

Erez Urbach, 18, Senior, The Israel Arts and Science Academy, Jerusalem, Israel,
T: Chana Sherf

ITALY

Milano, ITA001, I Giovani e le Scienze

- CS010 DragTop**

Alessandro Abati, 19, Senior, Liceo Scientifico Niccolo Copernico, Prato, Prato, Italy,
T: Paola Gherardi

- EA303T CA.WA.LE.C. Cave Water Level Control**

Cristofer Pezzetta, 18, Senior; Daniele Olivo, 19, Senior; Mattia Olivier, 19,
Freshman
Istituto Statale d'Istruzione Superiore Arturo Malignani, Udine, Udine, Italy,
T: Eliana Ginevra

- EE013 Metal Foams Heat Sink for CPU**

Eva Odorico, 19, Senior, Liceo Scientifico Leonida Martin, Latisana, Friuli Venezia
Giulia, Italy, T: Sergio Zamburlini

JAPAN

Tokyo, JPN001, Japan Students Science Awards

- CH031 Heat Accelerated Cooling: A Study on Cooling Materials with Liquid Nitrogen**

Akihito Ohyama, 16, Sophomore, Yachiyo-Shoin High School, Yachiyo, Chiba, Japan,
T: Haruo Tsuchiya

- EA018 Gap in the Deep Sea?: Reconstruction of Sedimentary Environment of the Kurotaki Unconformity, Central Japan Based on Foraminifers**

Riou Tanaka, 16, Sophomore, Chiba High School, Chiba, Chiba, Japan,
T: Naoki Ohtsuka

- PS309T How Venus Flytrap Memorizes Weak Stimuli for an Action Potential?**

Yuji Amano, 17, Junior; Ryota Eguchi, 17, Junior; Kosuke Kusano, 17, Junior
Omiya High School, Saitama, Saitama, Japan, T: Shinichi Hiraiwa

Tokyo, JPN002, Japan Science & Engineering Challenge

- BE305T Development of a Biofeedback System Enabling Control of Nervousness**
Yoshito Morikawa, 18, Senior; Ryota Fukumoto, 18, Senior
Waseda University Senior High School, Nerima, Tokyo, Japan, T: Yasushi Nakajima
- EA304T Characterization of Volcanic Lightning and Modeling How Volcanic Lightning Occurs at Sakurajima Volcano in Kagoshima, Japan**
Nobutada Kawazoe, 17, Junior; Taiki Maehata, 17, Junior; Rushia Kanai, 17, Junior
Kagoshima Prefectural Kinkowan Senior High School, Kagoshima, Kagoshima, Japan, T: Hitoshi Hinoguchi
- MA015 Cutting and Combining Polyhedrons and Filling Space Using Origami**
Mari Kimura, 18, Senior, Ritsumeikan Senior High School, Kyoto, Japan, T: Masashi Sanae

JORDAN

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

- BE021 Designing a Glass System to Control the Light Intensity and Room Temperature**
Sanad Nidal Abu-Haikal, 16, Junior, Modern Montessori School, Amman, Jordan, T: Raed Mustafa shami
- BE306T Possible Improvement on a Disability Walker Device: MLH Walker Device**
Hedaya Sulaiman Mustafa, 17, Junior; Mo'tasem Aymen AL-Ajjouri, 16, Junior; Lana Nafez Nassif, 16, Junior
Jubilee School, Amman, Shafa Badran, Jordan, T: Abdelkhaleq Badri Al shboul
- EA009 A Device for Measuring the Vibrations and Earthquakes**
Mohamed Maamoon Sehimat, 15, Freshman, Zaud Bin Al- Hareth, Karak, Jordan, T: Raed Fayeز Almadanat
- EM022 Extracting Silver Halides from Used X-Ray Films Using New Techniques**
Farah Mohammed Refai, 16, Junior, Modern Montessori School, Amman, Jordan, T: Raed Mustafa Shami
- ET303T O.V.W.S (Over-height Vehicles Warning System)**
Murad Muhammad Al-Ostaz, 16, Junior; Tariq Omar Khader, 16, Junior
King Hussein Foundation—Jubilee School, Amman, Jordan, T: Khalil Ibrahim Asfour
- EV020 CWADIS (Continual Water Disinfection System)**
Batool Ahmed Al-Wahdani, 17, Junior, King Hussein Foundation. The Jubilee School, Amman, Jordan, T: Abdelkhaleq Badri Al-shaboul
- ME044 The Effect of Phenolic Extracts from Green *Coffea Arabica* on Blood Coagulation *in vitro***
Gharan Bilal Al-Salman, 17, Junior, Jumana Bent Abe Taleb Comprehensive School for Girls, Al Ramtha, Al Ramtha, Jordan, T: Suzan Mahmoud Abu-Husein
- ME055 Natural Fighter of Blood Lipids**
Laith Omar Shannak, 16, Junior, Modern Systems Schools, Amman, Jordan, T: Mohammad Mustafa Salah
- PS012 Everlasting Flowers**
Zeina Yousef Qaisieh, 16, Sophomore, Modern Systems Schools, Amman, Middle East, Jordan, T: Eman Faisal Shuheiber

KAZAKHSTAN

Astana, KAZ001, DARYN National Junior Science Projects Competition

- EV043 Entomophilous Steppe Plants of the Village Karabatyr**
Yelena Aleksandrovna Galaton, 17, Sophomore, High School OZAT, Kostanai, Kazakhstan, T: Galina Vasilyevna Vartanian
- MA041 Additive Sequence**
Nikita Maksimovich Nikita, 17, Sophomore, High School #1, Ekibastuz, Ekibastuz, Kazakhstan, T: Gulzhan Yesenbayevna Yesenbayeva
- MA310T Minimal Lie Rings**
Tole Ernstuly Tolegenov, 17, Junior; Yeren Aibynovich Adepkhan, 17, Junior
High School in Physics and Math, Almaty, Almaty, Kazakhstan, T: Arkhat Sadyrbayevich Dollayev

LEBANON

Beirut, LBN001, Lebanon Science Fair

BE022 Alcoholic Test

Nadia Robert Matrak, 16, Freshman, Ecole Du Saint Coeur, Bekfaya, Mount Lebanon, Lebanon, T: Eliane Robert Dagher

EV307T HD Converter

Doha Raaouf Sokarieh, 17, Junior; Hayat Mousa Itani, 17, Junior
Canadian High School, Beirut, South, Lebanon, T: Nader Sobh

PH018 Conceptual Design of a Fission Materials Irradiation Facility

Samih Mohammad Kabalan, 18, Senior, Rafic Hariri High School, Saida, South, Lebanon, T: Bilal Assaad

Beirut, LBN002, Lebanon Science Fair

BE307T Deafcom

Radwan Mohamad Faisal El Othman, 16, Sophomore; Rachid Mohamad Nour El Ayoubi, 16, Junior
Rawdat EL Fayhaa Secondary School, Tripoli, North, Lebanon, T: Ibrahim Fattal

CS022 Media Rhyme

Jad Habib Aizarani, 16, Freshman, Canadian High School, Beirut, South, Lebanon, T: Nader Sobh

EA010 Baby Care Technology

Sara Ahmad El Mustapha, 16, Freshman, Rawdat EL Fayhaa Secondary School, Tripoli, North, Lebanon, T: Ahmad El Arja

MACAO SAR OF THE PEOPLE'S REPUBLIC OF CHINA

Macao, MAC001, Macao Region Science Fair

EE072 TongueMove: Barrier Tree Tongue Controller

Ka Chon Leong, 18, Senior, Keang Peng School, Macau, T: Kun Wa Lao

EE319T Enhanced Navigation System for Remotely Operated Underwater Vehicle

Io Tong Chan, 18, Senior; Chi Kit Cheong, 17, Junior; Ka Hong Lao, 17, Junior
Keang Peng School, Macau, Macau, T: Kun Wa Lao

MALAYSIA

Kuala Lumpur, MYS001, National Schools Science Innovation and Engineering Competition

EM321T A Fishy Detector

Haleeda Hilmi, 17, Junior; Nurul Amira Salehin, 17, Junior
Tunku Kurshiah College, Seremban, Negeri Sembilan, Malaysia, T: Hanizah A Hamid

EV030 Removal of Heavy Metals from Waste Water Using Crustacean and Molluscan Shells

Brandon Pow Anak Brownie, 15, Freshman, Batu Lintang Government Secondary School, Kuching, Sarawak, Malaysia, T: Yee Chuen Lim

EV031 Green Based Conductive Polymer Sensor

Zawin Najah Binti Zulkefli, 17, Junior, Tuanku Syed Putra Secondary Science School, Kangar, Malaysia, T: Noridah Yangman

Pengkalan Chepa, MYS002, MRSM Young Scientist

CH037 Bio-Reduction of Ketone to Chiral Alcohol Using *Aspergillus niger*

Mohamad Syazwan Mohamed Zafarulla, 17, Junior, MARA Junior Science College Taiping, Perak, Taiping, Perak, Malaysia, T: Kamisah Ibrahim

EM316T Comparative Study between Coconut Coir and Hair as Oil Absorbent

Nur Hazirah Anuar, 17, Senior; Muhammad Asyraf Arif bin Mohd Fauzi, 17, Senior
MARA Junior Science College, Kota Bharu, Malaysia, T: Aida Azira Mohamed

ET067 Organic Battery

Mohammad Dzarul Hafiz Dol Malek, 17, Freshman, MRSM Balik Pulau, Balik Pulau, Malaysia, T: Azaizul Ahamd

MEXICO

Puebla, MEX001, Gran Encuentro de Ciencias Joven

BE051 Effect of Methylphenidate Doses Regulation by Molecular Diagnosis in Executive Functions of ADHD Patients

Sebastian Patino Valenzuela, 16, Junior, Tecnológico de Monterrey Campus Guadalajara, Zapopan, Jalisco, Mexico, T: Alma Delia Zamarripa Flores

- BE052 Kuali Nakaztli**
Sofia Isadora Padilla Munoz, 17, Senior, Tecnologico de Monterrey, Zapopan, Jalisco, Mexico, T: Jaime Alejandro Mendiola Romero
- BE053 Microcredits, Economy of Effervescence**
Magdaly Esther Santillanez, 17, Junior, Colegio de Bachilleres del Estado de Sinaloa, Plantel 21, Dr. Guamuchil, Salvador Alvarado,, Sinaloa, Mexico, T: Alvaro Perez
- CS054 VAAC (Virtual Activation of Application for Computer)**
Erendira Citlalli Jara Diaz de Leon, 16, Junior, Centro de Bachillerato Tecnologico Industrial y de Servicios, Aguascalientes, Mexico, T: Antonio Diaz de Leon Gonzalez
- CS308T MULTITEST**
Nayely Jara Diaz de Legon, 17, Senior; # Tania Janeth Rodriguez Diaz de Leon, 18, Senior
Centro de Bachillerato Tecnologico Industrial y de Servicios, Aguascalinetes, Mexico, T: Antonio Diaz de Legon Gonzalez
- EM329T Chrome Recovering from Tanned Solid Waste by Chemical Methods**
Karla Stephanie Carreno, 18, Senior; Alberto Porras, 18, Senior
Centro de Bachillerato Tecnico Industrial y de Servicios no., Cortazar, Mexico, T: Miguel Angel Quintana
- EN321T The Plastic We Will Use in the Future (from Obtaining Bioplastics NOPAL Mucilage)**
Xhail Pineda Gonzalez, 16, Sophomore
Official Preparatory Annex to the Normal School of Teotihuac, Colony. Nva., Teotihuacan, Mexico, T: Jose Juan Ramirez Nunez
- ET060 Obtaining Bioethanol from Tuna (Opuntia ficus): An Alternative to the Use of Corn**
Clara Guadalupe Escarcega Ramirez, 19, Senior, Escuela Preparatoria Oficial Num. 19, Mexico, Estado de Mexico, Mexico, T: Jose Margarito Galicia Gleason
- EV324T Evaluation of the Cachaza in the Improvement of the Soil and in the Phenology of the Plant of Bean**
Cesar Landeros, 16, Freshman
Unidad Academica Preparatoria Vladimir Ilich Lenin, Eldorado, SINALOA, Mexico, T: Jose Humberto Ayala

MOROCCO

Rabat, MAR001, Morocco Science Fair

- EE086 Smart Board**
Souhaila Magrouni, 14, Freshman, Complex Teaching Madariss Assalam, Rabat, Morocco, T: Sidi Mohammed Ibn Ouzahr
- EE324T Letter Beeper**
Mostafa Bigua, 19, Sophomore; Soumia Bajajji, 20, Sophomore; Hicham Ait Khouya, 20, Sophomore
Imam Elghazali High School, Meknes, Morocco, T: Mohammed Ali Belhaj
- ET066 The Automatic Awning**
Hassan Mohamed Ouajbir, 18, Senior, Allal El Fassi, Rabat, Morocco, T: Mbarka Mohamed Chammami

NIGERIA

ABUJA, NGA001, Nigeria Science Fair

- EM313T Orange Peels: The Untapped Goldmine**
Sukurat Oyindamola Quadri, 15, Junior; Ayisat Yetunde Ibiwunmi Abiodun, 15, Junior; Fatiha Oyebola Olabisi, 15, Junior
Doregos Private Academy, Ipaja, Nigeria, T: Olaide Oluwaseyi Lawal
- MI302T Jatropha Antibacterial Soup**
Zainab Morenikeji Adedipe, 14, Junior; Olaoluwa Emmanuel Bamidele, 15, Junior
Homat Group of Schools, Ikorodu, Nigeria, T: Adedoyin Idowu Opabunmi
- PH308T G-force Space System**
Olutade Mathais Adeyemi, 17, Junior; Queen Maranatha Abutu, 16, Junior
School for the Gifted Gwagwalada, Gwagwalada, West Africa, Nigeria, T: Davou Bitrus-Pam

NORTHERN IRELAND

Belfast, NFK001, Sentinus Young Innovators

EE323T Voice Activated Alarm

David James McCarroll, 20, Senior; Jonathan William McEwan, 20, Senior
South Eastern Regional College, Bangor, County Down, Northern Ireland,
T: Shirley Montgomery

NORWAY

Oslo, NOR001, Norwegian Contest for Young Scientists

PH044 Using a Scanning Near-field Optical Microscope Tip: What Settings Will Excite Plasmons Most Efficiently?

Thomas Christopher Ovestad, 19, Senior, Saint Olav School, Stavanger, Rogaland,
Norway, T: Samuel Dagfinn Olsen

PAKISTAN

Islamabad, PAK001, Intel Science Fair

CH007 Organic Battery

Habibullah Muhammad, 16, Junior, PakTurk International Schools and College
Lahore Pakistan, Lahore, Punjab, Pakistan, T: Ozan Murat

EE005 Generation of Electricity with the Help of Vertical Air through a Modified Very Economical Wind Mill

Fatima Sohail, 14, Freshman, Da Model High School, Karachi, Sindh, Pakistan,
T: Naseem Akhtar

EV302T Degradation of Environmental Pollutants with Nanocomposites

Mehwish Ghaffoor, 15, Junior; Ambreen Bibi, 15, Junior
Federal Government College for Women G 10/4, Islamabad, Capital, Pakistan,
T: Sheeba Makhdoom

PALESTINE

Ramallah, PSE001, Palestine Regional Science Fair

CH021 Gas Leakage Protection System (GasProtect) Is to Secure Confined Places from Hazardous Gases

Iman M.T Qaraqe, 14, Freshman, Beit-Jala, Bethlehem, Palestine,
T: Maysoon M.M Yousuf

EE056 Safe Establishments

Anas J. I. Eshtaya, 17, Junior, Al Salahiya Secondary School, Nablus, Palestine,
T: Bashar Asad Khaled

EE310T Improving Car Equipments

Abeer Mohammed Rabee, 16, Junior; Tala J.A Abuhelal, 17, Junior
Abudees Secondary Girls' School, Abudees, Jerusalem Suburbs, Palestine,
T: Lamia Suliman Mohammed Hadidoun

PERU

Lima, PER001, Peru Science and Engineering Fair

EM309T Biorremediation of Water and Soil Contaminated by Petroleum

Gustavo Adolfo Carrasco Zuniga, 17, Senior; Kelly D'Angella Zambrano Diaz, 16,
Senior
Educational Institution "Sollertia", Pucallpa, Ucayali, Peru,
T: Eric Mananita Terrones

PS303T Phyto Chemical and Ethnobotanical Studies of Acmella spilanthis Cass (Buttonwood) and Its Importance in Medicine

Kelvin Russell Cespedes Nano, 15, Senior; Angel Francisco Solis Gozar, 15, Senior
Educational Institution Divina Pastora, Oxapampa, Pasco, Peru,
T: Irma Soledad Valdivia Mamani

PHILIPPINES

Pasig City, PHL001, Intel Basic Philippine Science Fair

BI024 Milkfish (Chanos chanos Forsskal) Serum as an Alternative Media Supplement for Culture of A549 (Human Lung) and HCT 116 (Colon) Carcinomas

Angeli Joyce Yap Dy, 16, Senior, Capiz National High School, Roxas, Capiz Province, Philippines, T: Ronilo Villan Aponte

EM033 Portable Solar Heated Vacuum Desalinator (PVD) for Drinking Water Production

Benedict Manuel Redublo Priela, 15, Sophomore, Holy Infant Academy, Calapan City, Oriental Mindoro, Philippines, T: Nelson De La Pena Endaya

EN027 Synthesis and Characterization of Composite Plastics from Thermoplastic Starch and Nano-sized Calcium Phosphate for Film Packaging

Miguel Arnold Silverio Reyes, 16, Senior, Philippine Science High School- Main Campus, Quezon City, Metro Manila, Philippines, T: Ana Maria Chupungco

ET306T Dye-sensitized Solar Cell Using Natural Dyes Extracted from Purslane Weed (*Portulaca oleracea*)

Sean Luke Rocero Cabiles, 16, Sophomore; John David Fadullo Caburnay, 16, Sophomore; Jeffrey Villanueva Abulencia, 16, Sophomore
Victorino Mapa High School, Manila, Philippines, T: Luzviminda Abastillas Dinglasan

ME066 Cytotoxicity against Human Lung (A549) and Colon (HCT116) Carcinomas and Antioxidant Potentials of IR64 Rice Bran

Mark Lloyd Granaderos Dapar, 17, Senior, Bayugan National Comprehensive High School, Bayugan City, Agusan del Sur, Philippines, T: Jonathan Florida Garzon

PS308T Larvaecidal Effects of *Jatropha curcas* Bark Extract against *Spodoptera litura* Fabr.

Regine Flores Arcenal, 16, Sophomore; Janina Mendoza Guarte, 16, Sophomore; Edgardo Asid Alegre, Jr., 16, Sophomore
Philippine Science High School - Eastern Visayas Campus, Palo, Leyte, Philippines, T: Carlo Chris Serrano Apurillo

PORTUGAL

Lisboa, PRT001, Portuguese Contest for Young Scientists

PH305T Transmission Holograms and Young Modulus

Ana Aguilar Rocha, 17, Senior; Andre Alcada Fernandes, 17, Senior; Vitoria Robalo Esteves, 17, Senior
Escola Secundaria Campos Melo, Covilha, Portugal, T: Rosa Albuquerque Simoes

PUERTO RICO

Arecibo, TEPR02, Arecibo Regional Science Fair

BI033 The Effect of the *Apis mellifera*'s Honey on the Leaves of the Weed *Brachiaria purpurascens*

Caroline Lopez, 15, Freshman, Brigida Alvarez Rodriguez, Vega Baja, Puerto Rico, T: Vyomar Santiago

BI034 The Extract of the *Annona muricata* Leaves (Soursop) Contains Possible Inhibitors of Cancer Cells Growth

Joshua Damian Ruiz-Perez, 17, Senior, Antonio Lucchetti Vocational HS, Arecibo, Puerto Rico, T: Linda Igshel Vargas

EE320T Mechanical Efficiency of a Robot with an Autonomous Program

Kenneth Javier Perez, 16, Sophomore; Jose Alberto Marte Sanchez, 15, Sophomore
Brigida Alvarez Rodriguez, Vega Baja, Puerto Rico, T: Elsie Garcia
Escuela Especializada en Ciencias y Matematicas Brigida Alva, Vega Baja, Puerto Rico, T: Elsie Garcia Allende

EV042 The Effect of Domestic Discharges on the Coral *Acropora cervicornis* (Staghorn Coral)

Frank L. Torres Torres, 17, Senior, Jose Rojas Cortes High School, Orocovis, Puerto Rico, T: Carol J. Morales Miranda

Bayamon, TEPR03, Bayamon Regional Science Fair I

EV048 Bio Indicators Species Analysis in the Mitigation Area at Las Cucharillas Marsh, Catano Puerto Rico

Christian A. Eaton-Ocasio, 17, Junior, Francisco Oller, Catano, Puerto Rico,
T: Carmen D. Nunez

EV317T The Impact of Electromagnetic Pollution on a Forest

Pedro Julio Hernandez Rodriguez, 17, Junior; # Elliot Josue Ramos Cheverez,
16, Junior

Adela Rolon Fuentes, Toa Alta, Puerto Rico, T: Ruth Rosa

Caguas, TEPR04, Caguas Regional Science Fair

EE076 Electronic Sunflower: Sun Tracker

Enddy Javier Gonzalez Figueroa, 17, Senior, Natividad Rodriguez Gonzalez, Arroyo,
Puerto Rico, T: Wanda Ivette Pena

EV318T The Effect of Coal Ashes in the Human Body

Irmarie Gonzalez - Valentin, 16, Junior; Emily Bernardeau - Rivera, 16, Junior
Natividad Rodriguez Gonzalez, Arroyo, Puerto Rico, T: Teresa Cordero Velez

ME089 Dietary Supplements

Christian Joel Rivera- Fonseca, 16, Sophomore, Escuela Superior Vocacional de
Cidra, Cidra, Puerto Rico, T: Vilma Luz Fonseca Melendez

Cayey, TEPR11, Radians Science & Engineering Fair

EV040 Alternative Way to Obtain Freshwater from Seawater

Eric Omar Pabon, 16, Junior, Radians High School, Cayey, Puerto Rico,
T: Luz Burgos

MI055 The Effect of the Guava Tree Leaf on Making Pork Intestine Edible for Human Consumption

Francisco Roberto Martinez, 16, Junior, Radians High School, Cayey, Puerto Rico, T:
Luz Deliz Burgos

Humacao, TEPR05, Humacao Regional Science Fair

AS048 Comparison of the Nervous Function and Discrimination Capacity for Certain Shapes and Colors between *Aurelia aurita* (Moon Jellyfish) and *Holothuria mexicana* (Sea Cucumber)

Adolfo Rodriguez-Velazquez, 18, Senior, Florencia Garcia High School, Las Piedras,
Puerto Rico, T: Mayra Cancel-Sanchez

BI035 Pepper Species of *Capsicum annum* as a Biological Control for *Hypothenemus hampei* (Coffee Broca)

Veronica Burgos Villodas, 18, Senior, Petra Mercado Bougart High School,
Humacao, Puerto Rico, T: Gilda Sylvette Jimenez

EN040 Titanium Dioxide Nanofibers and UV Light Protection

Jennifer Maria Reyna, 16, Junior, Petra Mercado Bougart High School, Humacao,
Humacao, Puerto Rico, T: Gilda Sylvette Jimenez

Mayaguez, TEPR08, Mayaguez Regional Science Fair

BI036 The Effect of Lead in Lipstick to Human Health

Robert Perez-Ossers, 16, Sophomore, Centro Residencial de Oportunidades
Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Elba Sepulveda

EM046 Comparative Analysis of the Erosion and Conservation of Dunes at Barceloneta and Isabela, Puerto Rico

Coralis Marie Rivera-Aponte, 17, Junior, Centro Residencial de Oportunidades
Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Mary Carmen Padilla-
Cruhigger

PH313T The Effect of Incidence of Muons as Cosmic Ray during the Day Over the Earth and Solar Flares

Edrick Joel Alvarado-Rodriguez, 16, Sophomore; Kevin Vargas-Velez, 16, Junior
Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto
Rico, T: Elba M. Sepulveda

Mayaguez, TEPR10, SESO Regional Science Fair

BE003 The Best Lesson You've Ever Had: Comparing Teaching Methods

Danielle Celeste Barillas, 15, Sophomore, Southwestern Educational Society,
Mayaguez, Puerto Rico, T: Evelyn Montalvo

Ponce, *TEPR06, Ponce Regional Science Fair*

AS049 Population Census of Land Mollusks in a Xerophytic Forest Ecosystem: The Guanica State Forest in Puerto Rico

Veronica Nieves, 16, Sophomore, Asuncion Rodriguez de Sala, Guayanilla, Puerto Rico, T: Gladys B. Vega-Gonzalez

AS050 The Relation between Mu Opioids Receptors and Drug-addiction

Yelitza Angelica Rodriguez, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Nelson Ruiz

EN315T *Petiveria alliacea*, *Pimienta racemosa*, *Curcubita maxima* and *Carica papaya* as *Coptotermes formosanus* Plague Controller

Jose Miguel Martinez Morales, 17, Senior; Hector Luis Diaz Morales, 16, Junior Escuela Superior Bethsaida Velazquez Andujar, Ponce, Puerto Rico, T: Maria Alvarado Negron

ET065 Energy Conservation with Thermal Materials

Steffi Jamise Lopez-Vasquez, 18, Senior, Escuela Superior Bethsaida Velazquez Andujar, Ponce P.R 00732-7396, Puerto Rico, T: Maria Alvarado Negron

San Juan, *TEPR01, Western Regional Mathematics Fair*

MA009 MaGa Method to Find Determinants of Matrices

Michael G Carmona-Soto, 16, Senior, Petra Mercado Bougart, Humacao, Puerto Rico, T: Marilee Soto-Torres

MA010 Developing Intuitions for Establishing Conjectures Concerning Arbelos's Area

Axel Manuel Pagan-Nieves, 17, Senior, Francisco Morales High School, Naranjito, Puerto Rico, T: Liza Marie Rodriguez-Rodriguez

MA011 Discreet Computation of Continous Areas

Yamil Rosario- Vazquez, 18, Senior, University Gardens High School, San Juan, Puerto Rico, T: Eric Figueroa

MA304T Friendly Numbers in Established Intervals

Raul Eduardo Marquez-Nunez, 17, Senior; Giovanni Santiago-Feliciano, 16, Sophomore Centro Residencial de Oportunidades Educativas de Mayaguez, Mayaguez, Puerto Rico, T: Edwin Benvenutti

San Juan, *TEPR07, San Juan Archdiocesan Region I Science Fair*

BI007 2-Deoxy-glucose Induces Cell Death of Human Leukemic Lymphoid Cells

Gloria Maria Torres-Ayala, 18, Senior, Academia Maria Reina, San Juan, T: Julio Galan

EA301T Chlorophyll-a Variability in an Estuary in Response to Tropical Cyclones

Andrea Carolina Monzon, 16, Junior; # Adriana Cristina Sarro, 17, Junior Academia del Perpetuo Socorro, San Juan, Puerto Rico, T: Enid Pereira

EE011 Passengers Relief Car Alarm

Yailene Marie Bueno, 16, Junior, Colegio La Piedad, Isla Verde, Carolina, San Juan, Puerto Rico, T: Pedro Juan Martinez

EV005 OXO-Plastics vs. HYDRO-Plastics: Which Degrade Faster?

Kermell Ricardo Huertas, 17, Junior, Colegio San Ignacio de Loyola, San Juan, Puerto Rico, T: Wilma Giol

EV303T Environmental Noise Pollution within Urban Structures with High Density Population

Amanda Marie Acosta-Ruiz, 17, Senior; Carlos Risik Martinez-Licha, 15, Sophomore; Rey Diaz Zambrana, 16, Sophomore Academia del Perpetuo Socorro, San Juan, Puerto Rico, T: Maribel Garcia

San Juan, *TEPR09, San Juan Regional Science Fair*

CB041 Determining the Role of the HuR Protein in the Genetic Expression of Interleukin-3 in Human Cells

Ruben Octavio Garcia-Vazquez, 17, Senior, University Gardens High School, San Juan, Puerto Rico, T: Nelson Ruiz

ME088 Effect of Quercetin on Epithelial Cancer Cell Line

Joanie Marie Nina, 18, Senior, University Gardens High School, San Juan, Puerto Rico, T: Nelson Ruiz

ROMANIA

Suceava, ROM001, Romania Science and Engineering Fair

CS021 AllLab - Scripting Language for Artificial Intelligence

Ionut Alexandru Budisteanu, 17, Sophomore, High School "Liceul National Mircea cel Batran", Ramnicu Valcea, Valcea, Romania, T: Mirela Mlisan

EM317T We Have Obtained Transgenic Cyanobacteria: A Very Effective in Biological Control of Mosquitoes

Emilia Nicoleta Ion, 18, Senior; Dragos Stefan Gherghescu, 17, Junior
"Dimitrie Bolintineanu" High School, Bucharest, Muntenia, Romania,
T: Valeria Purcarea-Ciulacu, T: Stefan Lungulete

RUSSIA

Chernogolovka, RUS005, Avangard

CH308T The Study of Correlation between Activity and Microstructure for Platinum Nanoparticle-Based Catalysts

Alexander Sergeevich Goloveshkin, 17, Junior; Alexander Ulyanovskiy, 16, Junior
Moscow Chemical Lyceum, Moscow, Russia, T: Sergey Evgenievich Semenov

CS047 Increase in Speed of Interprocess Interaction in Microsoft Singularity

Gadzhi Shamil'evich Osmanov, 16, Sophomore, Lyceum #572, Center of
Mathematical Education, Saint Petersburg, Saint Petersburg, Russia,
T: Dmitry Grigorievich Shtukenberg

MA036 Rational approximants for Euler-Gompertz Constant

Vasily Sergeevich Bolbachan, 17, Sophomore, Advanced Science and Education
Center - A.N.Kolmogorov School, Moscow, Moscow Region, Russia,
T: Arkadiy Borisovich Skopenkov

Moscow, RUS002, Junior-I

CH033 Asymmetric Total Synthesis of GlaxoSmithKline's Potent Phosphodiesterase Inhibitor

Yaroslav Dmitrievich Boyko, 17, Junior, Moscow Chemical Lyceum 1303, Moscow,
Russia, T: Alexey Yurievich Sukhorukov

CS310T Sound Wave Propagation: 3D Premises Model

Konstantin Slavnov, 16, Junior; Ilya S Shoshin, 17, Junior
Lyceum of Information Technologies #1533, Moscow, Russia, T: Nikolay
Konstantinovich Zavriev

MA046 The Varieties Generated by a Left Zero Semigroup of Degree k and Their Subvariety Lattices

Ilias Valer'evich Iliasov, 17, Junior, Lyceum #572, Center of Mathematical
Education, Saint-Petersburg, Saint-Petersburg, Russia, T: Sergey Vladislavovich
Bakulin

MA047 Dennis-Vaserstein Type Decompositions for Some Families of Chevalley Groups

Constantine Borisovich Tsvetkov, 16, Sophomore, Lyceum #572 Center of
Mathematical Education, Saint-Peterburg, Saint-Peterburg, Russia,
T: Sergey Sergeevich Sinchuk

PH056 The Domino Effect

Egor Kotelnikov, 17, Junior, Advanced Education and Science Center of the
Moscow State University, Moscow, Russia, T: Sergey Sergeev

PH057 Investigation of the Tungsten Trioxide Crystallites Growth in CVD-process in Gas Phase

Anna Fedotova, 17, Junior, State Educational Institution Lyceum Moscow
Engineering and, Moscow, Russia, T: Lubov Vershinina

Moscow, RUS003, Russian Youth Program "Step Into the Future"

EE084 Research Lunar Rover with the Possibility of Ground Application

Zhdan Sukhov, 16, Junior, Lyceum # 11, Chelyabinsk, Russia, T: Yuriy Shulepov

ME097 Software for Finding a Cataract on a Digital Bitmapped Image of Eye

Olga Gavrina, 16, Sophomore, Samara Medical-Technical Lyceum, Samara, Russia,
T: Andrey Smetannikov

Nizhny Novgorod, RUS001, ROST

- BI010 How Silica Nanoparticles Damage Fungi?**
Diana Galautdinova, 17, Junior, Gymnasium 7, Kazan, Russian Federation, Kazan, Russia, T: Galina Shevcova
- PH011 Multifunctional Scanner of the Angular Spectrum**
Polina Vladimirovna Shalaeva, 16, Sophomore, Lyceum # 40, Nizhny Novgorod, Russia, T: Sergey Evgenievich Stukachev
- PH302T The Desk Model of a Multilayer Magnetic Nanoparticle**
Lev Yurovskiy, 16, Junior; Grigory Astretsov, 17, Junior
Lyceum #40, Nizhny Novgorod, Nizhegorodskaya, Russia, T: Vladimir Kovalev
- St. Petersburg, RUS004, Intel Baltic Science and Engineering Fair*
- CH017 The Investigation of the Key Steps of Detoxinine Total Synthesis**
Alexander Sergeevich Shved, 16, Junior, Moscow Chemical Lyceum 1303, Moscow, Russia, T: Alexey Valeryevich Lesiv
- MA024 Properties of Maximal Functions Measuring Smoothness**
Evgeny Vyacheslavovich Varganov, 16, Sophomore, Lyceum #572, Center of Mathematical Education, Saint-Petersburg, Russia, T: Evgeny Eduardovich Loharu
- MA305T Younger Hochschild Cohomologies of Some Classes of Algebras**
Anatoliy Alexandrovich Zaikovskiy, 17, Sophomore; Fedor Ivanovich Uvaychev, 16, Junior
Lyceum #572, Center of Mathematical Education, Saint-Petersburg, Russia, T: Sergei Olegovich Ivanov

SAUDI ARABIA

Riyadh, SAU001, Mawhiba Science & Engineering Fair, Central Region

- BE045 The 21st Century Teether: A New Teether that Prevents Cavity in Infants**
Ghufran Essam Masoud, 17, Junior, Al_Bayan High School, Jeddah, , T: Afaf Al-Yamani
- BE046 GOOGLE PLAY! The Effectiveness of Computer Base Instruction in Improving Web-Searching Skills for Children**
Bayan Mohammed Mashat, 16, Junior, Dar Altarbia, Jeddah, central, Saudi Arabia, T: Hanan Abdulhameed
- BE047 Radiation Alert: A Social Study on the Effects of Using a Mobile Phone on the Ear**
Ayedh Monef Alshammari, 19, Junior, Al Timyat School, Rafha, Northern, Saudi Arabia, T: Mihan Al Onazi
- BE315T Caution! Sit Right Pad that Enhances the Right Sitting Posture to Maintain a Healthy Back**
Hayfa Khaled Al Bassam, 17, Junior; # Tayma Mohammed Hezam, 17, Junior
Dhahran Ahliyya Schools, Dammam, East, Saudi Arabia, T: Salma Raad
- BE316T Distance of Excellence: A Scientific Comparison of Student Academic Achievement versus Proximity to Instructors**
Owais Khalid Khoshhal, 16, Freshman; Ahmad Othaman Al-Amery, 17, Freshman; Abdulrahman Hamed Alharbi, 17, Junior
Prince AbdulMihsin, Madinah, Saudi Arabia, T: Abdullah Ali
Prince Abdulmohsen Secondary School, Madinah, Saudi Arabia, T: Ali Al-Shamrani
Prince Abdulmohsen High School, Al Madina, Saudi Arabia, T: Hassan Al Shamrani
- CB034 The Involvement of TP53 Codon G72C Polymorphism in Genetic Predisposition to Cervical Cancer**
Mohammed Abdulrahman Alsobay, 17, Senior, Diplomatic Quarter High School, Riyadh, Saudi Arabia, T: Fahad Ghazae Al Rasheedi
- CB035 A Novel Combinational Therapy Targeting Purine Salvage Pathways of *Trichomonas vaginalis***
Mahmoud Motaz Motaz Ghulman, 16, Junior, Dar Al rhiker school, Jeddah, Makkah, Saudi Arabia, T: Mohammed Afifi Afifi
- CH311T Super Small with Speed**
Foud Adil Ahmad, 16, Junior; Muth Hassan Althubyani, 16, Junior; Wadah Adel Althagafi, 16, Junior

- EE066** Al Hakam bin Hisham, Makkah, Saudi Arabia, T: Salman Al Mashrafi
Guiding Light: Employing Distorted Magnetic Field for Effective Indoor Navigation
 Faisal Mohammed Alshaker, 16, Senior, Najd National Schools, Riyadh, Saudi Arabia, T: Jaewoo Chung
- EE318T** **Dangerous Gold**
 Ahmed Yehia Mobarak, 14, Freshman; Faris Yousef Almarshad, 13, Freshman; Abdulrahman Ahmed Alhammadi, 15, Freshman
 Al Saad Schools, Khobar, Eastern, Saudi Arabia, T: Abdulkhaleq Al Shinawy
- EN312T** **The Unavator: A Single Person Chain Elevator System**
 Waleed Tayseer Alhaddad, 17, Senior; Mohamed Boukhet, 17, Senior
 Dahrahan Ahliyaa School, Dammam, East, Saudi Arabia, T: Ahmed Abuqaddouim
 Dhahran Schools, Dammam, Saudi Arabia, T: Ahmed Mahmoud Abo Quddouim
- ET053** **The Elite Light: A New Sun System that Reduces Electricity Consumption**
 Ahmad Mohammed Alghuraid, 18, Senior, Aldeffi Secondary School, Jubail, East, Saudi Arabia, T: Khalid Ali Alobaidi
- MA037** **Math Out of the Box! Creative Methodology in Simplifying Math**
 Eithar Mohammedamin Abdulhalim, 17, Junior, 49 Secondary, Makkah, Central, Saudi Arabia, T: Hyat Badre
- MA308T** **It Is Not Just of Degree One..! A Theory to Find the Remainder in Polynomials Divisions**
 Jawaher Saleh A. Enani, 18, Senior; Hend Khalid Bimuhaya, 17, Senior
 Riyadh Najd, Riyadh, Central, Saudi Arabia, T: Abdullah Algohee
- ME080** **No Painà All Gain! The Stimulative Cardiovascular Metabolic Solution to Disability-Induced Obesity**
 Saleem Abdulfattah Aldajani, 16, Junior, Dahrahan Ahliyaa School, Dammam, East, Saudi Arabia, T: Abdulrahman Ahmed Elshoushil
- ME081** **Just 4 minutes! Rapid Method to Diagnose Hepatitis C**
 Rawan Ahmad A Hadi, 17, Junior, Second Secondary School, Abha, Saudi Arabia, T: Hala Ameen
- ME311T** **Chlorpyripos vs. Fertility: Study the Physiological and Histological Effects of Pesticide (*chlopyripos*) in Fertility**
 Sara Salah I Alnasser, 17, Junior; Nourah Abdulaziz Alrubaiq, 17, Junior
 Dar Al-Uloom Private School, Riyadh, Saudi Arabia, T: Falah Almohanna
 Dar Al-Uloom Private School, Riyadh, Central, Saudi Arabia, T: Falah H almohanna
- PH312T** **Manipulating Bose-Einstein Condensate (BEC) by Immersing Electrons**
 Saud Mohammed Altamimi, 16, Senior; Abdulrahman Hisham Linjawi, 18, Senior
 Jeddah International School, Jeddah, Saudi Arabia, Dar Al Fikr School, Jeddah, Western, Saudi Arabia, T: Osama Fawaz

SINGAPORE

Singapore, SGP001, Singapore Science and Engineering Fair

- CS009** **Composing Frusta to Fold Polyhedral Origami**
 Heng Yi Cheng, 18, Senior, NUS High School of Mathematics and Science, Singapore, Singapore, Singapore, T: Kang Hao Cheong
- EM312T** **To Investigate the Adsorption Potential of Orange Peel Biosorbents for the Removal of Copper(II) Ions**
 Qin Xiang Ng, 18, Senior; Wei Liang Matthew Lee, 18, Senior
 Anglo-Chinese School (Independent), Singapore, Singapore, T: Yan Yih Goh, T: Evelyn Tan
- MI009** **Identification and Characterization of Bacterial Endophytes as Novel Bio-inoculants for *Jatropha***
 Yuan Jin Tan, 17, Senior, Raffles Institution, Singapore, Singapore, T: Wei Yeong Ngan

SLOVAKIA

Bratislava, SVK001, Scientia pro Futuro

MI307T **Influence of Garlic on the Growth Colonies of Micromycetes of *Penicillium* and *Aspergillus***

Maria Strakova, 18, Junior, Maria Strakova, 17, Junior
Gymnazium Svateho Mikulasa, Presov, Slovakia, T: Miriam Feretova

PH032 **Domain Wall Dynamics Stability for Modern Spintronic Applications**

Jakub Gregorek, 18, Senior, High School Exnarova, Kosice, Slovakia, T: Rastislav Varga

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

CH018 **The Synthesis of Organometallic Complexes of Iridium(III) and Platinum(II) for OLED Applications**

Marek Buchman, 17, Senior, School for Extraordinary Gifted Children, Bratislava, Slovakia, T: Raymond Wai-Young Wong

EE044 **Plasma Speaker**

Miroslav Magyar, 18, Senior, Sukromna Stredna Odborna Skola Technicka, Ziar nad Hronom, Slovakia, T: Otilia Krupickova

EE308T **Flexible Wooden Wheel**

Lukas Sakmar, 18, Junior; Peter Smida, 17, Junior
Stredna Odborna Skola Drevarska, Spisska Nova Ves, Kosicky, Slovakia,
T: Rastislav Pomikala

SOUTH AFRICA

Pretoria, ZAF001, Expo for Young Scientists–South Africa

BE007 **Epidemiology of Sugar Dependence Amongst Adolescents**

Alessio Pio Giurichich, 16, Junior, Bishops Diocesan College, Cape Town, South Africa, T: Olga Peel

BE008 **Improving Productivity in Factories through Music**

Danielle Elizabeth Boer, 17, Senior, St. Dominic's Academy Newcastle, Newcastle, Kwa-Zulu Natal, South Africa, T: Pendi van Staden

CS003 **The Problems with Passwords: A Solution to the Complexities of Online Security**

Juan Snyman, 17, Senior, Southdowns College, Irene, Gauteng, South Africa, T: Celeste van Niekerk

EE007 **Harvesting Energy from Mechanical Motion**

Monique Gerber, 16, Junior, Hoerskool Waterkloof, Pretoria, Gauteng, South Africa, T: Helena Coetzee

EE008 **Safety Pipe Spanner**

Du Toit Viljoen, 17, Senior, Duineveld High School, Upington, Northern Cape, South Africa, T: Wanda Rossouw

ET006 **The Viability of a Vacuum Airship**

Theunis Lodewyk Steyn, 18, Senior, Hoerskool Nelspruit, Nelspruit, Mpumalanga, South Africa, T: Willie van der Merwe

ET301T **Evapo-Gravitational Generator**

Schalk Du Plessis Burger, 17, Senior; Peter Thomas Raney, 18, Senior
St John's College, Johannesburg, Gauteng, South Africa, T: Priscilla Moodley

PS003 **Finding a Cost-effective Solution to the Problem of Poor Soil Quality in a South African Township**

Sebastian Thomas Rummelzwaal, 16, Junior, Bishops Diocesan College, Cape Town, Western Cape, South Africa, T: Olga Peel

SOUTH KOREA

Daejeon, KOR003, Korea National Science Fair

EA306T **Global Warming: A Booster of Hurricane?**

Min-Su Jo, 17, Junior; YoungSeok Yoon, 16, Junior; Se Woong An, 16, Junior
Gyeonggi Science High School, Gyeonggi-do, Gyeonggi-do, South Korea,
T: Hyouk Kim

- EV322T The Way of CO₂ Storage Using Formation of Carbonate Minerals by Aboriginal Microbes**
Woongui Hwang, 19, Senior; Doyeon Baek, 19, Senior
Cheonnam Science Highschool, Naju, Cheonnam, South Korea, T: TaeSeong Kim
- PH055 Applications of Stroboscope in Music Acoustics**
Yulim Kim, 14, Freshman, Sungduk Middle School, Daejeon, Daejeon, South Korea,
T: Chongkook Lee
Daejeon City, KOR002, KSEF (Korea Science & Engineering Fair)
- AS306T The Mechanism of Lysophosphatid Acid-induced Procoagulation in Human Erythrocytes**
An Ji Hun, 17, Senior; Junha Park, 18, Senior
Korea Science Academy of KAIST, Busan, T: Jinho Chung
- CH313T AgNO₃ + Fe + Energy = Silver Nano Particles?!**
Chan Song Kim, 18, Senior; Min Cheol Jang, 18, Senior
Chungnam Science High School, Gongju-si, Chungcheongnam-do,
Chungcheongnam-do, South Korea, T: Seong Chul Choi
- EV323T Mimicking Wetting Behavior of Spider Silk: Studies on Water-Harvesting Efficiency According to the Fabrication of the Pattern of Wettability Gradient**
Jinyoung Seo, 18, Senior; Dongju Shin, 18, Senior
Korea Science Academy of KAIST, Busan, Busan, South Korea, T: Insung Choi
Seoul, KOR001, Korea Olympiad in Informatics
- CS059 Colorization of the Face, by the Face and for the Face**
Heesung Kim, 18, Senior, Gyeongnam Science High School, Jinju-Si,
Gyeongsangnam-Do, South Korea, T: Bong-Seok Kim
- CS060 Sticky Software Analysis Kit**
Jee-Heon Oh, 18, Junior, Sunrin Internet High School, Seoul, South Korea,
T: Won keun Song
- EN319T Hatch an Egg with Insulation and Hot Pack Instead of Electricity**
Tae Young Roh, 17, Junior; Yeon Ji Kim, 17, Senior; Beom Kwan Kim, 16, Junior
Ju Yeop High School, Goyang-si, Gyeonggi-do, South Korea, T: Keum Ja Jung

SRI LANKA

Colombo, LKA001, Sri Lanka Science & Engineering Fair

- CH305T An Investigation to Find Out the Most Effective Repellent to Control Cockroaches (*Periplaneta americana*) Using Different Plant Extractives**
H.M. Niradha Buddhini Subasinghe, 14, Sophomore; H. M. Nirmani Sachintha Subasinghe, 14, Sophomore
Government Science College, Matale, Central, Sri Lanka, T: Sepali Alagoda
- EE030 Drill Press with Laser Cone Centering Device**
R. M. Aruna Prasad Keerthirathna, 16, Senior, Vidyarthi College, Kandy, Central, Sri Lanka, T: Marawulle Ranhotipedige Ranatunga
- CS064 Live Multifunctional LPT Controlling Software**
Thimira Sanuka Thilakarathna, 17, Senior, Ananda College, Colombo, Sri Lanka,
T: Amith Darmapala .

SWEDEN

Stockholm, SWE001, Utställningen Unga Forskare

- CB307T How Is Plant Photosynthesis Affected by High Light Stress?**
Daniel Lars Nordqvist, 19, Senior; Sanne Erika Johansson, 18, Senior
Berzeliussskolan, Linköping, Östergötland, Sweden, T: Lena Sundstrom

THAILAND

Bangkok, THA001, National Science Projects Competition

- AS015 Biology of Land Snails in Nakhonsawan Province North of Thailand**
Suwatthanachai Phomprasith, 17, Junior, Takhliprachasan School, Nakornsawan, Thailand, T: Suwannee Phomprasith

- EM315T Bio-based Packaging Plastics from Fish Scale**
Pornwasu Pongtheerawan, 16, Sophomore; # Tanpitcha Phongchaipaiboon, 17, Junior; # Arada Sungkanit, 16, Junior
Suratpittaya, Maung, Suratthani, Thailand, T: Chalernporn Pongtheerawan
Bangkok, THA002, Young Scientists Competition
- EM047 Utilization of Carbon Dioxide from Exhaust Gas for Valuable Chemicals Production and Global Warming Reduction**
Natechanok Yutthasaksunth, 17, Junior, Triam Udom Suksa School, Bangkok, Bangkok, Thailand, T: Suttichai Assabumrungrat
- EN316T Utilization of Mucilage Derived from Lemon Basil Seeds as Coating Substance for Fruit Preservation**
Thanasup Gonmanee, 18, Senior; Worrada Junmook, 18, Senior; Narintadeach Charoensombut, 18, Senior
Princess Chulabhorn's College Phetchaburi, Cha-am, Phetchaburi, Thailand, T: Sastra Prom-arak
- MI056 Antibacterial Activity and Phytochemical Screening of Sago-Palm Root Extracts**
Thammarong Tangsai, 16, Junior, Buranarumluk School, Muang District, Trang, Thailand, T: Sukanya Dejadisai

TUNISIA

Tunis, TUN001, Tunisia Science and Engineering Fair

EM336T Keeping Our Water by Using the "SMARTAP"

Siwar Ben Abdelwahed, 15, Freshman; Ons Maouel, 15, Freshman; Meriam Touzi, 16, Freshman
Lycee 7 Novembre Jemmel, Monastir, Tunisia, T: Hatem Slimane

TURKEY

Ankara, TUR002, Tubitak Fair

CS013 Anka—A New Kind of Encryption Algorithm

Mehmet Emre, 17, Senior, Ozel Sunguroglu Fen Lisesi, Sahinbey, Gaziantep, Turkey, T: Yavuz Gumustepe

EN303T Applying Dyes Derived from Antioxidant Plants to Kid's Furniture

Dervis Gundogmus, 19, Senior; Ahmet Cem Ceran, 19, Senior
Istanbul Kuleli Military High School, Istanbul, Turkey, T: Ercan Yildiz

MA303T Parallel and Concurrent Euler Lines

Furkan Samil Basaran, 17, Senior; Ufuk Kanat, 16, Junior
Private Samanyolu High School, Ankara, , T: Zafer Simsek

MI013 Ice Cream Production Using Lactic Acid Bacteria which Produce Exopolysaccharide and without Using Salep (i.e. Stabilizer)

Tugce Horozoglu, 17, Senior, Private Yelkenoglu Science High School, Kayseri, Turkey, T: Kismet Cakir

MI310T Antimicrobial Surface

Atakan Acar, 16, Junior; Malik Kismet, 17, Sophomore
Gazi University Foundation Private Science High School, Ankara, Turkey, T: Onur Aydogmus

PH303T A Low Cost Instrument to Measure the Thickness of Thin Films

Ali Yildirim, 18, Senior; Atif Erdem, 18, Senior
Isiklar Air Force High School, BURSA, Turkey, T: Erdener Yumurtaci

Istanbul, TUR001, 12th National Environmental Project Olympiad

EV325T An Ecological Indicator: Harmful Algal Blooms and Monitoring of them by Molecular Methods

Berivan Karatas, 15, Freshman; Dilruba Reyhan Kilic, 15, Freshman
Private Fatih Science High School, Istanbul, Marmara, Turkey, T: Fatih Koyuncu

EV326T The Effects of Environmental Tobacco Smoke (ETS) on the Seed Germination, Root Growth and Root Tip Cell Mitotic Divisions of Lentil (*Lens culinaris*) with Nargileh Model

Zehra Fatmatuz Karakus, 15, Freshman; Beyza Akin, 15, Freshman
Beylikduzu Azem Yakselo; Lu Anatolian Imam Hatip High School, Istanbul, Istanbul, Turkey, T: Meryem Ozgan

UKRAINE

Kyiv, UKR001, Intel-TechnoUkraine

EE015 **Violin and Electro guitar: One Instrument**

Tymofiy Makarov, 16, Sophomore, Instructional Educational Institution "School Lyceum # 3", Simferopol,, Crimea, Ukraine, T: Alexander Makarov

EE016 **Set the Switch—Save Energy**

Oleg Dreval, 17, Junior, Kiev Lyceum #142, Kyiv, Ukraine, T: Nailiya Menshikova

EM310T **AIRWALL—Tsunami Stop**

Mykola Semenyakin, 15, Sophomore; Oles Matsyshyn, 16, Sophomore

Natural Science Liceum No 145, Kiev, Ukraine, T: Oleksandr Trylis

Kyiv (Kiev), UKR002, Intel—EcoUkraine

CH314T **The Effect of Popcorn: New Method of Highly Dispersive Powders Obtaining by Microwave Treatment**

Mariya Leonova, 15, Sophomore; Anastasiya Ruda, 15, Sophomore; Andrii Popovych, 16, Sophomore

Chemical and Ecological Lyceum, Dnipropetrovsk, Ukraine, T: Vadim Leonidovich Kovalenko

ET064 **Wave Power Plant**

Ennan Umerov, 15, Sophomore, Zagalno-osvitnya Shkola I-III Stupeniv, Mizhvodne, Crimea Autonomous Republic, Ukraine, T: Andriy Andreev

UNITED KINGDOM

London, GBR001, The Big Bang: UK Young Scientists and Engineers Fair

EE014 **Robotic Spider**

Thomas Ladyman, 18, Junior, Sutton Grammar School for Boys, Sutton, Surrey, United Kingdom, T: Gwen Andrews

MA005 **An Introduction to RSA Cryptography and Modern Integer Factorisation Methods**

Jason Mark Benedict Long, 17, Junior, The Glasgow Academy, Glasgow, United Kingdom, T: Fran Macdonald

London, GBR003, Young Engineers for Britain

EE029 **Drum Trousers**

Aseem Mishra, 17, Senior, Hymers College, Hull, Yorkshire, United Kingdom, T: Adam Young

EE077 **Automated Cycle Helmet**

Roxanne Adele Pollard, 19, Freshman, Chipping Sodbury School, Bristol, United Kingdom, T: Keith Mellens

UNITED ARAB EMIRATES

Dubai, ARE001, United Arab Emirates Science and Engineering Fair

ET315T **Exploiting the Waste Thermal Energy**

Alai Alshemaili, 16, Junior; Shamma Abdullah Al-Tuniji, 17, Junior; Shamsa Abdullah Altuniji, 16, Junior

Al Roaya Secondary and Preparatory School, Rak, United Arab Emirates, T: Ebtisam Al Shimaili

PS311T **The Effect of the Magnetic Field on Plant Growth**

Aisha Hassan Rashed, 17, Junior; Afra Ali Mohammed, 17, Junior; Maryam Rashed Khameis, 17, Junior

Altawyeen Secondary School, Fujairah, United Arab Emirates, T: Maryam Ali Mohammed

UNITED STATES

ALABAMA

Birmingham, USA02, Central Alabama Regional Science and Engineering Fair

ME037 **Brain Plasticity: The Effect of Age (A Two Year Study)**

Olivia A. Dure, 15, Sophomore, The Altamont School, Birmingham, Alabama, T: Mary Williams

- MI022 Can a Bacterial Pigment Kill Flesh-Eating Bacteria? A Study on the Cytotoxic Nature of PVP (Pure Violet Pigment) on Multidrug Resistant (MDR) and Methicillin Resistant (MRSA) Strains of *Staphylococcus aureus*, Year III Continuation Study**
Rakesh Ram Goli, 16, Junior, The Altamont School, Birmingham, Alabama, T: Brian Johnsen
- PH013 Development of an Inexpensive Spectrophotometer and a Matlab Spectral Analysis Program**
Lakshmi Raghavanpillai Raju, 15, Sophomore, Alabama School of Fine Arts, Birmingham, Alabama, T: Jo Chambers
- PH021 Hidden Sounds: The Effect of Cellular Phone Transmission on Human Voice Harmonic Distribution, Year Three**
Ellen Marie Price, 18, Senior, Jefferson County International Baccalaureate School, Birmingham, Alabama, T: Marilyn Niemann
Huntsville, USAL50, Alabama State Science and Engineering Fair
- AS059 A Pharmacological Study on Heart Healthy Supplements and the Heart Rate of *Daphnia magna***
Marie Eleanor Reuter, 18, Senior, Wetumpka High School, Wetumpka, Alabama, T: Virginia Vilardi
- BE056 W, Wh, Why Can't I Have the Job? Listeners' Perceptions of People Who Suffer Speech Impediments**
Rosalyn Jules Langhinrichsen-Rohling, 14, Freshman, S. S. Murphy High School, Mobile, Alabama, T: Lisa Sudeiha
- BI041 The Effect of Heavy Metals on Porphyrin Ring Compounds, Part Three: Leached Mercury into the Base of the Food Chain near Coal Combustion Waste Disposal Sites**
Arina Ghosh, 17, Senior, Alabama School of Fine Arts, Birmingham, Alabama, T: Judith Cantwell
- CB045 Exploring Possible Treatments of Epilepsy Using an Animal Model**
William Davis Haselden, 18, Senior, Mountain Brook High School, Mountain Brook, Alabama, T: Margaret Clark
Huntsville, USAL03, North Alabama Regional Science and Engineering Fair
- CB003 Relationship between PINK1 and DJ1 in the Parkinson's Pathway**
Courtney Marie Kloske, 15, Sophomore, Pope John Paul II Catholic High School, Huntsville, Alabama, T: Brian Finzel
- EE009 Precision Location of Acoustic Sources**
Alexander Nathan Finney, 16, Sophomore, Covenant Christian Academy, Huntsville, Alabama, T: Rhonda Lisauckis
- ET014 Engineering an Affordable Electric Vehicle, Year 2: Range Testing and Optimization**
Joel Jack Tinker, 17, Junior, Covenant Christian Academy, Huntsville, Alabama, T: Rhonda Lisauckis
Livingston, USAL05, West Alabama Regional Science Fair
- EV027 Determining the True Mussel Man: A Comparison of the Filtration Efficiency of *Lampsilis teres*, *Villosa iris*, and *Lampsilis fasciola***
Rachel Michelle England, 15, Freshman, Demopolis High School, Demopolis, Alabama, T: Cynthia Phillips
Mobile, USAL04, Mobile Regional Science Fair
- EE060 Developing More Efficient Models of Titanium Dioxide Dye-Sensitized Solar Cells**
Shawn S. Tuteja, 18, Senior, The Altamont School, Birmingham, Alabama, T: Donna Kentros
- ME082 Silent Killer**
Lindsay Marie Grizzard, 14, Freshman, Murphy High School, Mobile, Alabama, T: Lisa Sudeiha

ALASKA

Anchorage, USAK50, Alaska Science and Engineering Fair

BI304T Analyzing Protein Content in Common Vegetarian Meat Substitutes

Marie Elizabeth Gotti, 18, Senior; Nicole Emanuel, 17, Junior
Polaris K-12 School, Anchorage, Alaska, T: Aaron Kallas

EV036 The Effects of Calcium Carbonate on Ocean Acidification

Noah Alexander Betzen, 18, Senior, Unalaska High School, Unalaska, Alaska,
T: Story Nicole Miller

PH040 Possible Applications of Superorder Selachimorpha (Shark) Characteristics in Marine Industry

Sophia Myers, 17, Junior, Cordova Junior-Senior High School, Cordova, Alaska,
T: Adam Low

Juneau, USAK01, Southeast Alaska Regional Science Fair

AS016 The Effects of Methyl Farnesoate on the Molting Biology of Juvenile Red Kin Crabs (*Paralithodes camtschaticus*)

Lia Katherine Domke, 18, Senior, Juneau-Douglas High School, Juneau, Alaska,
T: Jonathan Smith

PS009 An Ecological Comparison of Colluvial and Alluvial Forests in the Gold Creek Watershed

Corwin Daniel Kelly, 15, Sophomore, Thunder Mountain High School, Juneau, Alaska, T: Mary Hausler

ARIZONA

Phoenix, USAZ50, Arizona Science and Engineering Fair

AS061 The Effect of Sublethal Doses of Oxalic Acid on the Lifespan of Honeybees

Colby Lee Howell, 18, Senior, Hamilton High School, Chandler, Arizona,
T: Teresa Buckner

BE059 The Effect of Audible Stimulation on Cognitive Performance and Beta Brain Activity in the Frontal Lobe

Savanna Lynne Melkus, 17, Senior, Mesa High School, Mesa, Arizona,
T: Amanda Cherry Grimes

CB044 Rab14 Regulates Tight Junction Integrity and Polarity in Epithelial Cells

Kelsey Maura Waite, 17, Senior, Tucson Magnet High School, Tucson, Arizona,
T: Margaret Wilch

CB309T The Effects of Disrupting RNA Polymerase III Subunit RPC82 Family Protein on Pollen Tube Growth in *Arabidopsis thaliana*

Sumedha Ravishankar, 16, Junior; # Sirtaj Bir Singh, 16, Junior
Empire High School, Tucson, Arizona, T: Michael Robert Frank

CS062 Do SAT Problems Have Boiling Points?

Soumya Chakrabarti Kambhampati, 14, Freshman, McClintock High School, Tempe, Arizona, T: Deborah Dodge

CS311T Dyadic Interaction Assistant for Tracking Head Gestures and Facial Expressions

Varun Ramesh, 15, Sophomore; Shantanu Bala, 16, Senior
Hamilton High School, Chandler, Arizona, T: Debbie Crane
Barry Goldwater High School, Phoenix, Arizona, T: Denise Tahtinen

EN049 The Memory of the Future: Effects of Thermal Energy on Magnetoresistive Random Access Memory (MRAM) Switching

Jean Michelle Juang, 15, Junior, Corona del Sol High School, Tempe, Arizona,
T: Nathan Newman

ET070 Messin' with Turbulence

Garrett Lee Rozendaal, 15, Freshman, Rozendaal Family, Prescott Valley, Arizona,
T: Kara Rozendaal

EV049 The Effects of Carbon Dioxide Pressure and Nitrogen, Phosphorus, Potassium Mass Concentration on the Biofuel Synthesis of Green Algae

Rajet Vatsa, 14, Freshman, Brophy College Preparatory, Phoenix, Arizona,
T: Cheryl Lenox

MI066 In vitro Study of Bacteriostatic Activity of Allium sativum and Its Synergistic Effects on Levofloxacin against Escherichia coli
Aakash Jain, 15, Freshman, Brophy College Preparatory, Phoenix, Arizona,
T: Patricia Mazier

Pima, USAZ03, Southern Arizona Regional Science and Engineering Fair

EE049 Light Filtering with Photovoltaic Concentrator Systems
Ostin David Zarse, 15, Sophomore, Tucson High Magnet School, Tucson, Arizona,
T: Margaret Helen Wilch

ET046 Parabolic, Hazard-Limited, Collapsing Solar Stirling Insolation Collector
Cory Nicholson Owan, 16, Sophomore, Catalina Foothills High School, Tucson, Arizona, T: Chris Paul Owan

MI040 Plant Symbiotic Microfungi as Novel Forms of Cellulase and Ligninase Enzymes for Biofuel Production, a Two-Year Study
Francisco Xavier Orozco, 17, Senior, Tucson Magnet High School, Tucson, Arizona,
T: Margaret Helen Wilch

PH029 Nonlinear Modeling and Optimization of Opioid Peptide Delivery
Stanley Paul Palasek, 16, Sophomore, Sonoran Science Academy, Tucson, Arizona,
T: Robert Hobbins

Sierra Vista, USAZ02, SSVEC's Youth Engineering and Science Fair

EE306T Neodymium Power
Jonathan Adam Stickler, 18, Senior; Noah Bennett Marvin, 18, Senior; Natalie Rose Perez-Regalado, 17, Senior
Buena High School, Sierra Vista, Arizona, T: Sandee Stinson Trevino

EM018 Erosion: Going, Going, Gone...
Natalie Adelle Dyjak, 18, Senior, Home School, Benson, Arizona, T: Debbie Jean Dyjak

ARKANSAS

Arkadelphia, USAR01, South Central Arkansas Regional IV Science Fair

CS046 The Data Stronghold
Andrue Storm Anderson, 17, Junior, Glen Rose High School, Malvern, Arkansas,
T: Connie Marlene Tuggle

EE314T Free Power from a Pickup?
Austin Dakota Hall, 15, Sophomore; Levi John Jones, 15, Freshman
Glen Rose High School, Malvern, Arkansas, T: Connie Marlene Tuggle

Conway, USAR50, Arkansas State Science Fair

CS051 Automated Evolutionary Modeling with State-conditioned L-systems: Using Fitness Functions to Produce Plant Modeling L-systems
Joseph Don Berleant, 17, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Melissa Donham

EN038 DNA: Nano Chicken Wire
Christopher Parsons Kelly, 16, Junior, Little Rock Central High School, Little Rock, Arkansas, T: Lee Felker

ME313T The Effects of Caloric Restriction on Oxidative Stress
Adiba Maisha Matin, 17, Senior; Maira Malik, 18, Senior; Rabab Jawed Iqbal, 17, Senior
Little Rock Central High School, Little Rock, Arkansas, T: Melissa Donham

Fayetteville, USAR03, Northwest Arkansas Regional Science and Engineering Fair

EE010 Gate Crasher 3: Designing an Automatic Cow Gate to Save the Farmer Time While Saving Idling Fuel Consumption and CO₂ Emissions
William Hurdle Welch, 15, Freshman, Alpena High School, Alpena, Arkansas,
T: Marshal Bond Welch

EM307T Crude Awakening: The Study of Oil Absorption Efficiency of Various Materials
David Wiles Wiggins, 15, Freshman; Walker Lloyd Wiggins, 15, Freshman
Southside High School/ Ramsey Junior High School, Fort Smith, Arkansas,
T: Margaret Ann Hall

MI007 Mediocre Mythbusters: Revisited
Ethan Daniel Falleur, 17, Junior, Alma High School, Alma, Arkansas,
T: Tiffany Darlene Scrivner

Hot Springs, USAR07, West Central Regional Science Fair

EE003 Novel Oral Drug Inhaler Design to Optimize Drug Deposition in the Lungs
 Arnab Dey, 16, Senior, Arkansas School for Mathematics, Sciences and the Arts,
 Hot Springs, Arkansas, T: Bruce Turkal

ET003 Plugging into the Sun: Developing a Cost-Effective Method for Dye-Sensitized Solar Cells Using Zinc Oxide Nanostructures
 Devika Mehta, 17, Senior, Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, Arkansas, T: Brian Monson

Jonesboro, USAR04, Northeast Arkansas Regional Science Fair

EA008 Ultraviolet Absorption vs. Sun Protection Factor
 # Caraline Nicole Vaughn, 17, Junior, Nettleton High School, Jonesboro, Arkansas,
 T: Karen Ladd

ET022 A Wind-Wind Solution
 Juan Enrique Montoya, 14, Freshman, Jonesboro High School, Jonesboro, Arkansas,
 T: Melinda Beth Cobb

MA033 The Cost of Blackjack: A Second-Year Expected Value Study
 # Casey Ann Gibson, 15, Sophomore, Nettleton High School, Jonesboro, Arkansas,
 T: Mike Hall

Little Rock, USAR05, Central Arkansas Regional Science Fair

BI005 Examining the Effects of Nitric Oxide on Manganese Superoxide Dismutase
 Tiancheng Zhang, 17, Junior, Pulaski Academy, Little Rock, Arkansas,
 T: Annice Steadman

ME017 Seeking Cures: An Evaluation of the Toxicity of MAP Kinase Inhibitor U0126 in an Animal Model
 Alexander Zhang, 14, Freshman, Little Rock Central High School, Little Rock, Arkansas, T: Mary Katherine Parson

ME305T Silver Nanoparticles: A Potential Cure for Human Breast Cancer
 Shanshan Hu, 17, Junior; Samia Nawaz, 16, Junior; # Lillian Jie Tong, 17, Senior
 Little Rock Central High School, Little Rock, Arkansas, T: Mary Katherine Parson;
 T: Mary Maris

Monticello, USAR06, Southeast Arkansas Regional Science Fair

PH012 Which Golf Ball Travels the Farthest at Different Golf Courses?
 Tim Michael Aulds, 18, Junior, Ridgway Christian School, Pine Bluff, Arkansas,
 T: Diedre Marie Young

CALIFORNIA

Contra Costa, USCA08, Contra Costa County Regional Science Fair

ME316T Treatment of Simulated Cancer Cells with Compton Scattering-Produced Secondary Radiation
 Matthew Troy Feddersen, 17, Senior; Blake Marggraff, 18, Senior
 Acalanes High School, Lafayette, California, T: Jay Chugh

Costa Mesa, USCA01, Orange County Science and Engineering Fair

BI043 The Effect of Single Amino Acid Mutations, Identified by the PoPMuSiC Algorithm, on Engineering Thermally Stable Enzymes for Bioethanol Production
 Sanjna Ghanshani, 15, Sophomore, University High School, Irvine, California,
 T: Tim Smay

MA045 Effects of Cell Compressibility, Motility, and Contact Inhibition on the Growth of Tumor Cell Clusters
 # Jonathan F Li, 18, Senior, St. Margaret's Episcopal School, San Juan Capistrano, California, T: Jennifer Ross-Viola

Los Angeles, USCA02, Los Angeles County Science and Engineering Fair

AS062 Effects of Food Types on Survival and Development of Larval California Spiny Lobsters, *Panulirus interruptus*
 Adrienne Brooke McColl, 17, Senior, San Pedro High School, San Pedro, California,
 T: Sandy Martin Alvarenga

AS063 The Effect of The Rhopalia on the Regeneration and Overall Health of the Aurelia Aurita: Year 2
 Manu Vaish, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub

- BI049 The Role of Testosterone in Hepatocyte Apoptosis in High Fat Diet-Induced Non-alcoholic Fatty Liver Disease**
Kenneth Young-Hoon Lee, 16, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
- CS065 Quadrocopter Aerial Monocular Vision for Improved Autonomous Robot Navigation**
Kenny Zane Lei, 16, Junior, Walnut High School, Walnut, California, T: Zachary Dodds
- EN048 Effects of Excess Heat Generated by UV Laser Irradiation on the Exposure Process of Photostructurable Glass**
Ellie Katherine Hara, 17, Senior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
- MI067 Beta Lactam Antibiotics Stimulate Non Typeable Haemophilus influenzae Biofilm Formation *in vitro***
Kathleen Rose Maguire, 17, Junior, Marlborough School, Los Angeles, California, T: Stacy L. Sjoberg
- Fresno, USCA03, Central California Regional Science, Mathematics and Engineering Fair*
- BE035 Phonics vs. Whole Words: The Effects of Rearranging the Letters in a Word**
Mary Alyssa Flemming, 14, Freshman, Sanger High School, Sanger, California, T: Nathan Whittington
- EM027 Investigating the Effectiveness of Indigenous Plant Solutions in Inhibiting Leaf Gall Insect Development**
Jorie Ann Moore, 16, Junior, Sanger High School, Sanger, California, T: Nathan Whittington
- Livermore, USCA09, Tri-Valley Science and Engineering Fair*
- AS034 Ways to Enhance Cell Regeneration**
Christina Ren, 14, Freshman, Monte Vista High School, Danville, California, T: Meghan Faerber
- EN310T Near-infrared Light Biostimulation: A Novel Approach to the Optimization of Industrial Biosynthesis**
Ruchita Gupta, 17, Junior; Ray Zhou, 16, Junior
Amador Valley High School, Pleasanton, California, T: Beth Cutter
- Palos Verdes Peninsula, USCA10, Palos Verdes Peninsula Unified School District Science and Engineering Fair*
- AS021 Copepod Culturing: Conditions for Maximum Yield per Generation**
Julian Ohiro Kimura, 17, Junior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
- MI024 Evaluating the Role of the HOG1 and ESCRT Pathways in Host/Cell Interaction and Stress Response of *Candida albicans***
- # David Kenneth Tang-Quan, 18, Senior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Peter Starodub
- Sacramento, USCA04, Sacramento Regional Science and Engineering Fair*
- EN024 Synthesis and Characterization of Solid Lipid Nanoparticles as a Trans-Blood-Brain-Barrier Vehicle**
Xunyi Wang, 19, Senior, Davis Senior High School, Davis, California, T: Anne Moriarty
- ET031 Synthesis of Complex Nanostructures for Solar Cells: Analysis Using Novel D-SCOPEn**
- # Shyamal Buch, 15, Sophomore, Vista del Lago High School, Folsom, California, T: Suekyung Baker
- MA012 Better Images, Fewer Samples: Optimizing Sample Distribution for Compressed Sensing in Radio Interferometry**
Clara Louisa Fannjiang, 16, Junior, Davis Senior High School, Davis, California, T: Ann Moriarty
- San Bernardino, USCA13, Riverside, Inyo, Mono, San Bernardino (RIMS) Science and Engineering Fair*
- CH036 Synthesis and Manipulation of Silver and Gold Nano-Mirrors**
Michael Leonard Janner, 15, Freshman, Redlands East Valley High School, Redlands, California, T: Colleen Sumner

- EE085 Autonomous Robotic Vehicle, Saving Lives, Preventing Accidents One at a Time**
Jessica Alexis Richeri, 17, Senior, Centennial High School, Corona, California, T: Sunny Kaura
San Diego, USCA05, Greater San Diego Science and Engineering Fair
- BI031 Regulation of Nitric Oxide Expression as a Form of Neurotransmitter Plasticity**
Vaishnavi Lakshminarasimha Rao, 15, Sophomore, Canyon Crest Academy, San Diego, California, T: Wendy Slijk
- CS307T Position and Vector Detection of Blind Spot Motion with Horn-Schunck Optical Flow**
Mike Wu, 16, Junior; Stephen Sia Yu, 17, Junior
Torrey Pines High School, San Diego, California, T: Julia Newman
- EE067 Stability Analysis of Control Algorithms**
Keegan Robert Mann, 18, Senior, San Pasqual High, Escondido, California, T: Yun Lutgen
- EV039 Red Tide Sensitivity to Ocean Acidification**
Matthew Philip Goldklang, 17, Junior, San Diego Jewish Academy, San Diego, California, T: Jane Willoughby
- ME312T A Search for Reliable Molecular Cytogenetic Markers of Prostate Cancer Prognosis**
Alison Nicole Tradonsky, 17, Junior; Tammy Yetta Rubin, 18, Senior
San Diego Jewish Academy, San Diego, California, T: Sharon Mair
- PH047 Testing a Nonlinear-Oscillator Neuron Model with Optical Illusions**
Sara Kornfeld Simpson, 14, Freshman, Patrick Henry High School, San Diego, California, T: Lara Dickens
San Francisco, USCA06, San Francisco Bay Area Science Fair, Inc.
- ME077 The Effect of IFN-gamma on Beta-catenin Expression and Transcriptional Activity in Prostate Cancer Cells**
Jay D. Shah, 16, Junior, Mission San Jose High School, Fremont, California, T: Jack Fendell
- PH046 Finding Harmonics in Plasma**
Dylan Edward Moore, 17, Junior, Alameda Community Learning Center, Alameda, California, T: Milt Friedman
San Jose, USCA07, Synopsys Silicon Valley Science and Technology Championship presented by the Santa Clara Valley Science and Engineering Fair Association
- CB010 A Novel Perfusion-Based Protocol for Decellularization of Adipose Tissue on a Bioreactor**
Revanth Sai Kosaraju, 17, Junior, The Harker School, San Jose, California, T: Chris Spenner
- CB017 Genes on Steroids: RNA Activation-Mediated Gene Upregulation in *C. elegans***
Brian Tshao Do, 16, Junior, Silver Creek High School, San Jose, California, T: Huong Tran
- CH015 Investigation of Ideal Conditions to Retain Ascorbic Acid in Common Cooking Methods**
Alexander Scott Powers, 16, Sophomore, Bellarmine College Preparatory, San Jose, California, T: Mike Janda
- CS034 On the Creation of Music through the Application of Genetic Programming to Fractal Systems**
Scott Borden Cesar, 17, Senior, Scott Borden Cesar, Santa Clara, California, T: Craig Young
- EN022 Accounting for Cross-talk between Signaling Pathways Identifies Novel Model for Early and Late Post-transplant Acute Rejection**
Andrew Liu, 17, Senior, Henry M. Gunn Senior High School, Palo Alto, California, T: Bill Dunbar
- ET042 The Effect of Washout Designs in Swept and Tapered Wings on the Location of Flow Separation during Stall**
Stacey A Huang, 17, Junior, Evergreen Valley High School, San Jose, California, T: Barjinder Sabherwal

- ME054 New Smart Weapons: Theranostics—A Novel NanoMedicine Approach to Combat Cancer**
Angela Zhang, 16, Junior, Monta Vista High School, Cupertino, California, T: Kavita Gupta
- ME068 Effects of Diabetes Mellitus on Vasculogenesis Capacities of Mesenchymal Stem Cells**
Shubha Srinivas Raghvendra, 17, Junior, Saint Francis High School, Mountain View, California, T: Jennifer Thomas
- PH023 A Theoretical Study to Increase Molecular Specificity in Nuclear Magnetic Resonance Spectra**
Vikas Chandra Bhetanabhotla, 15, Freshman, The Harker School, San Jose, California, T: Chris Spenner
- Santa Cruz, USCA11, Santa Cruz Science Fair*
- AS304T Birds of the Santa Cruz Sandhills**
Alexander Michael Rinkert, 18, Senior; Connor James Chesus, 19, Senior
San Lorenzo Valley High School, Felton, California, T: Jane Orbuch
- MA028 Population Modeling of the Sacramento Salmon: Combining Compositional Data with Traditional Abundance Estimates**
Damon Chizuru Kawamoto, 17, Senior, Pacific Collegiate School, Santa Cruz, California, T: Randy Garrett
- Seaside, USCA12, Monterey County Science and Engineering Fair*
- CB025 Are Fingerprint Patterns Inherited?**
Briana Leigh Duer-Sandoval, 14, Freshman, Salinas High School, Salinas, California, T: Kacee Fujinami
- ET050 Characterizing the Optimal Flight Time of a UAV Helicopter: An Odyssey through Numerical Simulations**
Kevin Taihao Tang, 17, Junior, Stevenson School, Pebble Beach, California, T: Phil Wenzel
- MI308T Antimicrobial Brass in Aqueous Medium**
Hyungjin Kim, 17, Junior; Xiaolin Zhu, 16, Junior
Robert Lewis Stevenson School, Pebble Beach, California, T: Phil Wenzel
- PS022 Triflorine Sensitivity in Lettuce**
Aradhana Sinha, 14, Sophomore, Salinas High School, Salinas, California, T: Shahida Merchant

COLORADO

Alamosa, USCO01, San Luis Valley Regional Science Fair, Inc.

- ET028 Mathematic Modeling of the Wake Effect**
Wylie Joel Keller, 17, Junior, Monte Vista High School, Monte Vista, Colorado, T: Gary Wilkinson

- MI018 To Exist, It Must Resist**
Clark Mitchell Cranfill, 17, Junior, Sargent High School, Monte Vista, Colorado, T: Ronna Cochran

Boulder, USCO09, Roche Colorado Regional Science Fair

- CH022 Constructing a Novel Cage Molecule for Use in a Dye-Sensitized Solar Cell**
Kerry Nicole Betz, 17, Freshman, Fairview High School, Boulder, Colorado, T: Helen Petach

- MA023 Prime Numbers and the Cyclicity of Groups of Units**
Cissy Chen, 16, Junior, Fairview High School, Boulder, Colorado, T: Helen Petach

- MI031 Synthesis and Use of Gold Nanoparticle Therapeutics in Antibiotic-Resistant Bacteria**
Soyeun Yang, 16, Junior, Fairview High School, Boulder, Colorado, T: Helen Petach

Brush, USCO03, Morgan-Washington Bi-County Science Fair

- EA001 Killer Water: An Investigation into the Lethal Lake Nyos**
Burke Lelynn Larsen, 18, Senior, Brush High School, Brush, Colorado, T: David Miner

- MI001 Investigating *E. coli* Colonization and Prevention on Leafy Produce**
 # Wyatt Neal Palser, 16, Sophomore, Otis High School, Otis, Colorado,
 T: Karl Forrest Donnelson
Colorado Springs, USCO04, Pikes Peak Regional Science Fair
- EA027 Can Geosequestration and Geothermal Energy Work Together? Enhanced Geothermal Systems Using Carbon Dioxide**
 Sophia Rose Schneider, 15, Freshman, William J. Palmer High School, Colorado Springs, Colorado, T: Nancy Goodwin
- PS008 Troubled Tomatoes: The Anti-Angiogenic Effects of Acetaminophen + H₂O₂ Mixture on Tomatoes**
 Haley Rose Matteson, 15, Freshman, William J. Palmer High School, Colorado Springs, Colorado, T: Nancy Goodwin
Denver, USCO10, Denver Metropolitan Regional Science and Engineering Fair
- EN004 Harnessing Waste Kinetic Energy through Footwear for Therapeutic Use**
 Tara Sowrirajan, 17, Junior, Cherry Creek High School, Greenwood Village, Colorado, T: Timothy J. Donahue
- MA003 The Ordering of the Divisors of an Integer and Related Number Theoretic Functions**
 Myles Reid Scolnick, 16, Junior, Cherry Creek High School, Greenwood Village, Colorado, T: Stephen Smith
Durango, USCO02, San Juan Basin Regional Science Fair
- PH301T The Effects of Ionization on Spark Energy Content**
 # Tucker Leavitt, 16, Sophomore; Samuel Davis Kater, 16, Freshman
 Animas High School, Durango, Colorado, Durango High School, Durango, Colorado, T: Gregg Janus
Fort Collins, USCO50, Colorado Science and Engineering Fair
- ET021 Enhancing Algae Biofuels, Phase II: Stress Analysis of ACCase, an Enzymatic Factor of Lipid Production**
 # Sara Ellen Volz, 15, Sophomore, Cheyenne Mountain High School, Colorado Springs, Colorado, T: David Mitchell Volz
- MA035 On the Verge of Where It Wasn't: A Multiple Model Approach to Estimation and Tracking Using Extended Kalman Filtering and Intelligent Selection of Integrated Models**
 # John Tilla Parish IV, 18, Junior, Home School, Colorado Springs, Colorado, T: Maureen Y. Parish
- PH316T Quantum Entanglement**
 Dylan J. Merrell, 18, Senior; Charley Glen Adams, 18, Senior
 Meeker High School, Meeker, Colorado, T: Robert Dorsett
Grand Junction, USCO05, Alpine Bank Western Colorado Science Fair
- AS029 Gene Seeker**
 Bailey Lyn Palmer, 16, Sophomore, West Grand High School, Kremmling, Colorado, T: Emmylou Mellisa Harmon
- BE311T The Game of Life: A Critical Analysis of Three Taxation Methods**
 David Brydie Mitchell, 16, Sophomore; Kelli Morgan Buhrdorf, 15, Freshman;
 Braeden Thomas Horton, 17, Junior
 Hotchkiss High School, Hotchkiss, Colorado, T: Douglas Ray Horton
Greeley, USCO06, Longs Peak Science and Engineering Fair
- CS015 Computer Modeling IV: A Particulate Dispersion Model Employing Real-Time Wind Calculations**
 Jessica Marie Constant, 15, Sophomore, Poudre High School, Fort Collins, Colorado, T: Amanda Constant
La Junta, USCO07, Arkansas Valley Regional Science Fair
- EE057 Variable Voltages: An Experiment on the Viability of Overclocking**
 Andrew Michael Bartolo, 16, Junior, Swink Junior-Senior High School, Swink, Colorado, T: Kyle Teresa Bartolo

Sterling, USCO08, Northeast Colorado Regional Science Fair

AS018 A Study of Dietary Supplements and Actin and Myosin Production

Nathan Lyne Frantz, 17, Junior, Fleming High School, Fleming, Colorado,
T: Linda Niccoli

ME027 The Correlation between the Menstrual Cycle and Female Anterior Cruciate Ligament Injuries

Alexis Rae Shinn, 16, Sophomore, Merino High School, Merino, Colorado,
T: Carlye Jo Armstrong

CONNECTICUT

Danbury, USCT01, Science Horizons, Inc. Science Fair and Symposium

AS022 Biological Control of Ticks to Prevent Lyme Disease Using Entomopathogenic Nematodes

Ryan Daniel Kerr, 15, Sophomore, Danbury High School, Danbury, Connecticut,
T: Marsha Turek

MI026 Methicillin-Resistant Staphylococcus aureus (MRSA) in a High School

Toni Susan Emma Viola, 17, Junior, New Milford High School, New Milford, Connecticut, T: Eileen Reed

Hamden, USCT50, Connecticut State Science Fair

CB008 Role of MyD88 in DNA Damage Response

Yiyuan Hu, 17, Junior, Hamden High School, Hamden, Connecticut,
T: Sonia Beloin

CB009 Anticancer Property of Major Goat Milk Fatty Acids and Delineating Their Mechanisms of Action

Amoolya V Narayanan, 17, Senior, Glastonbury High School, Glastonbury, Connecticut, T: Diane Pintavalle

CH012 Modeling Hydrogen Production Catalyzed by a Novel Electrocatalyst with Density Functional Theory

Shubhro Saha, 18, Senior, Choate Rosemary Hall, Wallingford, Connecticut,
T: Rachel Gritzer

ET032 Optimization of a Microbial Fuel Cell to Drive a Bioelectrochemically Assisted Wastewater Treatment Reactor

Ryota Ishizuka, 17, Junior, Greenwich High School, Greenwich, Connecticut,
T: Andrew John Bramante

ME038 Development and Characterization of a Novel Listeria-Caspase-3 DNA Vaccine to Eradicate Metastatic Breast Cancer

Swathi Krishnan, 17, Senior, Rye Country Day School- Upper School, Rye, New York, T: Catherine Bischoff

DISTRICT OF COLUMBIA

Washington, USDC01, District of Columbia Science and Engineering Fair

EE069 Wave Energy: Using a Point Absorber Mechanism

Matthew T. Haynes, 16, Junior, School Without Walls Senior High School, Washington, District of Columbia, T: Sydney Bergman

ME084 Gallocyanine Chrome Alum Complex: A Novel Histochemical Magnetic Resonance Imaging Contrast Agent

Alexander Prodromos Gilbert, 17, Senior, Saint Albans School, Washington, District of Columbia, T: Thomas P. Carroll

FLORIDA

Brooksville, USFL24, Hernando County Regional Science and Engineering Fair

AS017 Natural Parasitic Resistance

Addison Thomas Hilyard, 15, Freshman, Central High School, Brooksville, Florida,
T: J.B. Dill

EM017 Optimization of Microbial Bioremediation

Adam Brian Schuster, 15, Sophomore, F.W. Springstead High School, Spring Hill, Florida, T: Colleen Douk

Bushnell, USFL18, Sumter County Regional Science Fair

ME003 The Effects of Pepper Juice vs. Vancomycin and Colloidal Silver on MRSA Inhibition and Cell Degradation

Alex Keeler, 16, Junior, South Sumter High School, Bushnell, Florida,
T: Emily Keeler

PS002 Efficacy of Chlorine on *Salmonella typhimurium* LT2 in Irrigation Water on Produce Items

Kelly Nicole Howard, 18, Senior, The Villages Charter High School, The Villages, Florida, T: Monica Vinas

PS302T The "T. Tree," Test: Natural Botanical Remedy, Yes or No?!

Lachonda Marie Lacey, 15, Sophomore; Breanne Mattea Williams, 15, Sophomore
South Sumter High School, Bushnell, Florida, T: Emily Keeler

Fort Myers, USFL05, Thomas Alva Edison Kiwanis Science and Engineering Fair

EM304T Establishing the Phytoremediation Capacity of *Brassica rapa* as an Instrument for Heavy-metal Uptake Using Hydroponics and UV-Vis Spectroscopy

Nicole Lynn Miller, 16, Junior; Nadia Kemal, 17, Junior
Charlotte High School, Punta Gorda, Florida, T: Jason Matthew Wikman

EN005 The Vehicle Extreme Temperature Alarm System with Cellular Dispatch for Unattended Children

Laura Catherine Delaney, 14, Freshman, Lemon Bay High School, Englewood, Florida, T: Jenee Mora

MI301T rDNA Genetic Engineering: Transformation Efficiency of the Lux Gene and Medical Implications

Neil Singh, 16, Junior; Vaibhav Venkat Penukonda, 18, Junior
Canterbury School, Fort Myers, Florida, T: Kelly Etcheverry

Fort Walton Beach, USFL07, Northeast Panhandle Regional Science and Engineering Fair

BE009 Improving ADHD Treatment, Year Two: Observing the Effectiveness of Computerized Cognitive Training Programs on Children with ADHD, and Struggling Students in a Structured School Setting

Kevin Michael Knight, 18, Senior, Northwest Florida State College Collegiate High School, Niceville, Florida, T: Ross Hamilton

ET024 Generating Clean Electrical Tidal Power, Year Three of an Ongoing Study

Kyle Scott Saleeby, 16, Sophomore, Niceville High School, Niceville, Florida,
T: Regina Gaskin

ME013 Chemical Sterilization of Medical Catheters Using an Autoclave with a Hydrogen Peroxide Solution, Year Seven of an Ongoing Study

Aubrey Ward Craig II, 17, Senior, The Collegiate High School at Northwest Florida State College, Niceville, Florida, T: Ross Hamilton

ME033 Simulation of Action Potential of a Cardiac Myocyte and Study of Anti-Arrhythmic Drugs

Shreyans Kirit Patel, 17, Senior, Niceville Senior High School, Niceville, Florida,
T: Regina Gaskin

Ft Lauderdale, USFL09, Broward County Science Fair

CS040 Enhanced Visual Acuity of Thalamic Visual Prosthesis Simulation Using Head and Eye Tracking

Sameer Kailasa, 15, Sophomore, American Heritage School Plantation, Plantation, Florida, T: Charles Golden

MA032 Method of Optimizing the Monte Carlo Statistical Algorithm to Increase Computational Efficiency in Multidimensional Integration

Pratheek Nagaraj, 17, Junior, Marjory Stoneman Douglas High School, Parkland, Florida, T: Annette Traverso

MI046 Interrupting Bacterial Conversation with Black Olive (*Bucida buceras*) Extracts

Rohan Batra, 16, Sophomore, American Heritage School, Plantation, Florida,
T: Charles Golden

PH033 Particle Motion in Microfluidic Chips

Daniel Isao Christe, 17, Junior, American Heritage School, Plantation, Florida,
T: Dawn Gregor

Gainesville, USFL08, Alachua Region Science and Engineering Fair

BI039 Expression and Localization of 3beta-Hydroxysteroid Dehydrogenase-1 in Human Breast Cancer Cells

Madhuchanda Bose, 15, Junior, Eastside High School, Gainesville, Florida,
T: Natalie Williams

MI305T Bioengineered rASS Protein Treatment Mitigates Bacterial Lipopolysaccharide Toxicity

Alvin Wang, 17, Senior; ## Gabriel Enrique Molina, 17, Senior; # Apurv Suman, 17, Junior

Oak Hall School, Gainesville, Florida, T: Sandra Swindler

Green Cove Springs, USFL35, Clay Rotary Regional Science and Engineering Fair

BI019 How Do Different Temperature Levels Affect the Catalytic Activity of Enzyme Catalase? Year II of a Study

Paul William Johannes, 17, Sophomore, Fleming Island High School, Orange Park, Florida, T: Debra Gayle Scott

EE089 SunConditioning II

Juan Carlos Gonzalez, 15, Freshman, Fleming Island High School, Orange Park, Florida, T: John Walters

Inverness, USFL03, Citrus Regional Science and Engineering Fair

AS031 Response of the Female Caribbean Fruit Fly

Chloe Lorraine Hale, 17, Senior, Citrus High School, Inverness, Florida,
T: Lindsey Reid

ET043 Alternative Energy

Joseph Michael Wilder, 17, Junior, Academy of Environmental Science, Crystal River, Florida, T: Charles Mulligan

Jacksonville, USFL10, Northeast Florida Regional Science and Engineering Fair

CH001 Improving Piezoelectric Nanogenerators, Year II: Nucleation of Nanocatalysts for the Synthesis of Ni-Doped ZnO Nanowires

Morgan McKay Monroe, 18, Senior, Episcopal High School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner

ET001 The Engineering of a Novel Magnetic Levitation Train Propulsion System through the Application of a Coil Current Gradient

Christopher Joseph Davlantes, 18, Senior, Bishop Kenny High School, Jacksonville, Florida, T: Victoria Schmitt

ME301T What Is the Effect of a High Dielectric Liquid, Ethanol, on the Rate of Neurotransmission of Gray Matter?

Dileep Reddy Karri, 18, Senior; Mohan Sai Ravi, 15, Sophomore

Stanton College Preparatory High School, Jacksonville, Florida, T: Gigi Hornilla

PS001 Improving Environmental Stress Tolerance: The Genetic Engineering of the Oryza sativa Plant Carrying the Escherichia coli Genes Producing Trehalose (Year Two)

Andrew Michael Joseph, 16, Junior, Episcopal High School of Jacksonville, Jacksonville, Florida, T: Marion Zeiner

Jensen Beach, USFL25, Martin County Regional Science and Engineering Fair

EV011 Easy on the EC

Vishalakshi Lakshmanan, 16, Sophomore, South Fork High School, Stuart, Florida,
T: Donna Fitzpatrick

ME031 Determining the Caloric and Energy Contents of Nuts

Jessica Hsieh Li, 15, Freshman, South Fork High School, Stuart, Florida,
T: Leslie Lynch

Kissimmee, USFL33, Osceola County Schools Science and Engineering Fair

AS037 Sturgeon Growth Rate in Monoculture and Polyculture

Lauren Elise Davis, 18, Senior, Celebration High School, Celebration, Florida,
T: Leslie Rivera

PH009 The Use of Sound Waves with Multilateration Formulas to Find the Optimal Method to Locate an Object in Three Dimensions

Erin Nicole Lewis, 18, Senior, Harmony High School, Saint Cloud, Florida,
T: Jane Berkley

Lake City, USFL11, Suwannee Valley Regional Science and Engineering Fair

BE010 The Influence of Phrase-Spaced Text on Reading Comprehension of Stroke Patients

Lindsey Brooke Saunders, 17, Senior, Union County High School, Lake Butler, Florida, T: Renae Allen

PH006 Optimization of DBD Plasma Actuator Geometry for Maximum Force Production

Kelly Elizabeth Gray, 17, Junior, Union County High School, Lake Butler, Florida, T: Carolyn J. Allen

Lakeland, USFL12, Polk Region Science and Engineering Fair

EE079 Boosting Central Heat / Air Conditioning Efficiency through Evaporative Cooling Supplementation

Trevor Kidder Monroe, 18, Senior, Chain of Lakes Collegiate High School, Winter Haven, Florida, T: Suzanne Halverson

EV045 Cacti Mucilage and Reverse Osmosis Membranes: A Solution for Florida Water's Phosphate Problem

Kirstie Rae Tandberg, 15, Sophomore, Lake Region High School, Eagle Lake, Florida, T: Lisa Weeks

Melbourne, USFL13, South Brevard Science and Engineering Fair

EE311T The Design, Development, and Testing of a Robotic Duct Sterilization System, Year 4

Spencer Steven Tuttle, 16, Junior; Dalton James Stanley, 16, Junior Palm Bay High School, Melbourne, Florida, T: Michael Lee O'Donnell

EN030 Tying Up Loose Nerves

Jacob Cameron Kimmel, 17, Junior, Satellite High School, Satellite Beach, Florida, T: Joe Scott

ME062 Modes of Action of *Saccharomyces cerevisiae* as a Probiotic in Glucose or Omega-3 Diet Supplements in Monogastric Species *in vitro* against *Escherichia coli*

Fiona Lynn Kearns, 18, Senior, Palm Bay High School, Melbourne, Florida, T: Michael Lee O'Donnell

Merritt Island, USFL14, Brevard Intracoastal Regional Science and Engineering Fair

CB007 Meddling with RGS17

Jenna Lynne Pappalardo, 17, Senior, Satellite High School, Satellite Beach, Florida, T: Joe Scott

EE026 Humanoid Gripper Helps Level the Playing Field, Year II

Rachel Ann Aaronson, 16, Sophomore, Satellite High School, Satellite Beach, Florida, T: Joseph Scott

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

EM014 Determining the Starch Content of *Lemna minor* in Relation to Nitrate and Phosphate Levels, Year 2

Kristen Elaine Clayton, 15, Freshman, Viera High School, Viera, Florida, T: Elizabeth Matthews Youngs

MI014 The Effect of Holy Basil on the Growth of Respiratory Viruses (Adenovirus and Respiratory Syncytial Virus)

Sangamithra Vardhan, 15, Sophomore, West Shore Junior/Senior High School, Melbourne, Florida, T: Paula Ladd

Miami, USFL15, South Florida Science and Engineering Fair

CH008 The Electrochemical Effects of Glucose and Sucrose on the Voltage Output of a Microbial Fuel Cell Using *Saccharomyces cerevisiae*

Jack Erdozain, Jr., 16, Sophomore, Westminster Christian School, Palmetto Bay, Florida, T: Lisa Marie Garrido

EE024 Neuro-Controlled Bionic Hand

Juan Carlos Acosta, 18, Senior, Dr. Michael M. Krop High School, Miami, Florida, T: David Buncher

EM012 The Impact of Anthropogenically Modified Wetlands on Anuran Populations: What Do Species Richness, Diversity, and Presence of Invasive Species Tell Us about Everglades Wetlands Restoration?

Jamie Odzer, 14, Freshman, Dr. Michael M. Krop Senior High School, Miami, Florida, T: David Buncher

- ME028 Hypcholesterolemic and Hypoglycemic Effects of Medicinal Herbs: Natural Remedies for Obesity and Diabetes**
 # Renuka Ramchandran, 15, Sophomore, John A. Ferguson Senior High School, Miami, Florida, T: Francisco Jurado
New Port Richey, USFL30, Pasco Regional Science and Engineering Fair
- BI046 Audio Perception: Plotting the Pathway of the BK Channel**
 Sophia Paulina Mae Sokolowski, 16, Junior, Academy at the Lakes, Land O' Lakes, Florida, T: Amy Jordan
- ME099 Why Diabetics Need to Know the Complexities of Carbohydrates**
 Aubrey Alexandra Jones, 16, Junior, James W. Mitchell High School, New Port Richey, Florida, T: Edwin Braddy
Ocala, USFL16, Big Springs Regional Science Fair
- ME005 Analyzing Polyglutamine Tracts of Huntington's Disease for Gene Expression**
 Nikhil Sanon, 16, Junior, Vanguard High School, Ocala, Florida, T: Robert Hoki
- ME006 Pharmacological and Gene Therapy Treatments for Pompe Disease**
 Rohini Singh, 18, Senior, Forest High School, Ocala, Florida, T: Jane Beebe
- MI002 Purification and Structural Determination of Adeno-Associated Virus Serotype 7 through Crystallography at pH 5.5 and pH 6.0**
 Karina Manoojian, 18, Senior, Vanguard High School, Ocala, Florida, T: Robert Hoki
Orlando, USFL50, State Science and Engineering Fair of Florida—Ying Scholars
- BI018 The Effect of Methyl Jasmonate on Crown Gall Regression and Protein Production in *Lycopersicon esculentum***
 Chad Lawrence Harris, 18, Senior, Palm Bay High School, Melbourne, Florida, T: Michael O'Donnel
- CS002 Creation and Navigation of a 3D Environment with Stereo Vision, a Continuation**
 # Dylan Cooper Dalrymple, 16, Sophomore, Pensacola High School, Pensacola, Florida, T: Cherie Chrisco
- ET048 Synthesizing Hydrocarbon Derivatives as an Alternative Fuel Source Utilizing Effluent Gas from a Catalytic Converter in a Two Stage Induction System with Cobalt Molybdenum Copper in a Hydrodesulphurization Process to Reduce Carbon Emissions**
 # Justin Kenrick Ramsaran, 17, Senior, Palm Bay High School, Melbourne, Florida, T: Michael O'Donnell
- ME004 Inhibition of Plasminogen Activator Inhibitor-1: A Novel Therapeutic Approach for Diabetic Vascular Disease**
 # Samantha Renae Prabakaran, 15, Sophomore, Fort Myers High School, Fort Myers, Florida, T: Cathy Tucker
Orlando, USFL17, Dr. Nelson Ying-Orange County Science Exposition
- BE001 Associations between Positive Health Behaviors and Psychological Distress**
 Emily Leona Welch, 16, Junior, Lake Highland Preparatory School, Orlando, Florida, T: Christi Tamayo
- BI001 Anti-Toxin Properties of Grape Extracts, Year Three**
 # Srikar Patlola Reddy, 17, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Christi Ann Tamayo
- EN001 The Diagnostic Analysis with Visible Light of Acetone Compared to Glucometer Detection and the Identification of Acetone Related Volatile Organic Compounds**
 Elizabeth Sara Ross, 17, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Christi Tamayo
- EN002 Catalytic Oxidation of 2-Butanol Utilizing Size-Selected Platinum Nanoparticles**
 # Elaine Zhou, 18, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Christi Tamayo
- ET002 Effects of Dopants on the Morphology and Efficiency of Conjugated Polymer OPV Devices**
 Arjun Mathur, 17, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Judith Legault

- ME001 Effects of Nanoparticles and NSAIDs on Sp Protein and Survivin Expression after Radiation in Head and Neck Cancer**
 ## Shannon Somer Stockton, 17, Senior, Lake Highland Preparatory School, Orlando, Florida, T: Christi Tamayo
Palmetto, USFL02, Manatee Lockheed Regional Science and Engineering Fair
- EE035 A High Efficiency Solar Energy Collection System**
 Katherine Lee Zimmerman, 15, Freshman, Braden River High School, Bradenton, Florida, T: Marybeth Witham
- PH028 The Effect of Thermophoresis on Vertical Alignment of Dust Particles in Bilayer Complex Plasma**
 Patrick Louis Facheris, 18, Senior, Manatee High School, Bradenton, Florida, T: Patricia Zalo
Pensacola, USFL20, West Panhandle Regional Science and Engineering Fair
- PH001 An Examination of the Dielectric Response of the 8CB Liquid Crystal over the Nematic-Isotropic Phase Transition**
 Priya Garg, 15, Senior, Pensacola High School, Pensacola, Florida, T: Cherie Chrisco
Saint Augustine, USFL21, River Region East Science Fair
- MA027 Developing a Cipher Based on Variation between Non-Base 10 Number Systems**
 Caroline Knight Snowden, 15, Sophomore, Ponte Vedra High School, Ponte Vedra, Florida, T: Steve Lyons
Sanford, USFL23, Seminole County Regional Science, Mathematics & Engineering Fair
- BE011 An Analysis of Listener Perception and Visual Replication of Sonifications: A Third Year Study**
 # Neel Sanjay Patel, 16, Junior, Oviedo High School, Oviedo, Florida, T: PJ Kreaehling
- ME015 The Effects of Zinc Gluconate and Two Other Divalent Cationic Compounds on Olfactory Function**
 Christopher Anthony Duncan-Lewis, 18, Senior, Winter Springs High School, Winter Springs, Florida, T: Janine Kay Miraglia
- PS005 Evaluation of Ubiquitin Promoter Expression Abilities for Potential Use in Transgenic Grape Vine (*Vitis vinifera*)**
 # Stephen Taylor Bethel, 18, Senior, Lake Brantley High School, Altamonte Springs, Florida, T: Megan Rinyu
Sarasota, USFL32, Sarasota Regional Science, Engineering and Technology Fair
- ET054 Harvesting Wave Energy Using a Full Scale Piezo Buoy**
 Garrett Lee Moler, 17, Junior, Sarasota High School, Sarasota, Florida, T: Andy Harshman
- ME071 Neural Network Diagnostics for Breast Cancer**
 # Brittany Michelle Wenger, 16, Sophomore, The Out-of-Door Academy, Sarasota, Florida, T: Dan Oryschak
Sebring, USFL01, Heartland Regional Science and Engineering Fair
- BI020 Grow Me Some Green!**
 Brooke Suzanne Conley, 15, Freshman, Hardee Senior High School, Wauchula, Florida, T: Robert Beatty
- CH005 Electrolysis**
 Mariana Maldonado, 15, Sophomore, Desoto County High School, Arcadia, Florida, T: Carolyn Crews
- EV026 Macroinvertebrate Response in Lemkin Creek to Wetland Treated Water**
 David Johnathan Blount, 15, Freshman, Okeechobee High School, Okeechobee, Florida, T: Erica Richonda Manson
- PS024 Nature's Nurture**
 Warner A. Ward, 16, Junior, Moore Haven Junior-Senior High School, Moore Haven, Florida, T: Ted Dearstyne
Tallahassee, USFL26, Capital Regional Science and Engineering Fair
- BI003 Denaturation of Tryptophan Zippers Using CHARMM Simulator Technology**
 Elizabeth Sell, 15, Sophomore, Lincoln High School, Tallahassee, Florida, T: Brian McClain

Tampa, USFL27, Hillsborough Regional Science Fair

BI044 Role of Human Cellular Apoptosis Susceptibility Protein (hCAS) in Pancreatic Cancer

Samra Kazim, 15, Sophomore, Tampa Bay Technical High School, Tampa, Florida,
T: Troy Suarez

ME030 Monocytic Gene Cell Therapy: Potential Treatment for Alzheimer's Disease

Jasmine Samaiya Roberts, 17, Senior, Paul R. Wharton High School, Tampa, Florida,
T: Carmen Austin

Tavares, USFL34, Lake Regional Science & Engineering Fair

CH003 Effect of Copper Ion Chelation on Curcumin's Antioxidant Capacity

Chelsea Lynn Massaro, 17, Junior, Christian Home & Bible School, Mount Dora,
Florida, T: Laura Barker

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

CS023 Efficacy of Crowdsourcing in Generating Accurate Semantic Metadata

Tucker Sterling Elliott, 18, Senior, Suncoast Community High School, Riviera Beach,
Florida, T: Ronald Howard

ME046 Biomagnetism: Force or Fiction?

Gregory Derrick Poore, 17, Junior, Suncoast Community High School, Riviera Beach,
Florida, T: Ronald Howard

GEORGIA

Albany, USGA01, Darton College/Merck Regional Science Fair

EE080 Construction of a Feasible Einstein: Szilard Absorption Refrigeration System

Spencer Wilson, 18, Freshman, Colquitt County High School, Moultrie, Georgia,
T: Vance Alan Hurst

EM050 Effects of CO2 Enrichment and N2 on the Growth of *Brassica juncea*

Anjana Kumar, 16, Junior, Americus-Sumter High School South, Americus, Georgia,
T: Pushpa Sundara Rajan

Athens, USGA50, Georgia State Science and Engineering Fair

BI040 Gastro Microbial Fuel Cell: A Novel Implementation of a GMFC in Capsular Nanorobotics

Raja Selvakumar, 15, Sophomore, Milton High School, Milton, Georgia,
T: Karol Higgins

CH035 Synthesizing Task-Specific Methylimidazole-Based Ionic Liquids

Uchenna Fredoline Anunobi, 18, Senior, Rockdale Magnet School for Science and
Technology, Conyers, Georgia, T: Diana Kennen

CS056 SEOR: Simulated Environment for Object Reconstruction

Elliott Suk Chung, 18, Senior, Gwinnett School of Mathematics, Science, and
Technology, Lawrenceville, Georgia, T: Steve Garrison

PH053 Effects of Cathode Composition on Inertial Electrostatic Confinement Fusion Reactors

Charles Douglas Ramey, 18, Senior, Northgate High School, Newnan, Georgia,
T: Warren James Bernard

Athens, USGA02, Northeast Georgia Regional Science and Engineering Fair

BE057 Epigenetic Factors Influence Drosophila Brain Function and Aggressive Behavior, Phase V

Andrew Wooyoung Kim, 18, Senior, Cedar Shoals High School, Athens, Georgia,
T: Julie Throne

Atlanta, USGA03, Atlanta Science and Mathematics Congress

EV320T Alternative Methods of Optimizing Food Production in "Red-Lined" and Urban Food Deserts Using Aquaponics and Hydroponics vs. Conventional Growing Methods

Quantavious Yorel Griggs, 16, Sophomore; Nouhayla Houssaini, 17, Junior
Benjamin E. Mays High School, Atlanta, Georgia, T: Geraldine Hall Nix

PH036 Glider Wings Shape

Jason Lathbury, 16, Junior, Henry Grady High School, Atlanta, Georgia,
T: Nikolai Curtis

Brunswick, USGA05, Coastal Georgia Regional Science and Engineering Fair

EE081 Microwave Efficiency

Douglas Monroe Jones, 15, Sophomore, Glynn Academy High School, Brunswick, Georgia, T: Ingrid Brown

Buford, USGA11, Gwinnett Regional Fair

ET069 Investigating Concentration and Composition of PPDs in Biodiesel

Danish Singh, 16, Sophomore, Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, Georgia, T: Melissa Kinard

MI053 Neutralization of *Escherichia coli* Bacteria with Food Extracts

Aprotim Cory Bhowmik, 14, Freshman, Parkview High School, Lilburn, Georgia, T: Steve Kuninsky

PH317T Cost-Efficient Detection of Infrared Radiation

Sunyoung Wang, 17, Junior; Guillermo Bautista, 17, Junior; He Sun Kim, 17, Senior Mill Creek High School, Hoschton, Georgia, T: Phillip Powell

Conyers, USGA12, Rockdale Regional Science & Engineering Fair

BE004 Analyzing the Consistency of the Rorschach and Multiple Intelligences Correlation

Katlyn Marie Firkus, 17, Junior, Rockdale Magnet School for Science and Technology, Conyers, Georgia, T: Scott Bolen

ME007 Isolating Candidate Genes Affecting Diabetes Using a Mouse Model Data Set

Lauren Nicole Reagin, 17, Junior, Rockdale Magnet School for Science and Technology, Conyers, Georgia, T: Amanda Baskett

Griffin, USGA09, Griffin RESA Regional Science Fair

EV002 Use of Satellite Imagery to Study the Effect of Land Cover on Water Quality in Spalding County, Georgia

Jed Matthew Mercado Paz, 15, Sophomore, Griffin High School, Griffin, Georgia, T: Justina Russell

MA301T The Science of a Math Game

Mynah Jaye Holloway, 14, Freshman; Vivian H. Nguyen, 15, Freshman Starr's Mill High School, Fayetteville, Georgia, T: Kelly Rock, T: Christina Bryant

McDonough, USGA06, Henry County Science and Engineering Fair

BE026 Academic Dishonesty: Factors to a Student's Success, Year Two

Krupa Merchant, 16, Junior, Dutchtown High School, Hampton, Georgia, T: Shaheen Begum

BI017 Biomarkers for CIN Gene(ZW10) Mutations in Early Ovarian Cancer

Sierra Dominique Harris, 15, Freshman, Dutchtown High School, Hampton, Georgia, T: Shaheen Begum

EM025 Green Electricity from Waste, Is It Possible?

Tushar Mittal, 14, Freshman, Dutchtown High School, Hampton, Georgia, T: Shaheen Begum

Milledgeville, USGA07, Georgia College & State University Regional Science and Engineering Fair

CH024 An Air-Stable Lithium Ion Porphyrin Precursor of Transition Metal Complexes

Geovic Englis Jadol, 16, Junior, Georgia Military College Preparatory School, Milledgeville, Georgia, T: Rosalie A. Richards

Savannah, USGA08, Savannah Ogeechee Regional Science and Engineering Fair

ET009 Acoustic Cavitation at the Solid Oxide Electrolysis Cell Cathode Layer for Sustainable Hydrogen Production

Eric Lau, 16, Junior, Savannah Arts Academy, Savannah, Georgia, T: Kathy Maher

Warner Robins, USGA10, Houston Regional Science and Engineering Fair

ET010 Which Ethanol, Consumer Grade Sweet Potato or Commercially Made Corn, in a Gasoline Mixture Will Emit the Least Amount of Noxious Gases, Namely Hydrocarbon (HC), Carbon Monoxide (CO), Carbon Dioxide (CO₂), and Nitrous Oxide (NO_x), When Run through a Compatible Four-stroke Engine?

Kristin Virginia Walker, 16, Junior, Warner Robins High School, Warner Robins, Georgia, T: Randi Collier

- EV007 Effects of Diocetyl Sodium Sulfosuccinate on the Development of *Oryzias latipes***
 Willa Ma Wang, 15, Freshman, Veterans High School, Kathleen, Georgia,
 T: Cherri Nix

HAWAII

Hilo, USHI05, Hawaii District Science and Engineering Fair

- ME029 Anti-Cancer Properties of Fungal Endophytes Derived from *Clermontia parviflora*, a Native Hawaiian Plant**

Shaila Shek de Bourmont, 16, Junior, Hilo High School, Hilo, Hawaii,
 T: Pascale Pinner

Honolulu, USHI01, Hawaii Association of Independent Schools Science and Engineering Fair

- MA026 New Triangle Centers Associated with a Triad of the Simulated Circumcircles**

Kang-Ying Liu, 18, Senior, Saint Andrew's Priory School, Honolulu, Hawaii,
 T: Michael Christopher Grech

- PH022 Determining "Hot Spots" through Correlations of CMEs and Solar Flares**

Travis Le, 16, Junior, Punahou School, Honolulu, Hawaii, T: Michael Gearen

Honolulu, USHI50, Hawaii State Science and Engineering Fair

- BIO29 Size-Dependent Cytokine Release from Murine Macrophages by Glycopeptide-Coated Gold Nanoparticles**

Quentin Kai Akin, 17, Junior, Punahou School, Honolulu, Hawaii,
 T: Joseph J Barchi

- CB032 Impact of Tuna Ovaries on Shrimp Maturation Feed**

Abraham Kwan, 15, Sophomore, Moanalua High School, Honolulu, Hawaii,
 T: Kathy Lin

- EE325T PAWT (Polygonal Airfoil Wind Turbine), the Greener Future: An Innovative Approach to Engineering a Bladeless Wind Turbine**

Shawnalyn Wing Chun Sunagawa, 18, Senior; Sara Elisabeth Middendorf, 17, Senior

Saint Andrew's Priory School, Honolulu, Hawaii, T: Michael Grech

- EM323T High Value Fungal Protein Cultivated in Five Carbon Biofuel Liquor**

Lindsay Sumiko Fujimoto, 17, Senior; ## Sarah Mieko Tamashiro, 17, Senior
 Saint Andrew's Priory, Honolulu, Hawaii, T: Michael Grech

- PH315T Light Curve Dip Analysis of Exoplanet Systems**

Taylor Tsuyoshi Shong Wong Nakamura, 17, Senior; Dane Masaru La'akea
 Oshiro, 18, Senior; Ross Mitsuo Ito, 18, Senior

Maui High School, Kahului, Hawaii, T: Keith Imada

Kailua, USHI06, Windward District Science and Engineering Fair

- BE301T How Do You Think?: A Study in Linguistics and Cognition Using Spatial-time Metaphors and Chinese Speakers**

Jessica Tew, 18, Senior; Katelyn Elizabeth Orr, 17, Junior

Kahuku High and Intermediate School, Kahuku, Hawaii, T: Brett Kewish

Lihue, USHI04, Kauai Regional Science & Engineering Fair

- BE317T Who Do You Listen To?**

Savanah Quinn Frisk, 15, Freshman; Coral Camille Green, 15, Sophomore; Shanice
 Tivona Grijalva, 15, Sophomore

Kapaa High School, Kapaa, Hawaii, T: Kimberlee Stuart

- EE312T Harvesting Electricity through the Installation of a Cost Efficient Mini Hydro Turbine into the Existing Domestic Water Supply**

Alyssa Noriko Braun, 16, Junior; # Ashley Jean Bonilla, 16, Junior;

Meghan Sakae Fujimoto, 16, Junior

Kauai High School, Lihue, Hawaii, T: Kevin Matthew Johnson

- MI048 The Effects of Various Carbon Sources on the Growth Rate and Lipid Production of *Chlorella sp.***

Noelani Hannah Murray, 15, Sophomore, Kauai High School, Lihue, Hawaii,
 T: Kevin Matthew Johnson

Pearl City, USHI02, Leeward District High School Science Fair

AS305T The Observation of the Breeding and Mating Habits of Mice According to the Foods They Consume

Jazmin Ariel Acebedo Nicolas, 16, Junior; Caelyn Riingen Udani, 17, Senior
James Campbell High School, Ewa Beach, Hawaii, T: Marites Barangan

EE070 Determining the Effects of Extreme Temperature Fluctuations on the Efficacy of Photovoltaic Cells

Danten Rand Masaji Inouye, 16, Junior, Waipahu High School, Waipahu, Hawaii,
T: Lucille Imamura

Wailuku, USHI03, Maui Schools Science and Engineering Fair

PH058 Measuring the Passage of Time for Bodies at Relativistic Speeds with Dynamic Accelerations

Michael Owen Flynn, 18, Senior, Maui High School, Kahului, Hawaii,
T: Keith Imada

PS028 A Comparative Analysis of Phytolith-Occluded Carbon Sequestration Rates

Steven Kaichi Okada, 15, Sophomore, Henry Perrine Baldwin High School, Wailuku, Hawaii, T: Barbara Huntley

ILLINOIS

Arlington Heights, USIL05, Illinois Junior Academy of Science North Suburban Region 6 Science and Engineering Fair

AS030 The Global Impact of Ethanol Exposure on Somitogenesis and Craniofacial Development in Zebrafish as a Model of Fetal Alcohol Syndrome

Ayana Jamal, 16, Junior, Niles North High School, Skokie, Illinois, T: Jacklyn Naughton

CB016 Wound Healing: The Effect of Activated PAF Receptor on Activation of ERK as Influenced by Growth Factors in Intestinal Epithelial Cells

Naveen Abdullah Kanji, 16, Junior, Niles North High School, Skokie, Illinois,
T: Jacklyn A. Naughton

CS033 High School Timetable Generation Using a Simulated Annealing Metaheuristic

Joshua Baruch Lipschultz, 17, Junior, Niles North High School, Skokie, Illinois,
T: Jacklyn A. Naughton

EE045 Project SEA VISTA (SEmi-Autonomous VISion Target Acquisition) Guided Missile System: The Application of Stereo Vision on Projectile Accuracy

Elan Meir Ness-Cohn, 16, Junior, Niles North High School, Skokie, Illinois,
T: Jacklyn A. Naughton

MI037 Investigating the Effects of Autoinducer Analogs on Quorum Sensing in *Vibrio harveyi*

Felix F. Angelov, 17, Junior, Niles Township West High School, Skokie, Illinois,
T: Ruth Gleicher

Chicago, USIL01, Chicago Public Schools Student Science Fair

BI025 Intracellular Signaling of FoxO1 in the PI3K/AKT Pathway: Pathogenesis of Skeletal Muscular Atrophy

Saad Ahmed Khan, 17, Junior, Lane Technical College Prep High School, Chicago, Illinois, T: Glenn Wilson

EE058 Passive Solar Tracking

Anthony Vladimir Surganov, 17, Junior, Albert Grannis Lane Technical College Preparatory High School, Chicago, Illinois, T: Scott Vessalo

ME069 Loss of Chaos in Parkinson's Disease: Using Fractal Mathematics to Understand the Effects of the Decoupling of the Basal Ganglia from the Cortex in Parkinson's Disease

Leah Avi Balay-Wilson, 17, Senior, Lincoln Park High School, Chicago, Illinois,
T: James Galinski

PH035 Measuring the Thermoelectric Properties and Increasing the Efficiency of Bi2Te3

Daniela Jane Flax, 16, Sophomore, Lincoln Park High School, Chicago, Illinois,
T: James Galinski

DeKalb, USIL06, Illinois Junior Academy of Science Region V Science and Engineering Fair

EN011 Optimizing Nanometer-Scale Features

Kiwook Lee, 17, Junior, Illinois Mathematics and Science Academy, Aurora, Illinois,
T: David Czaplewski

EN012 Networks of Ultrasmall Pd/Cr Bilayer Nanowires: A New Type of High Performance Hydrogen Sensor

Henry Kai Deng, 16, Junior, Illinois Mathematics and Science Academy, Aurora, Illinois, T: Zhili Xiao

PH016 Modeling Quench Propagation in a System of Interconnected Superconducting Coils

Emil Timergalievich Khabiboulline, 16, Junior, Illinois Mathematics and Science Academy, Aurora, Illinois, T: Jamie Tweedle

Edwardsville, USIL02, Illinois Junior Academy of Science Region XII Science Fair

CS063 Artificial Intelligence: Learning to Learn

Conner Thomas Ruhl, 14, Freshman, Governor French Academy, Belleville, Illinois,
T: Christine Stewart

Macomb, USIL03, Heart of Illinois Science and Engineering Fair

CH025 Optimization and Mechanistic Investigation of a User and Eco-Friendly Protocol for Oxidative Cleavage of Alkenes

Prem P. Thottumkara, 18, Senior, Macomb High School, Macomb, Illinois,
T: Thomas Johnson

ET056 Utilizing the Energy in Wind to Power Vehicles

Nicole Elizabeth Hunter, 17, Senior, Macomb High School, Macomb, Illinois,
T: Thomas Johnson

Springfield, USIL04, Illinois Junior Academy of Science Region X Science Fair

EM322T The Kinetics of Cellulistic Ethanol

Hayden James Garner, 17, Junior; Heath Edward Garner, 17, Junior
Taylorville High School, Taylorville, Illinois, T: Mark T. Britton

ET049 The Future Fuel

Brady Mark Holst, 18, Senior, Southeastern High School, Augusta, Illinois,
T: Carolyn T. Phillips

INDIANA

Angola, USIN01, Northeastern Indiana Tri-State Regional Science Fair

ET051 Turbulent Air Flow and Its Effects on Helmet Drag

Lexie Kae Buchs, 18, Senior, DeKalb High School, Waterloo, Indiana,
T: Susan Zuber

Bloomington, USIN02, South Central Indiana Regional Science and Engineering Fair

PH043 A Mathematical Analysis of the Future Cosmic Star Formation Rate

Harrison Hugh Gaebler, 18, Senior, Bloomington High School North, Bloomington, Indiana, T: John Portle

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

ME092 Studies on Drug Microencapsulation: An in vitro Analysis of an Ibuprofen and Cetyl Alcohol System

Tony Huang, 16, Junior, Francis Joseph Reitz High School, Evansville, Indiana,
T: Kary Kahle

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

CB036 Generation and Characterization of Recombinant Human Estrogen Receptor-Alpha

Sachin Jain, 18, Senior, Homestead High School, Fort Wayne, Indiana,
T: Mark Lenfestey

Gary, USIN05, Calumet Regional Science Fair

ET062 A Novel Biofuel Cell Based on Direct Electron Transfer-Type Bioelectrocatalysis Incorporating Photophosphorylation to Efficiently Create Sustainable Electrical Energy

Nathan Sai Kondamuri, 16, Sophomore, Munster High School, Munster, Indiana,
T: Shaun Kondamuri

Greencastle, USIN10, West Central Indiana Regional Science and Engineering Fair

EE061 Cellular Phone Detector: Effective Detection and Recognition of Radio Signals Generated by Digital Devices

Thomas Peter Foulkes, 18, Senior, Terre Haute North Vigo High School, Terre Haute, Indiana, T: Glen M. Cook

Indianapolis, USIN06, Central Indiana Regional Science and Engineering Fair

AS036 The Effect of Bisphenol A on *Caenorhabditis elegans*'s Reproductive Capacity
Kathryn Marie Merkle, 17, Junior, East Noble High School, Kendallville, Indiana, T: Mark Liepe

CH023 The Synthesis of Cellulosic Ethanol

Christopher Andrew Green, 18, Senior, DeKalb High School, Waterloo, Indiana, T: Susan Zuber

CS038 Developing an Adaptive Disaster Evacuation Simulation

Francis Xinghang Chen, 17, Senior, Penn High School, Mishawaka, Indiana, T: Lynda Rose

EA015 Characterizing Engineered TiO₂ Nanoparticle Adhesion: Implications for Environmental Transport and Remediation

Eric E. Fein, 17, Junior, John Adams High School, South Bend, Indiana, T: Nevin Longenecker

EV025 Environmental Effects of Solubilized Carbon Nanotubes on *Daphnia magna* and *Lumbriculus variegatus*

Gabriel Scott Stephens, 18, Senior, East Noble High School, Kendallville, Indiana, T: Mark Allen Liepe

MA052 Braid Group Representations and Braiding Quantum Gates

Rebecca Chen, 16, Junior, Park Tudor School, Indianapolis, Indiana, T: Steve Math

Indianapolis, USIN50, Indiana Science and Engineering Fair

CB024 Development of a Low Cost Electroporator for High School and Developing World Applications

Timothy D. Trippel, 17, Senior, Marian High School, Mishawaka, Indiana, T: Ken Andrzejewski

CS048 Note to Self: A Transcriptional Study of Audio Files Using Fourier Transformation and New Applications

Ryan Kyong-Doc Chung, 14, Freshman, Terre Haute South Vigo High School, Terre Haute, Indiana, T: Melanie Huber

MA050 Lower Bounds for Odd Perfect Numbers

Anirudh Prabhu, 16, Junior, West Lafayette Junior-Senior High School, West Lafayette, Indiana, T: Joyce Gates

Muncie, USIN07, East Central Indiana Regional Science Fair

MI064 A "Cultural" Experience: What Concentration of *Staphylococcus aureus* Provides a Culture Optimal for the Testing of Bactericidal Agents?

Jacob Scott Henry, 18, Senior, Delta High School, Muncie, Indiana, T: Lance Brand

South Bend, USIN09, Northern Indiana Regional Science and Engineering Fair

EN031 The Effects of Different Mediators and Electrode Configurations on the Efficiency and Longevity of a Membrane-less, Enzymatic Biofuel Cell Operating under Physiological Conditions

Kalina Anna Misiolek, 15, Sophomore, John Adams High School, South Bend, Indiana, T: Nevin Longenecker

EV029 The Effect of Seiche Activity and Nutrient Loading on Carbon Cycling in Great Lakes Coastal Wetlands

Karl Gregory Koch, 18, Senior, Marian High School, Mishawaka, Indiana, T: Ken Andrzejewski

Valparaiso, USIN12, Northwestern Indiana Science and Engineering Fair

EM041 Controlling Asian Carp: A Shocking Current Event

Brandon Brady Benninger, 16, Sophomore, Boone Grove High School, Valparaiso, Indiana, T: Ken Snow

West Lafayette, USIN11, Lafayette Regional Science and Engineering Fair

CB026 Kinetics of Myoglobin and Hemoglobin pH Renaturation

Stephanie Lynn Pitman, 17, Senior, Homeschool, Frankfort, Indiana, T: Michael Brian Pitman

- PS023 The Effect of Knocking Out the *Phenulalanine ammonialyase* (PAL) Gene in *Petunia hybrida***
Feodor V. Orlov, 14, Freshman, West Lafayette Junior Senior High School, West Lafayette, Indiana, T: Marshall Overley

IOWA

Ames, *USIA50, State Science and Technology Fair of Iowa*

- AS044 Extracting Necromone Repellents from Food Oils**

Chase Carter Gross, 15, Sophomore, Solon High School, Solon, Iowa,
T: Dawn Posekany

- ME095 Caffeine Induces Apoptosis and Augments the Cytotoxicity of Anti-Cancer Drugs in BaF3 Cells**

Meghana Sai Pagadala, 16, Junior, Rivermont Collegiate, Bettendorf, Iowa,
T: Linda Hampton

- MI050 Functional Characterization of Green Tea-responsive Proteins in *Escherichia coli***

Peter Yin, 17, Senior, Ames High School, Ames, Iowa, T: Hongqing Guo
Cedar Rapids, USIA01, Eastern Iowa Science and Engineering Fair

- AS020 Swine Weaning Weights: How Does the Injection Time of Oxytocin Effect Weaning Weights?**

Cayla Pieper, 15, Freshman, Holy Trinity Catholic Junior Senior high School, Fort Madison, Iowa, T: Gail Kunch

- EM023 Biobased Ferrite Nanoparticles: A Novel Approach to Extract Organic Solvents and Heavy Metals from Water**

Atreya Shilbhadra Dey, 17, Senior, Maharishi School of the Age of Enlightenment, Fairfield, Iowa, T: Mousumi Dey

Sheldon, USIA02, Western Iowa Science and Engineering Fair

- AS019 Hog Wild: An In-depth Study Comparing the Productivity of *Sus scrofa domestica* Being Fed Organic Swine Feed and Conventional Swine Feed**

Austin James Rohrs, 15, Freshman, South O'Brien Community High School, Paullina, Iowa, T: Kevin Jay Brasser

KANSAS

Wichita, *USKS50, Kansas State Science and Engineering Fair*

- EM335T Clean-Up Crew**

Zane Madison Ralston, 18, Senior; Kelly Feather Francis, 18, Senior
Liberal High School, Liberal, Kansas, T: Melisa Westerman

- ET314T Running on Moonshine: Exploring Alternative Grains in Efficient Ethanol Production**

Kori Anna Hall, 16, Sophomore; Meredith Ruth Light, 17, Sophomore
Rolla High School, Rolla, Kansas, T: Zeta Greene

KENTUCKY

Bowling Green, *USKY01, Southern Kentucky Regional Science Fair*

- ET036 Testing the Shape of Rocket Fins on a Spinning Rocket**

Aaron Blake Shepperd, 16, Junior, Hart County High School, Munfordville, Kentucky,
T: Kelly Jean Shepperd

Highland Heights, USKY04, North Area Counties of Kentucky Exposition of Sciences

- EE027 The Liquid Piston Engine, Phase 3**

Kelly Maria Kleier, 18, Senior, Notre Dame Academy, Park Hills, Kentucky,
T: Sister Mary Ethel Parrott

Lexington, USKY05, Central Kentucky Regional Science and Engineering Fair

- ME302T Developing Phase-Based Biomarkers for Alzheimer's Disease**

Stephen Ryan Steinmetz, 16, Freshman; Andrei Terentiev, 16, Junior
Paul Laurence Dunbar High School, Lexington, Kentucky, T: Heidi Anderson

- PH002 Size-Effects on Correlated Etching of Few-Layered Graphene Nanoribbons**

Arunita Kar, 17, Senior, Paul Laurence Dunbar High School, Lexington, Kentucky,
T: Heidi Melcher Anderson

Louisville, USKY02, Louisville Regional Science Fair—Physical Science

ET025 A New Semiconductor Screening Method for Solar Fuels Production
Megan Katherine Mercer, 18, Senior, Ballard High School, Louisville, Kentucky, T: Ronda Fields

ET026 Electricity on the Fly
Robert Andrew Newcomer, 16, Sophomore, Ballard High School, Louisville, Kentucky, T: Myra Collins

EV013 Seasonal Comparison of Detritus, Large Woody Debris, Plankton, and Periphyton Production in Upper Green River Basin, Kentucky
Aimee Michelle Turner, 16, Sophomore, Ballard High School, Louisville, Kentucky, T: Ronda K Fields

Louisville, USKY03, duPont Manual High School Regional Fair

BE302T Science Un-Fair?: A Reformative Analysis of Parental Factors and Research Misconduct

Michael Alexander Moorin, 17, Junior; Tyler Lawson Smith, 17, Junior; duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

CS006 Written Identity: A Textual Analysis Program
Samantha Smith Moorin, 14, Freshman, duPont Manual High School, Louisville, Kentucky, T: Bobby Murphy

EE083 Nanophotonics for Solar Cell Applications
Zachary Robert Brewer, 15, Sophomore, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

EN320T Magnetic Nanoparticles and Thermally-Responsive Polymer for Hyperthermic Cancer Treatment and Sustained Drug Delivery

Michelle Chencheu Liu, 15, Sophomore; Sarah Y. Wang, 15, Sophomore duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

EV004 The Effect of Carbaryl Pesticide on Free Nitrogen Fixation Levels, Year Two
John Mark Grundy, 17, Junior, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Edwin Zwanzig

ME023 CTLA4 Levels in T-Cells of Celiac Disease Patients
Mary Olivia Richardson, 16, Sophomore, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

Richmond, USKY50, Kentucky Science and Engineering Fair

CB301T RNA Interference as an Effective and Environmentally-Friendly Method of Insect Population Control

Joseph Corbett Ferguson, 18, Senior; # Roshan Palli, 17, Senior Paul Laurence Dunbar High School, Lexington, Kentucky, T: Heidi Melcher Anderson

CS019 Intelligent Power Management of Computer Peripherals Using Domotic Technologies

Ankush M Gupta, 17, Junior, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

EM052 Testing the Mercury Absorption of Algae with Variant Carbon Dioxide Tolerance

Brian Christopher Rinehart, 17, Junior, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

EN043 Exploiting Osmosis for Blood Cell Sorting with Microfluidic Devices
Vinay Ashok Raj, 17, Junior, duPont Manual High School, Louisville, Kentucky, T: Glenn Zwanzig

ET017 Maximizing Hybrid Rocket Motor Efficiency for Evaluating Recyclable and Renewable Fuels

Megan Lynn Perkins, 16, Junior, DuPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

MI059 Bacterial Inhibition with Natural Substances vs. Streptomycin

Induja Reddy Nimma, 14, Freshman, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig

LOUISIANA

Alexandria, USLA07, Louisiana Region IV Science Fair

BI002 Upregulation of ATGL in the Model of Cachectic Rats

Shrishiv Avanti Timballa, 17, Senior, Louisiana School for Math Science and the Arts, Natchitoches, Louisiana, T: Shelly F. Hynes

EE001 The Beetle Bot

Kelsi Lynn Berry, 16, Junior, Leesville High School, Leesville, Louisiana, T: Donell Evans

Baton Rouge, USLA50, Louisiana Science and Engineering Fair

BE031 The Relationship between Participating in Music Lessons and a Student's Achievement in Math

Marianne Virginia Konikoff, 15, Freshman, St. Joseph's Academy, Baton Rouge, Louisiana, T: Linda Messina

BI303T Evaluation of Fusarochromanone 101a: A Novel Fungus-Derived Anti-Cancer Drug

Yoon Jee Kim, 17, Senior; Daniel Christopher Felty, 18, Senior Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Purdy Clements

EA012 Comparing Kepler's 3rd Law to the Curvature of a Trampoline

Melissa Anne Guarisco, 16, Sophomore, St. Joseph's Academy, Baton Rouge, Louisiana, T: Linda Kerr Messina

MI032 Epstein-Barr Virus-Induced Alterations to Cellular Chromatin: A Potential Mechanism for Hit and Run Oncogenesis

Ethan Traveny Skaggs, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Purdy Clements

Baton Rouge, USLA01, Louisiana Region VII-Science and Engineering Fair

BE002 Determining the Effect of Distractions Behind the Wheel on Teenagers through the Use of Driving Simulation

Callie Marie Johnson, 15, Sophomore, St. Joseph's Academy, Baton Rouge, Louisiana, T: Linda Messina

EM003 Developing Alternative Borrow Capping Treatments for Reinforcing Mississippi Embankments via Dredging, Year Two

Alaina Brooke Leggette, 17, Senior, St. Joseph's Academy, Baton Rouge, Louisiana, T: Linda Messina

Bossier City, USLA02, Bossier Parish Community College Louisiana Region I Science and Engineering Fair

BI008 ICAM-1 Cytoplasmic Tail Regulation of Endothelial Cell Activation in Type I Diabetes

Shiqi Joy Shan, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Purdy Clements

CB005 The Heart of Drug Repositioning: Translating a Cardiovascular Drug to a Novel Anti-Cancer Therapeutic

James Anthony Young, 18, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Kris Clements

Hammond, USLA10, Louisiana Region VIII Science Fair

ME059 Going Against the Grain: Cytogenetic Analysis

John Albert Villarrubia, 16, Junior, Saint Paul's School, Covington, Louisiana, T: John Carambat

Houma, USLA03, Terrebonne Parish Science Fair

CH013 Biodiesel: Fueling the Future

Garrett Michael Thibodeaux, 16, Junior, Terrebonne High School, Houma, Louisiana, T: Adrianna Marie Dupre

EM020 The Battle between Sand and Wind: Which Fence Makes a Difference?

Sarah Louise Simoneaux, 14, Freshman, South Terrebonne High School, Bourg, Louisiana, T: Angela West

Lafayette, USLA04, Louisiana Region VI Science and Engineering Fair

AS009 Birds Eye View: Development of a Method to Determine Gender in Green Cheek Conures

Alexandra Kaye Badeaux, 16, Sophomore, Catholic High School New Iberia, New Iberia, Louisiana, T: Juliette Cherry

EM311T A Quantitative Study of Marine Bacteria of Dispersed and Undispersed Crude Oil and Potential for Enhancement of Biodegradation

Rithika Marumagan Thirumal, 17, Junior; Samantha Leigh Biddick, 17, Senior
Ovey Comeaux High School, Lafayette, Louisiana, T: Lisa B. Ranney

Lake Charles, USLA05, Louisiana Region V Science and Engineering Fair

CS014 Home Sweet 127.0.0.1

Austin Alexander Peavy, 17, Senior, Alfred M. Barbe High School,
Lake Charles, Louisiana, T: Judith Andrea Reeves

EN010 Analysis of Parallel versus Reciprocal Handle Orientation on a Handcycle

Wilson Jennings Brown, 14, Freshman, DeRidder High School, DeRidder, Louisiana,
T: Heidi Baine

New Orleans, USLA08, Greater New Orleans Science and Engineering Fair

ET052 Record Number of Light Absorption Enhancement Improving Performance of Solar Cells by Straining Si

Kinga J. Malkinska, 15, Sophomore, Benjamin Franklin High School, New Orleans,
Louisiana, T: Clare Davis-Wheeler

ET063 Lightning in a Bottle, Phase 1

Caleb George Gestes, 17, Junior, John Curtis Christian School, River Ridge,
Louisiana, T: Cathy Boucvault

St. James Parish, USLA06, St. James Parish Science Fair

PS301T When Sugar Isn't So Sweet: A Study Comparing Incineration Methods of Saccharum officinarum Foliage on the Decomposition of Pesticidal/Herbicidal Chemicals

Brianna Leilani Bourgeois, 18, Senior; # Katie Ann Chiasson, 17, Senior
Lutcher High School, Lutcher, Louisiana, T: Kermit Gauthreaux
Saint James High School, St. James, Louisiana

MARYLAND

Baltimore, USMD07, Morgan State University Science-Mathematics-Engineering Fair

MI062 Go Green

Alexis Diamond Kennedy, 16, Sophomore, Paul Laurence Dunbar High School,
Baltimore, Maryland, T: Mamie M Green

PH060 Super Sawdust: You Warm Up My Life!

Tricia Mae Diras Fortuna, 15, Sophomore, Maritime Industries Academy, Baltimore,
Maryland, T: Criselda Belarmino

College Park, USMD03, ScienceMontgomery-I

CB014 Schizophrenia Susceptible Gene KCNH2 Regulates Synaptogenesis in the Central Nervous System

Grace Yuan Zhang, 17, Senior, Poolesville High School, Poolesville, Maryland, T:
Teresa Mallow

EA013 Earth's Magnetosphere as a Complex Network

Julia Rose Kahn Cline, 17, Senior, Walt Whitman High School, Bethesda, Maryland,
T: Melanie Hudock

EE042 Development of a Scalable Software Architecture for the Efficient Production of Interactive and Responsive Robotic Behavior

Austin Wendell Duff, 17, Senior, Gaithersburg High School, Gaithersburg, Maryland,
T: Kurt H Richter

PH025 New Mathematical Model for Holography: No Lasers!

Daniel Nathan Liss, 16, Junior, Charles E. Smith Jewish Day School, Rockville,
Maryland, T: David Fink

Glen Burnie, USMD01, Anne Arundel County Regional Science and Engineering Fair

CS007 Analyzing the Fuel Consumption and Environmental Effectiveness of Adding Lanes to Roads and Highways: Examination via Computer Simulation

Gregory Shika Bekher, 15, Freshman, Chesapeake Science Point Public Charter
School, Hanover, Maryland, T: Kayla Shandra

EM008 Electrochemical Remediation of Acid Mine Drainage: A Dynamic Study

Luke Steven Andraka, 16, Sophomore, North County High School, Glen Burnie,
Maryland, T: Reed Cooper

LaPlata, USMD04, Charles County Science Fair

ME024 Determine the Relationship between the Insulin-Like Growth Factor (IGF-1) Signaling Cascade and that of the Classical Insulin Receptor (IR) in the Mouse Kidney

Tiana Melvina Woods, 16, Junior, North Point High School for Science, Technology and Industry, Waldorf, Maryland, T: Michelle Craig

PH008 Stratosphere - Ionosphere Coupling: The Effects of Sudden Stratospheric Warming on the Ionosphere

Cayley Erin Dymond, 15, Junior, North Point High School for Science, Technology, and Industry, Waldorf, Maryland, T: Thomas Lilly

Largo, USMD05, Prince George's Area Science Fair

CH307T No More Cryin' Over Onions! A Comparison Between Conventional vs. Organic Onions and the Distribution of Phenolics in Onions

Kulsoom Fatima Naqvi, 17, Senior; Zurana Alam Taluckder, 17, Senior
Eleanor Roosevelt High School, Greenbelt, Maryland, T: Alexis Donoghue

EM037 To Clay or Not to Clay? Management of Algal Growth through Clay and Chitosan Flocculation

Shefali Prashant Shah, 17, Senior, Great Mills High School, Great Mills, Maryland, T: Rhonda Morgan

EN029 Critical Point of View: A System for in vivo Monitoring of Lung Sounds in Critical Care Patients

Kelles Diane Gordge, 16, Junior, Great Mills High School, Great Mills, Maryland, T: Rhonda L. Morgan

PH034 Making Waves: Water Depth vs. Wave Speed

Christopher Francis Chornay, 15, Sophomore, Eleanor Roosevelt High School, Greenbelt, Maryland, T: Robert D. Jones

Towson, USMD06, Baltimore Science Fair

CS050 Faster, Cheaper Subject Identification Using Non-semantic Context Free Grammars

Michael Antonov Tontchev, 16, Junior, Baltimore Polytechnic Institute, Baltimore, Maryland, T: David Nelson

ME072 The Effects of Neuronal Injury: Survival, Retraction, or Wallerian Degeneration?

Jai Nitish Thakor, 15, Sophomore, River Hill High School, Clarksville, Maryland, T: Barbara Jewett

Walkersville, USMD02, Frederick County Science and Engineering Fair

AS035 Butterfly Learning: Can Monarchs (*Danaus plexippus*) Be Trained to Recognize Shapes and Colors?

Laura Cecilia Rosenwald, 17, Senior, Urbana High School, Ijamsville, Maryland, T: Suzanne Dashiell-Elder

PS021 Measured Voltages Produced by Trees: A Comparative Study among Twelve Species

Todd Michael Seiss, 17, Senior, Catoctin High School, Thurmont, Maryland, T: Lisa Bruck

MASSACHUSETTS

Boston, USMA06, Massachusetts Region VI Science Fair

CB020 Strain-Dependent Expression of the Mast Cell-Restricted Trypsase m MCP-7: Implications for Innate Immunity, Acquired Immunity, Inflammation, and Blood Coagulation

Dominick Zheng, 16, Junior, Boston Latin School, Boston, Massachusetts, T: Kathleen Anne Bateman

Bridgewater, USMA01, Massachusetts Region V Science Fair

CH020 A Comparative Analysis of the Calcium and Magnesium Contents of Varying Ages of Compost

Nicholas Dean Burt, 15, Freshman, North Quincy High School, Quincy, Massachusetts, T: Seth Connors

- EA024 Using Paleotemperature to Search for the Effects of El Nino Southern Oscillation in the Red Sea Based on a Temperature Model Derived from the Sr/Ca Ratio in Coral**
Ryan Shockey Davis, 16, Sophomore, Falmouth Academy, Falmouth, Massachusetts, T: Alison Amet
- ME063 In silico Exploration of Aberrant Methylation**
Achutha Narayana Raman, 17, Senior, Dover-Sherborn Regional High School, Dover, Massachusetts, T: Greg Tucker
Cambridge, USMA50, Massachusetts State Science & Engineering Fair
- BE036 Regulation of Life Span Extension and Varied Muscle Behavior from the Intake of 2-Propylpentanoic Acid through the Dietary Control of *Caenorhabditis elegans***
Eugene Kim, 15, Sophomore, Lexington High School, Lexington, Massachusetts, T: Ceanne Tzimopoulos
- CS031 Tornado App**
Harihar Ganeshan Subramanyam, 17, Junior, Wachusett Regional High School, Holden, Massachusetts, T: Carol Sullivan
- EM028 Dependence of Leaf Litter Decomposition and CO₂ Release on Tree Species and Temperature**
Vincent Huang Lin, 16, Sophomore, Falmouth High School, Falmouth, Massachusetts, T: Christine Brothers
- EM320T The Effectiveness of and Ideal Conditions for Phytoremediation of Heavy Metals**
Addie Ray Anne Fleron, 17, Junior; Bridget Eileen Lewis, 16, Junior Westfield High School, Westfield, Massachusetts, T: Renee Coombs Sweeney
- MA025 Fractals, Hausdorff Dimension, and Diagnosis of Cancer**
Daniel David White, 15, Sophomore, Somerset High School, Somerset, Massachusetts, T: Matthew Croft
- ME058 Is Identifying Autism in YouTube Videos Possible?**
George Jefferson Lok, 16, Junior, Boston Latin School, Boston, Massachusetts, T: Kathleen Bateman
Fall River, USMA03, Massachusetts Region III Science Fair
- EN033 Enhancing Algae Cultivation Using an Innovative Photobioreactor**
Aheli Chattopadhyay, 16, Sophomore, Foxborough High School, Foxboro, Massachusetts, T: Paul Charpentier
- MI042 Truth to the 5-Second Rule**
Nicole Marie Steiner, 14, Freshman, Bishop Feehan High School, Attleboro, Massachusetts, T: Audrey Lavertu
North Adams, USMA04, Massachusetts Region I Science Fair
- BI021 Food Dyes**
Victoria Thanh Nhan, 17, Senior, Taconic High School, Pittsfield, Massachusetts, T: Kristen C. Pearson
Somerville, USMA02, Massachusetts Region IV Science Fair
- BI016 A Quest for a Stronger Homemade Bioplastic: The Effect of Natural Additives on the Tensile Strength of Homemade Bioplastics**
Erica Budina, 15, Freshman, Medford High School, Medford, Massachusetts, T: Jennifer Ensign
Worcester, USMA05, Massachusetts Region II State Science Fair
- CB019 The Effect of Vincristine on Transposon Mobilization-Induced Mutation Rates and Small RNA Mediated Transposon Silencing during *Caenorhabditis elegans* Spermatogenesis**
Smita Shukla, 18, Senior, Massachusetts Academy of Mathematics and Science at WPI, Worcester, Massachusetts, T: Judith Sumner
- CS036 Virtual Private Network Using Peer-to-Peer Techniques**
Daniel Kasza, 18, Junior, Massachusetts Academy of Math and Science, Worcester, Massachusetts, T: Karen Lang
- EE050 Ornithopter Design: Optimizing Turning Radius**
Kristin Anne Goehl, 17, Junior, Wachusett Regional High School, Holden, Massachusetts, T: Carol Sullivan

MI043 Nipping Nephritis in the Bud
 Rahi Dilip Punjabi, 14, Freshman, Advanced Math and Science Academy Charter School, Marlborough, Massachusetts, T: Richard M. Dineen

MICHIGAN

Ann Arbor, USMI01, Southeast Michigan Science Fair

BI050 Effects of Fatty Acids on Skeletal Muscle Proliferation and Development
 Anji Li, 16, Junior, Pioneer High School, Ann Arbor, Michigan, T: Angela Subauste
Big Rapids, USMI06, Mecosta-Osceola Science and Engineering Fair

PS017 Tiny Allies: The Effect of Coprophilous Beetles on Brassica rapa and Lolium perenne Growth and Biomass

Rachel Joy Rounds, 15, Freshman, MOISD Math Science Technology Center in conjunction with Evert High School, Big Rapids, Michigan, T: Laura Joyce Forbes
Detroit, USMI02, Science and Engineering Fair of Metropolitan Detroit

CS025 Catastrophic Disaster Response and Recovery Logistics System Simulation (C-DRRLSS)

Rohan Arepally, 17, Senior, Stoney Creek High School, Rochester Hills, Michigan, T: David Thomson

CS026 Optical Music Recognition of Printed Music Score

Hyunjoon Song, 16, Sophomore, Novi High School, Novi, Michigan, T: James Didio

EE036 Solar Panel Efficiency: A More Colorful Future

Samantha Paige Myers, 15, Sophomore, Divine Child High School, Dearborn, Michigan, T: Katherine Ellen Higgins-Luthman

MA017 Linearly Many Faults in (n,k) -star Graphs

Allen Yuan, 17, Senior, Detroit Country Day School, Beverly Hills, Michigan, T: Ross Arseneau

MA018 Converging Logarithmic Spirals on the Complex Plane

Goutham Kapa, 17, Senior, Troy High School, Troy, Michigan, T: Rebecca Brewer

ME048 Erythrocyte Dysfunction and Amelioration in Hypercholesterolemic Conditions

Siddhartha Gautama Jena, 17, Junior, International Academy, Bloomfield Hills, Michigan, T: Megan Phillips

ME307T MEG Study of the Default-mode Network in Patients with Schizophrenia

Lawrence Kim, 15, Sophomore; Xiao Zhu, 17, Senior
 Troy High School, Troy, Michigan, T: Rebecca Brewer

Flint, USMI50, Michigan Science and Engineering Fair

AS056 Glial Contributions to Circadian Timekeeping in the *Drosophila* Brain

Chengzhen Li Dai, 17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Eugene Wesley Menton

PH045 Detection of Radioactive Isotopes in the Radon Decay Chain Using a Homemade Ion Chamber

Lois Therese Gagnon, 16, Junior, Gagnon Family Homeschool, Goodrich, Michigan, T: Thomas Jeremiah Gagnon

Flint, USMI03, Flint Area Science Fair

CB004 Identifying Novel Mechanisms of Cytochrome-P450 2E1 Regulation

Nithin Reddy Tumma, 17, Junior, Port Huron Northern High School, Port Huron, Michigan, T: Anna Jamison

MA002 Reformulating the Newton Direction Computation as a Linear Least Squares Problem for Smoothed Overdetermined L1 Functionals

Matthew Russel Bauerle, 16, Junior, Bauerle Homeschool, Fenton, Michigan, T: Mark A. Wicks

Kalamazoo, USMI07, Southwest Michigan Science & Engineering Fair

EN307T Switchgrass: A Source of Biofuels and Value-Added Byproducts

Lauren Marie Raycraft, 17, Senior; # Mallory Ruth Busso, 17, Senior
 Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: John Goudie

- PS019 Characterization of the Symbiotic Relationship between Sinorhizobium meliloti and Alfalfa Plants**
Fatima Nadeem Mirza, 17, Senior, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: John Goudie
Saginaw, USM104, Saginaw County Science and Engineering Fair
- EN047 On Shaky Ground: A Study of Structural Strength During Earthquake Simulations**
Jose J. Gomez, 18, Senior, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: John Barnes
- EV017 An Alternative Pathway for Waste Streams: Optimization of the Synthesis of Biochar—an Evaluation of Its Soil Amending Capabilities and Biofuel Feasibility**
- #** Andrea Aleah Pugh, 16, Junior, Saginaw High School/ Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: John Barnes

MINNESOTA

- Bemidji, USMN01, Northern Minnesota Regional Science Fair*
- EN007 The Development of Eco-Friendly Landscaping Pavers Using Incinerator Ash**
Leandra Marie Craigmile, 15, Sophomore, Lincoln High School, Thief River Falls, Minnesota, T: Cheryl Marie Winkler-Miller
Duluth, USMN02, Northeast Minnesota Regional Science Fair
- CS302T The Application of C++ as a Method for the Synthesis of a Superior Encryption Program**
William Marcus Bauer, 17, Junior; Christian LeRoy Wood, 17, Junior
Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
- EA003 Mapping the Geology of Mars: The Use of the Themis Thermal Inertia Imaging Index to Inform Future Exploration and Sampling Sites**
Chelsea Destiny Derrick, 16, Sophomore, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
- EA004 The Coronae Paradox: The Use of Visual Basic to Determine Circular Low Formation Based upon Maps Created Using Magellan Radar Data in order to Determine the Process(es) of Coronae Formation and the Overall Geologic History of Circular Lows on Venus, Phase IV**
Courtney Catherine Jackson, 18, Senior, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
- ET011 The Effect of Texture on Aerodynamic Drag, Phase II**
Trevor Brian Neff, 18, Senior, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh
Mankato, USMN03, South Central/Southwest Minnesota Regional Science and Engineering Fair
- ET027 Solar Energy for All: Low-Cost Residential Concentrator Photovoltaic System Design**
Yinshuo Zhang, 16, Junior, Mankato West High School, Mankato, Minnesota, T: Eric John Koser
- ET302T An Investigation of Rotor Blade Designs for Wind Turbines**
Erica Marie Brunson, 17, Senior; Jai Kumar, 18, Senior
Mankato West High School, Mankato, Minnesota, T: Eric John Koser
- EV014 The Affect of Oscillatoria of Aquatic Invertebrates**
Riley Patrick Buley, 17, Senior, Loyola Catholic School, Mankato, Minnesota, T: Susan Mary Goebel
- MI016 Isolation and Identification of Bovine Respiratory Corona Virus from a Dairy Herd**
Elijah Lloyd Welu, 14, Freshman, Marshall High School, Marshall, Minnesota, T: Paul Lanoue
- MI017 Double Dipping: Chips and Dips**
Emily Theresa Wood, 14, Sophomore, Minnesota New Country School, Henderson, Minnesota, T: Nichole Kotasek
- MI065 Do Different Concentrations of Bleach Affect the Resistance of *E. coli*?**
Kathryn Elise Morris, 16, Sophomore, New Prague High School, New Prague, Minnesota, T: Jodi Prchal

- PH014 The Aurora Accelerator**
Nicholas James Nothom, 16, Junior, Waconia High School, Waconia, Minnesota,
T: Michael Thomas Hamann
- PS015 Reduction of Fertilizer Rates by Carbon Sequestration of Biochar**
Rena Dorothy Weis, 16, Sophomore, New Prague Senior High School, New Prague,
Minnesota, T: Jodi Prchal
- Minneapolis, USMN04, Twin Cities Regional Science Fair*
- EE004 Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry**
Martin Bradley Anderson, 18, Senior, Burnsville Senior High School, Burnsville,
Minnesota, T: Jennifer Hugstad-Vaa
- ET004 Power Up!: Experimental Design and Mathematical Optimization of a Dual Rotor Wind Turbine**
Andrew Samuel Ylitalo, 15, Sophomore, Stillwater Area High School, Stillwater,
Minnesota, T: Dianne Lawson
- MI003 Effects of Benzoyl Peroxide and Salicylic Acid on *E. coli* and *S. epidermis***
Redeat Fisseha Abegaz, 15, Sophomore, Burnsville Senior High School, Burnsville,
Minnesota, T: Jenny Hugstad-Vaa
- Minneapolis, USMN09, St. Paul Science Fair*
- PH003 Engineering a Working Model of the Casimir Effect: Modeling the Casimir Effect**
Alysia Renea Flores, 17, Senior, John A. Johnson Senior High School, St. Paul,
Minnesota, T: Tyler Fitzel
- Minneapolis, USMN10, Western Suburbs Science Fair*
- CH004 Synthesis and Purification of Novel Indene Derivatives for Use in Organic Solar Cells**
Ernst Thomas Erdmann, 17, Senior, Breck School, Minneapolis, Minnesota,
T: Lois Fruen
- ET005 The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production**
- # Gavin Grant Ovsak, 16, Senior, Eden Prairie High School, Eden Prairie, Minnesota,
T: Princesa VanBuren Hansen
- Minneapolis South, USMN50, Minnesota Academy of Science State Fair*
- CB013 CD24 Induced Muscular Regeneration: Unraveling the Mystery behind Satellite Cell Differentiation**
Evan M Chen, 17, Junior, Wayzata High School, Plymouth, Minnesota,
T: Princesa VanBuren Hansen
- EE041 Brain Computer Interface**
- # David Alexandre Joseph Campeau, 15, Sophomore, Mayo High School, Rochester,
Minnesota, T: Dan Devine
- ME053 Silver Nanoparticles Affect Cell Messenger Delivery**
Anushua Bhattacharya, 16, Junior, East Ridge High School, Woodbury, Minnesota,
T: Sara Love
- ME060 Testing the Correlation between B7-H1 and PTEN Signal Expression in Kidney Cancer Cells**
Michael Charles Zaiken, 17, Senior, Century High School, Rochester, Minnesota,
T: Cheryl Moertel
- Moorhead, USMN05, Western Minnesota Regional Science Fair*
- BI013 An Investigation of Flavonoid Extraction from Sugar Beets and Soybeans on Non-Small Lung Cancer**
Candace Dayle Rastedt, 17, Junior, Perham High School, Perham, Minnesota,
T: Shawn A. Stafki
- Rochester, USMN07, Rochester Regional Science Fair*
- EM305T The Effects of Micro-algae Characteristics on the Bioremediation Rate of Deepwater Horizon Crude Oil**
Xiuqi Cao, 16, Sophomore; Ying Xiong, 15, Sophomore
Century High School, Rochester, Minnesota, T: Jan Lund

MA001 Developing Analytical Approaches to Forecast Wind Farm Production, Phase II

Kate Alexandra Geschwind, 16, Sophomore, Mayo High School, Rochester, Minnesota, T: Armando Manduca

ME002 Theiler's Murine Encephalomyelitis Virus (TMEV) Based Model for Epilepsy
Riya Madan, 16, Junior, Century High School, Rochester, Minnesota, T: Roger Larsen

Saint Cloud, USMN08, David F. Grether Central Minnesota Regional Science Fair and Research Paper Program

BE012 A Clinical and Epidemiological Approach to the Relationship between Attention Deficit Hyperactivity Disorder (ADHD) and Sleep/Wake Disorders

Travis Coleman Sigafoos, 17, Junior, Champlin Park High School, Champlin, Minnesota, T: Kevin Girard Molohon

ME016 The Use of Zebrafish (*Danio rerio*) as a Biological Model for Studying Drug-induced Cardiac Arrhythmias in Humans

Avinash Keshava Persaud, 17, Junior, Champlin Park High School, Champlin, Minnesota, T: Kevin Molohon

Winona, USMN06, Southeast Minnesota Regional Science Fair

ME008 CNS Binding Human Monoclonal Autoantibodies Do Not Exacerbate Clinical Symptoms in a Mouse Model of Multiple Sclerosis

Spencer Kelly Gladis, 18, Senior, Chatfield High School, Chatfield, Minnesota, T: Nora Mary Gathje

MISSISSIPPI

Greenville, USMS03, Mississippi Region III Science and Engineering Fair

AS003 "Slow Your Roll"/Got Sleep?: The Behavioral and Physiological Effects of Synthetic Sleeping and Energy Aids

Candace Elizabeth Wheeler, 14, Freshman, Greenwood High School, Greenwood, Mississippi, T: Gwendolyn Jyles

AS303T The Production Characteristics of Male and Female Freshwater Prawns Grown in the Mississippi Delta

Kevin Charles Wise, 15, Freshman; Eric Lyndon Gardiner, 15, Freshman Saint Joseph High School, Greenville, Mississippi, T: Melissa Hughes Blackstock

Hattiesburg, USMS04, University of Southern Mississippi Region I Science and Engineering Fair

AS001 Effects of Resveratrol on Weight Gain, Feed Conversion, and Litter Composition of *Gallus gallus* Chicks

Wendell Shane Riels, 18, Senior, Seminary Attendance Center, Seminary, Mississippi, T: Cherie Humphrey

ME012 Testing the Toxicity of AH3 [VO(sal-L-trypt) (N-Ethhymethohcarbthio)] on *Drosophila melanogaster*

Melinda Kari Solomon, 18, Senior, Oak Grove High School, Hattiesburg, Mississippi, T: Teresa Sappington

Jackson, USMS05, Mississippi Region II Science and Engineering Fair

BE038 Mental Health Effects of the BP Oil Spill and Hurricane Katrina on Mississippi Gulf Coast Youth

Pooja Goel, 17, Junior, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Wendy White

ME073 Epigenetic Regulation of the Serotonergic System during Neuronal Cell Differentiation

Dominique Rachelle Benson, 17, Senior, Murrah High School, Jackson, Mississippi, T: Jeff Stokes

MI306T Antibacterial Activity of Synthetic Fire Ant Venom: Dehydrosolenopsin B

Sharolyn Shanae Slater, 18, Senior; Hugh Ansum Warren, 17, Junior Madison Central High School, Madison, Mississippi, T: Karen S Evans

PS307T A Spatial and Temporal Analysis of Phytoplankton Assemblages in Central Mississippi

Ria Palak Goel, 15, Sophomore; Vineet Aggarwal, 16, Sophomore Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Sandra Hindsman, T: Michael Sullivan

Mississippi State, USMS06, Mississippi Region V Science and Engineering Fair

BI048 To Digest or Not to Digest?

Karien NaKawn Dixon, 16, Sophomore, Noxubee County High School, Macon, Mississippi, T: Lillie Bryant

ME098 Development of a Novel Model for Assessing Biomechanical Properties and Failure Mechanisms of Various Suture Techniques: Implications for Wound Dehiscence

Arslan Arshad, 17, Senior, The Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Janet Wise

Oxford, USMS07, Mississippi Region VII Science and Engineering Fair

BI045 Optimization of Bovine CD1b3 3D Structure: Exploring a Lipid Antigen-Binding Complement Glycoprotein for Potential Malarial Intervention

Rosalie Shinwei Doerkens, 15, Sophomore, Oxford High School, Oxford, Mississippi, T: Marni Herrington

EA026 Nonlinear Parametric Modeling of Hurricane Landfall Decay

Taide Ding, 16, Sophomore, Oxford High School, Oxford, Mississippi, T: Marni Herrington

Starkville, USMS50, Mississippi Science and Engineering State Fair

CH038 Species Specific Acetylcholinesterase Inhibitors as Insecticides, Year Two

Samantha Sapumalee Nanayakkara, 17, Senior, Mississippi School for Mathematics and Science, Columbus, Mississippi, T: Janet Wise

EN045 A Novel Fiber Optic Sensor for the Detection of Diabetes in Poor Countries

Charlotte Wang, 17, Junior, The Mississippi School for Mathematics & Science, Columbus, Mississippi, T: Janet Wise

MISSOURI

Cape Girardeau, USM001, Southeast Missouri Regional Science Fair

BI006 Energy of the Not So Distant Future

Victoria E Willcut, 17, Junior, Puxico R-8 High School, Puxico, Missouri, T: Tiska Rodgers

CH026 Can Homemade Biofuel Compare to E-85?

Elizabeth Nicolle Koehler, 17, Junior, Saxony Lutheran High School, Jackson, Missouri, T: Verlin Gene Mangels

Fayette, USM010, Three Rivers Regional Science and Engineering Fair

BE058 Bach vs. Mozart

Merzaydee McCall Moore, 18, Senior, La Plata R-II High School, La Plata, Missouri, T: Mary Margaret Feldkamp

Hillsboro, USM009, Mastodon Art/Science Regional Fair

EE043 Re-purposing of Electronic Parts to Build a Wind Turbine

Samantha Jaye Selby, 17, Junior, Saint Clair High School, St. Clair, Missouri, T: Ben Martin

EV018 Porous Asphalt versus Conventional Asphalt

Devyn Alexandria Yates, 15, Freshman, Seckman Senior High School, Imperial, Missouri, T: Kelly Steinbrueck

Jefferson City, USM002, Lincoln University Regional Science Fair

AS043 Forensic Entomology: Using Insects from the Genus *Sarcophaga* for Cost Effective and Efficient Cadaver Detection

Bailee Lynn Slack, 18, Senior, Camdenton High School, Camdenton, Missouri, T: Chris Reeves

EN034 Developing a Thermo/Hydrochromic Roadway Paint Application to Increase Driver Awareness during Hazardous Conditions

Nicholas Michael Huey, 18, Senior, Camdenton High School, Camdenton, Missouri, T: Christopher Reeves

Joplin, USM003, Missouri Southern Regional Science Fair

EE052 The Sand Plotter: Merging Engineering and Art

Michelle Diane Barchak, 17, Junior, Joplin High School, Joplin, Missouri, T: Andy Ritter

EE068 Climbing Robots

Ashley Micheala Painter, 17, Junior, Homeschool, Verona, Missouri, T: Peggy Painter

Kansas City, USM004, Greater Kansas City Science and Engineering Fair

ET055 Hydrolize: Kinetics of the Hydrogen Production of the Magnesium-Water Reaction in Aqueous Solution

Tyler Trettel Howard, 17, Senior, Olathe Northwest High School, Olathe, Kansas,
T: Matt Peterie

ME070 Modeling of Human Non-Deletional Hereditary Persistence of Fetal Hemoglobin (HPFH) Conditions in Beta-Globin Locus Transgenic Mouse Models: The -175 (T to C) and -195 (C to G) A Gamma-Globin Gene Point Mutations

Prarthana Jignesh Dalal, 17, Senior, Shawnee Mission East High School, Prairie Village, Kansas, T: Cole Ogdon

Saint Joseph, USM006, Mid-America Regional Science and Engineering Fair

AS011 The Effect of Erythromycin on the Embryonic Development of Zebrafish

Kody Michelle Nelson, 17, Senior, Central High School, Saint Joseph, Missouri,
T: Jay Lee Meyers

MI015 Isolation of Polyethylene and Polystyrene Degrading Bacteria

Jason Yuan, 15, Sophomore, Central High School, St. Joseph, Missouri,
T: Jay Lee Meyers

Springfield, USM008, Ozarks Science and Engineering Fair

EE062 Taking the Heat Off

Chase Evan Herman, 15, Freshman, Nixa High School, Nixa, Missouri,
T: Christina Elizabeth Shepherd

ME074 The Effects of Helical Modification on Simulated ACL Grafts

Caroline Kaye Clothiaux, 17, Junior, Greenwood Laboratory School, Springfield, Missouri, T: Todd Allen Van Gorden

PS027 Molecular Identification of Dagger Nematodes from Agricultural Soils

Alice Yung-Mei Hwang, 17, Senior, Greenwood Laboratory School, Springfield, Missouri, T: Todd Van Gorden

St. Louis, USM007, Academy of Science—Greater St. Louis Science Fair

AS010 The Urogenital System of Male Rhyacotritonidae: An Anatomical and Phylogenetic Study

Emily Rachel Wilson, 17, Junior, Parkway Central High School, Chesterfield, Missouri, T: Adam Bergeron

ET023 Role of PLCa and Myba in Oil Accumulation and PLCa in Response to NaCl Stress in *Camelina sativa*

Elise Genevieve Viox, 17, Senior, Cor Jesu Academy, St. Louis, Missouri,
T: Dr. Bill Joern

St. Peters, USM005, Missouri Tri-County Regional Science and Engineering Fair

PS006 Identification of the Source of Indeterminate DNA in Fluorescence Assays of Sterile Seed Corn (*Zea mays*)

Kaitlin Elizabeth Larkin, 17, Senior, Wentzville Holt High School, Wentzville, Missouri, T: Jennifer Michelle Berendzen

MONTANA

Billings, USMT01, Billings Clinic Research Center Science Expo

CB022 Effects of Bloodroot on *Candida albicans* Morphology and Growth

Daniel Walter Beierwaltes, 16, Junior, Billings Central Catholic High School, Billings, Montana, T: Debora Wines

Butte, USMT02, Montana Tech Regional Science and Engineering Fair

AS039 Stress Relevance Affecting Female Productivity Traits in Swine

Neela Ann Andres, 15, Freshman, Big Sky High School, Missoula, Montana,
T: Brandon Thomas Honzel

BI026 The Investigation of the Biological Properties of the Ayurvedic Plant *Bacopa monnieri*

Michelle Deanna Nemetchek, 16, Junior, Big Sky High School, Missoula, Montana,
T: Brandon Thomas Honzel

ET304T A Comparison of Algae Growth in Waste Water versus Standard Bristol Media

Markie Collins Kindred, 18, Senior; Miranda Elizabeth Tornatore, 17, Freshman
Sentinel High School, Missoula, Montana, T: Brett Andrew Taylor

Great Falls, USMT04, Montana Region II Science and Engineering Fair

BE017 Study Jams

Whitney Ashton Clinger, 16, Sophomore, Cascade Public High School, Cascade, Montana, T: Ashley Cathryn McGrath

EM013 The Effect of Selected Plant Extracts on the Vitality of Termites

Mahkia Lynn Clark, 18, Senior, North Toole County High School, Sunburst, Montana, T: Amanda Joan Becker

MI303T An Investigation of the Anti-Microbial Properties of Selected Snake Venoms

Veronica Ardelle Gillund, 18, Senior; Scott Eldon Bye, 17, Junior
North Toole County High School, Sunburst, Montana, T: Amanda Joan Becker

Havre, USMT03, Hi-Line Regional Science and Engineering Fair—MSU-Northern

EV022 The Environmental Impact of Plastics in a Structural Material

Harold Blake Whitford, Jr., 17, Junior, Box Elder Public High School, Box Elder, Montana, T: Melanie Ann Schwarzbach

PS016 The Effects of Phthalates on *Brassica rapa*

Antonio Joseph Morsette, 16, Junior, Box Elder High School, Box Elder, Montana, T: Melanie Ann Schwarzbach

Missoula, USMT50, Montana Science Fair

EA021 Preliminary Geologic Study of the Yogo Dike Trend to Determine Potential for New Discoveries of Sapphire Bearing Dike

Katelyn Elizabeth Gibbs, 18, Senior, Great Falls High School, Great Falls, Montana, T: Matt Krahe

ET307T Impact of Commercial Additives on Fuel Properties of Camelina Biodiesel

Justin Allan Christofferson, 18, Senior; Ryan Anthony Paul, 18, Senior
Malta High School, Malta, Montana, T: Mardy J. Demarais

MI047 Investigating the Use of *Ustilago bullata* as a Biological Control Agent for *Bromus tectorum*: Is Genetic Variation Present within Various *Ustilago bullata* Populations on MPG Ranch?

Stacia Lynn Hill, 16, Sophomore, Big Sky High School, Missoula, Montana, T: Brandon Thomas Honzel

NEBRASKA

Franklin, USNE01, Central Nebraska Science and Engineering Fair

AS002 Arthrogryposis Multiplex, Phase Two

Bailey Lynne McKay, 15, Freshman, Franklin Public Schools, Franklin, Nebraska, T: Randall Lienemann

EN044 How Pop Bottle Concrete Is Affected by the Weather

Brandon Lee Herrick, 17, Senior, Franklin Public Schools, Franklin, Nebraska, T: Randall Gerald Lienemann

Nebraska City, USNE02, Greater Nebraska Science and Engineering Fair

EV037 Using Aquatic Plants to Remove Water Contaminants

Mikayla Lynn Messing, 18, Senior, Lakeview High School, Columbus, Nebraska, T: Edward Kinzer

ME094 Factors Affecting the Susceptibility of High School Students to Noise Induced Hearing Loss due to iPods

Karen Pei-Wen Cheng, 17, Senior, Millard North High School, Omaha, Nebraska, T: Angela Cramer

NEVADA

Elko, USNV01, Elko County Science Fair

EM026 Utilization of a Thermophilic Sulfate-Reducing Species for Bioremediation Purposes

Kirsten Perry, 17, Junior, Elko High School, Elko, Nevada, T: Brian Zeisler

ET037 Coupling a Solar Panel with Two PEM Fuel Cells to Power a Small Model Car during Periods of Sunshine and Non-Sunshine as an Alternative for the Gasoline Powered Combustion Engine

Ryan Linden Hatch, 18, Senior, Spring Creek High School, Spring Creek, Nevada, T: Bettie Smith Keetch

Las Vegas, USNV02, Southern Nevada Regional Science and Engineering Fair

AS055 Developmental and Behavioral Analysis of Wild and Captive-bred *Tenodera sinensis*

Cameron Michael Jones, 17, Senior, Northwest Career and Technical Academy, Las Vegas, Nevada, T: Carol Adamson

MI061 Microbial Explorations of a New Window into the Death Valley Deep Hydrological Flow System

Alexandra Elane Wheatley, 18, Freshman, Northwest Career and Technical Academy, Las Vegas, Nevada, T: Carol Adamson

Reno, USNV03, Western Nevada Regional Science and Engineering Fair

AS040 The Effects of Sodium Benzoate on *Drosophila melanogaster*

Claudia Nicole Dennler, 16, Junior, Pershing County High School, Lovelock, Nevada, T: Valdine McLean

AS041 The Effects of Cage Naturality on the Scientific Viability of Mouse Models in Relation to Stress and Cognition

Casey Jacob Acklin, 15, Senior, The Davidson Academy of Nevada, Reno, Nevada, T: Elizabeth Walenta

PH037 Countering Nuclear Terrorism: Novel Active and Passive Techniques for Detecting Nuclear Threats

Taylor Ramon Wilson, 16, Junior, The Davidson Academy of Nevada, Reno, Nevada, T: Elizabeth Walenta

NEW JERSEY

Jersey City, USNJ02, Hudson County Science Fair

AS038 Studying the Development of Bronchial Tissues Using Antibodies

Carolina Pelaez, 18, Senior, Union City High School—Academy for Enrichment and Advancement, Union City, New Jersey, T: Nadia Makar

PH038 Characterizing the Spectral and Flow Characteristics of Microhollow Cathode Discharges

Kamal Shah, 17, Senior, Dr. Ronald E. McNair Academic High School, Jersey City, New Jersey, T: Jeremy Stanton

Lawrenceville, USNJ03, Mercer Science and Engineering Fair

ME047 The Effects of Static Magnetic Fields (SMFs) on the Biomineralization of Osteoblasts

Hannah Ruihan Jin, 17, Senior, West Windsor - Plainsboro High School South, Princeton Junction, New Jersey, T: Brian Patterson

New Brunswick, USNJ01, North Jersey Regional Science Fair

CB303T Second Life: Novel and Interspecies Reprogramming of Induced Pluripotent Stem Cells

Won Ik Lee, 18, Senior; Hong Joon Park, 16, Junior
Academy for the Advancement of Science and Technology, Hackensack, New Jersey, T: Robert George Pergolizzi

EN021 Nanoscale Patterned Coating of PLLA for Use with Soft Tissue Implants

Joshua David Bocarsly, 18, Freshman, The Lawrenceville School, Lawrenceville, New Jersey, T: Gregory Hansen

MA019 On the Second Eigenvalue and Expansion of Bipartite Regular Graphs

Wenyu Cao, 18, Senior, Phillips Academy, Andover, Massachusetts, T: Rosalie Belanger-Rioux

MA020 Properties of Hawkins Primes

Aaron Lawrence Zweig, 14, Sophomore, Randolph High School, Randolph, New Jersey, T: David A Zweig

MI029 Identification of the Target of the Antibiotic Salinamide A

Katherine Yon Ebright, 17, Senior, North Brunswick Township High School, North Brunswick, New Jersey, T: Edward Trembly

NEW MEXICO

Albuquerque, USNM01, Central New Mexico Regional Science and Engineering Challenge

- EE032 Seebeck Radiators: The Potential of Peltier Coolers to Improve an Automotive System**
Nathaniel J. Miller, 17, Senior, Rio Grande Enrichment Studies, Albuquerque, New Mexico, T: Kenneth L. Miller

MA044 Excursions with Extension Fields

Katherine Leigh Cordwell, 15, Sophomore, Manzano High School, Albuquerque, New Mexico, T: Amanda Briggs

PH015 Characterizing the Effects of Asteroid Belt Perturbations on the Orbits of the Inner Planets

Nikita Michael Bogdanov, 17, Junior, Albuquerque Academy, Albuquerque, New Mexico, T: Jim Mims

Albuquerque, USA150, National American Indian Science and Engineering Fair

BI023 The Effect of Carbohydrate Composition (Sucrose/Hexose Ratio) of Nectar on the Type of Pollinators that Might Pollinate Two Species of *Brassicaceae* (*B. juncea* and *B. rapa*)?

Cassandra Lynn Roy, 16, Sophomore, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh

EE054 Surviving Climate Change—Heat Transfer in Ancient Native American Buildings: Comparison of Experimental and Calculated Results

Nicholas Conrad Rajen, 17, Senior, Eldorado High School, Albuquerque, New Mexico, T: Gaurav Rajen

EE055 Computer Model of Time-varying Heat Conduction in a Plate

Ivan Vikram Rajen, 15, Freshman, Eldorado High School, Albuquerque, New Mexico, T: Gaurav Rajen

EN037 Improving the Heat Capacity of Homemade Solar Ovens

Raquel Candace Redshirt, 16, Sophomore, Shiprock High School, Shiprock, New Mexico, T: Rachel Marie Mercer-Smith

EN308T Stopping Power!: The Use of Non-Newtonian Fluid and Recycled Paper and Plastic to Stop a Projectile and Possibly Be Used in a Bullet Proof Vest, Phase IV

Alec Joseph Lamirande, 16, Sophomore; Preston McCord Jackson, 16, Sophomore, Cloquet Senior High School, Cloquet, Minnesota, T: Cynthia Ann Welsh

ME065 The Effects of Capsaicin on Sensory Perception

Micah Joseph Hill, 16, Junior, South High School, Minneapolis, Minnesota, T: Cynthia Aletha Ward

Farmington, USNM02, San Juan New Mexico Regional Science and Engineering Fair

ET311T The Future of Water Purification: The Mediator-less Microbial Fuel Cell

Trevr Jay Fernald, 17, Junior; ## Matthew Joseph Detmer, 16, Junior, Piedra Vista High School, Farmington, New Mexico, T: Gail Silva

Grants, USNM03, Four Corners Regional Science and Engineering Fair

EV046 Atmospheric CO₂ Scrubbing: Engineering a Greener Tomorrow

Tyler Miguel Knapton, 17, Junior, Grants High School, Grants, New Mexico, T: Shelby Alexander

MA006 The Monty Hall Problem Probabilities—The Law of Large Numbers

Laura Marie Moore, 18, Senior, Gallup Catholic High School, Gallup, New Mexico, T: Christi Ann Laudolff

Las Cruces, USNM04, Southwestern New Mexico Regional Science and Engineering Fair

CS049 Engaging Elementary Special Education Students in Learning Mathematical Concepts through Multimodal Interaction Subjective Workload and Attention Level Analysis through a Brain Computer Interface

Noor Rejah Muhyi, 16, Junior, Las Cruces High School, Las Cruces, New Mexico, T: Shakir Manshad

EM011 Crushing Matters: Utilizing Landfill Waste Materials to Strengthen Concrete

Daniel Seguro Samora, 16, Sophomore, Alamogordo Senior High School, Alamogordo, New Mexico, T: Geraldine Ann Samora

Las Vegas, USNM05, Northeastern New Mexico Regional Science and Engineering Fair

EA007 Don't Let It Slide, V: The Final Frontier

Majdolene Ziad Khweis, 18, Senior, Taos High School, Taos, New Mexico,
T: Laura Julie Tenorio

EE025 Electromagnetic Detection of Aquifers

Alexander Kent Kendrick, 18, Senior, Los Alamos High School, Los Alamos,
New Mexico, T: Brian Kent Kendrick

Portales, USNM06, Southeastern New Mexico Regional Science and Engineering Fair

CH014 Blue or UV: Which Light Will Harm Vitamin B2? Can Vitamin C Beat Them Both?

Hellen Yun Chiou, 15, Sophomore, Carlsbad High School, Carlsbad, New Mexico,
T: Deborah Haggerton

EE059 Robotic Legs

Louis Garcia, 15, Sophomore, Carlsbad High School, Carlsbad, New Mexico,
T: Deborah K Haggerton

Socorro, USNM50, New Mexico Science and Engineering Fair

BE055 A Big Fat Deal, Phase II: Fat Talk, Body Satisfaction, and Perceptions of Media Images

L. Elisabeth Burton, 15, Freshman, Rio Rancho High School, Rio Rancho,
New Mexico, T: Laura Lynn Burton

EA022 Assessment of the Safety of Road Cuts along Diamond Drive, Los Alamos, New Mexico

Julia Grace Murphy, 16, Junior, Los Alamos High School, Los Alamos,
New Mexico, T: Dawn Brown

EE078 Water for the World: Developing a Portable, Solar Powered Desalination Unit

Ryan Christopher Erickson, 17, Senior, Los Alamos High School, Los Alamos,
New Mexico, T: Barbara Musgrave

EM049 Monitoring the Disturbance of Soil Micro-Ecosystems in Dormant Topsoil Using Nematodes and Studying the Methods to Rehabilitate Soil for Effective Site Restoration

Laura Bernadette Lane, 17, Senior, Aztec High School, Aztec, New Mexico,
T: Michael Kevin Lane

MI021 FIGHTING BACII, Phase IV: The Isolation of Anti-proliferative Phytochemicals from Cranberries to Eradicate Escherichia coli

Jordan Mark Grainger, 18, Senior, Rio Rancho High School, Rio Rancho,
New Mexico, T: Jennifer Miyashiro

PH061 Mathematically Modelling Capillary Rise

Ujwal Chadha, 16, Junior, Del Norte High School, Albuquerque, New Mexico,
T: Luis Ramos

NEW YORK

Long Island, USNY02, Long Island Science and Engineering Fair

AS025 A Novel Approach to the Analysis of Circadian Biology Using Scale Invariance of Multiple Coupled Oscillations

Daniel Jacobs Kramer, 17, Senior, Lynbrook Senior High School, Lynbrook, New York, T: David Shanker

AS026 Understanding the Evolutionary Trends of Basal Dinosauria with Respect to Body Mass Analyses

Brian Patrick Ralph, 17, Senior, Smithtown High School West, Smithtown,
New York, T: Joanne Figueiredo

BE028 Would You Do It for the Kids? Factors Involved in the Prediction of Intergenerational Preferences

Sarah Susie Pak, 17, Senior, Roslyn High School, Roslyn Heights, New York,
T: Allyson J. Weseley

BE029 Strategies Utilized by People with Autism and Neuro-Typical Individuals to Determine Emotion in Faces

Samantha Michelle Phillips, 18, Senior, William A. Shine Great Neck South High School, Great Neck, New York, T: Carol Hersh

- BI014 Computational Analysis of Specific Missense Mutations in the SMN Tudor Domain**
Dianna Hu, 18, Senior, Half Hollow Hills High School West, Dix Hills, New York, T: Michael Lake
- BI015 All-Atom Molecular Dynamics Simulations of Stapled p53/hDM2 Interactions: Modeling a Novel Cancer Therapeutic Agent**
Jan Gong, 18, Senior, Garden City High School, Garden City, New York, T: Steven Gordon
- CB011 Correcting Dysregulated Splicing of the KLF6 Gene in Pancreatic Cancer Using Modified Antisense Oligonucleotides**
Blake Edward Smith, 16, Junior, Oceanside High School, Oceanside, New York, T: Heather Hall
- CB012 The Effects of Indoleamine 2, 3-dioxygenase Expression on Tumor-Induced Immunosuppression**
Bilal Ahmed Siddiqui, 17, Junior, Wellington C. Mepham High School, Bellmore, New York, T: David Kommor
- CB304T Expression of a Schizophrenia-Associated V321L-Nrg1 Protein Reduces Nrg1-ICD Nuclear Translocation and alpha-7 nicotinic Acetylcholine Receptor Expression**
Savina Dine Kim, 16, Junior; Neil Mehta, 16, Junior
Commack High School, Commack, New York, T: Richard Kurtz
Jericho High School, Jericho, New York, T: Serena McCalla
- CH016 Polyfunctionalized Single-Walled Carbon Nanotubes as Novel Scaffolds for Multimodal Tumor-Targeted Therapy and Biological Imaging**
Neil Pathak, 18, Senior, Herricks Senior High School, New Hyde Park, New York, T: Renee Barcia
- CS027 The Design and Implementation of a Dialect of Scheme for Parallel Processing on the GPU**
Gregory Louis Manis, 18, Senior, John F. Kennedy High School, Bellmore, New York, T: Barbara Franklin
- EA011 Investigating Climate Change: A Comparative Analysis of Colonial and Modern Weather Data**
Marni Jordyn Wasserman, 18, Senior, Commack High School, Commack, New York, T: Richard Kurtz
- EE038 A Robotic Assistant for the Visually-Impaired (RAVI): A Novel System Employing Digital Image Processing and Sonar Range Detection**
Ishwarya Ananthabhotla, 17, Senior, Kings Park High School, Kings Park, New York, T: Mary Ellen Fay
- EM318T Enhancing Biofilters III: The Impact of Abscissic Acid on the Sequestration of Heavy Metals by *Euglena gracilis***
Jacqueline Bari Bokor, 18, Senior; ## Hannah Michele Berkowitz, 17, Senior
Long Beach High School, Lido Beach, New York, T: Veronica Ade
- EN023 Synthesis, Characterization, and Biological Evaluation of a Novel Biomaterial for Post-Lumpectomy Breast Reconstruction**
Shyam Venkateswaran, 17, Senior, Herricks Senior High School, New Hyde Park, New York, T: RenEe Barcia
- ET305T Manufacturing an Improved Polymer Photovoltaic Cell Using Graphene and Graphene Oxide**
Nathan Akhavan, 18, Senior; Benjamin Joseph Goldman, 17, Senior
Rambam Mesivta, Lawrence, New York, T: Rebecca Isseroff
- EV308T Allelopathy: A Potential Method for Invasive Plant Species Control**
Elan Heller, 17, Junior; Eric Michael Rubin, 17, Junior
Long Beach High School, Lido Beach, New York, T: Veronica Ade
- EV309T Mussels, a Natural Approach to Sewage Treatment: Evaluating *Geukensia demissa* as Biofilters of Local Bay Pollution**
Arianne Elizabeth Papa, 17, Junior; # Jane Elizabeth Smyth, 17, Junior
Long Beach High School, Lido Beach, New York, T: Veronica Ade

- MA021 The Mathematics of Breast Cancer: A Comparison of the Gompertz and Logistic Equations in Terms of Tumor Carrying Capacity**
Elise Victoria Meade, 17, Senior, Sanford H. Calhoun High School, Merrick, New York, T: Nick Pappas
- ME051 Characterization of Tyrphostin AG879 as a Novel Selective Modulator of Amyloid Precursor Protein Gamma-Secretase: Towards Safe Neuroprotective Therapy for Alzheimer's Disease**
Shaunak Krishan Bakshi, 17, Senior, Manhasset High School, Manhasset, New York, T: Peter Guastella
- ME308T 3-Dimensional Bio-imprinting of Proteins and Viruses**
Kelsey Skyler McKenna, 17, Senior; Alan Eyal Czemerinski, 18, Senior; Tom Jie Wang, 16, Junior
South Side High School, Rockville Centre, New York, T: Herbert Weiss
The Wheatley School, Old Westbury, New York, T: Paul Paino
- MI030 A Novel Approach to Mapping Protein Interactions during Pilus Biogenesis by Using *in vivo* Photocrosslinking**
Erica Brooke Portnoy, 17, Senior, Commack High School, Commack, New York, T: Richard Mark Kurtz
- PH307T Optimizing the Data Collection of the Proton Electric Dipole Moment Experiment**
Alina Ranjbaran, 16, Junior; Andrew Scott Rosen, 18, Senior
Garden City Senior High School, Garden City, New York, T: Steven Gordon
Half Hollow Hills High School West, Dix Hills, New York, T: Michael William Lake
- PS306T Investigation of a Novel Herbal Anti-Inflammatory Agent: *Liquidambar formosana* Hance Exudate, Bornyl Cinnamate**
Justine Li, 16, Junior; Serife E. Uzun, 16, Junior
Jericho High School, Jericho, New York, T: Serena McCalla
New York City, USNY03, New York City Science and Engineering Fair
- AS051 Using Ecological Niche Modeling to Predict Current and Future Ranges of Cryptic Phylogeographic Lineages**
Helen Yao, 18, Senior, Staten Island Technical High School, Staten Island, New York, T: Mark Erlenwein
- BE054 The Effect of Ear Dominance on Object Localization after Audio-Visual Conditioning**
Nadege Giraudet, 17, Senior, Institute for Collaborative Education, New York, New York, T: Jennifer Dahlstrom
- BI037 Genetic and Genomic Analysis of TOR1 Signaling in Initiation of Cell Quiescence**
Lev Omelchenko, 18, Senior, Stuyvesant High School, New York, New York, T: Jonathan Gastel
- BI038 Effects of Fluorinated Alcohols on Lipid Bilayers**
Mike Zhang, 18, Senior, Bronx High School of Science, Bronx, New York, T: Susan Brauerman
- CB042 Direct Visualization of Single Hypoxic Tumor Cell Invasion and Intravasation in Mammary Tumors**
Haoxuan Wang, 17, Senior, Bronx High School of Science, Bronx, New York, T: Vladimir Shapovalov
- CS055 Active Noise Cancellation in Human-Robot Speech Interaction**
Jao-ke Chin-Lee, 16, Senior, Stuyvesant High School, New York, New York, T: Jonathan Gastel
- EA019 Tracking Quaternary Sealevel with Corals and Molluscs: Cosmic Dose Rate Modeling and ESR Dating on San Salvador, Bahamas**
Aislinn Deely, 17, Senior, Francis Lewis High School, Fresh Meadows, New York, T: Bonnie Blackwell
- EA020 Sedimentological Analysis and Determination of Heavy Metals: Howard Beach, NYC**
Savera Dhanraj, 18, Senior, High School for Health Professions and Human Services, New York, New York, T: Hayriye Celtikcioglu

- EN041 The Effects of Mechanical Nanopatterns on Human Stem Cell Differentiation**
Zohar Bachiry, 17, Senior, Yeshiva University High School for Girls, Holliswood, New York, T: Ruth Fried
- ET061 Construction of Crystalline Metal Organic Frameworks (MOFs) Using Coordination Bonds between Organic Ligands and Metal Ions as a Potential Hydrogen Fuels Storage Matrix**
Brian Tung, 17, Senior, The Bronx High School of Science, Bronx, New York, T: Julie Mankiewicz
- EV319T Contrasting Reproductive Success of Female Stream Fishes in Two Drainages in Northwestern Florida: A Life History Study of Eastern Mosquitofish, *Gambusia holbrooki***
Maryama Diaw, 16, Junior; Marjana Chowdhury, 17, Senior
The Young Women's Leadership School of East Harlem, New York, New York, T: Susan Vincent
- MA042 Toward Solution of Soifer-Erdos Problems**
Georgiy Vladimirovich Kolyshev, 18, Senior, Stuyvesant High School, New York, New York, T: Peter Brooks
- ME315T Association of Adenosine Deaminase (ADA), Acid Alpha Glucosidase (GAA), Notch2 and Lactase Genotypes or Single Nucleotide Polymorphisms (SNPs) in Adult Obesity**
Angela Chen, 16, Junior; Alexander Howin Wong, 15, Sophomore
Hunter College High School, New York, New York, T: Thomas Keenan
Stuyvesant High School, New York, New York, T: Johnathan Gastel
- PH050 A Pilot Study to Develop an Optical Diode Based on the Thue-Morse Sequence**
Kevin Most, 17, Senior, Townsend Harris High School, Flushing, New York, T: Susan Brustein
- PH314T Quasi-Periodic Photonic Crystals for Multi-Wavelength Reflectors and Emitters**
Tanmai Vipul Shah, 16, Junior; Indroneil Roy, 16, Junior; Sunny Aggarwal, 16, Junior
Francis Lewis High School, Fresh Meadows, New York, T: Francine Weissman
Poughkeepsie, USNY01, Dutchess County Regional Science Fair
- EE088 An Adsorption Chiller Prototype for Obtaining Green Refrigeration from Solar Heating**
Robert Huntington Verkuil, 16, Junior, Roy C. Ketcham High School, Wappingers Falls, New York, T: Catherine Kim
Queens, USNY50, New York State Science and Engineering Fair
- BE042 It's All in the Family: Examining the Effect of Living Arrangements and Social Support on Hypertension**
Sarah Averil Albala, 18, Senior, John Jay High School, Cross River, New York, T: Ann Marie Lipinsky
- BE048 Mosquitoes Be Gone!**
Ruchi Jayesh Shah, 17, Junior, Sachem High School North, Lake Ronkonkoma, New York, T: Jaime Bhalla
- CB306T The Effects of Gold and Platinum Nanoparticles' on Dental Pulp Stem Cell Growth and Differentiation**
Abraham Delanor Killanin, 18, Senior; Evan Glenn Schneider, 16, Junior
Lawrence High School, Cedarhurst, New York, T: Rebecca Phillips Isseroff
Roslyn High School, Roslyn Heights, New York
- CH028 Seaweed + Tapioca = Vegetarian Jell-O?**
Garima Yadav, 16, Junior, Sachem High School North, Lake Ronkonkoma, New York, T: Jaime Bhalla
- CS044 A Novel Framework for Quasi-Dynamic Task Scheduling on Parallel Computers**
Jonathan Abraham Goldman, 17, Senior, Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York, T: MaryLou O'Donnell
- EM038 Improving Pure Water Availability: Optimizing Flux in Reverse Osmosis Membranes**
Matthew Jaebol Kim, 17, Senior, Commack High School, Commack, New York, T: James Engeldrum

- ET308T A Temperature-Controlled Investigation of Au/Pd Nanoparticle Catalysis for Applications in a PEM Fuel Cell**
Gurpreet Singh, 17, Senior; Karan Singh Sikka, 17, Senior
Half Hollow Hills High School West, Dix Hills, New York, T: Michael Lake
Syosset High School, Syosset, New York, T: Angela Lukaszewski
- ME076 A Novel Approach to Modeling Genetic Sensory Impairments through de novo Prediction of Mutant Protein Structure**
Rebecca Faye Alford, 17, Junior, Commack High School, Commack, New York,
T: James Engeldrum
- ME083 Risk Assessment of Abdominal Aortic Aneurysm Rupture Using Fluid-Structure Interaction Simulations**
Sagar Hitendra Rambhia, 16, Junior, Jericho High School, Jericho, New York,
T: Serena McCalla
- PH041 Isolation and Optimization of the Radial Electric Field for the Proton Electric Dipole Moment Experiment**
Sahir Raouf, 17, Senior, Jericho High School, Jericho, New York,
T: Serena McCalla
- Rochester, USNY09, Central Western Section-Science Teachers Association of New York State Science Congress*
- PH019 Determining Extrasolar Planetary Properties Using the Radial Velocity and Transit Methods**
Megan Marie Nier, 17, Senior, Greece Athena High School, Rochester,
New York, T: Tyler A Beach
- Syracuse, USNY06, Greater Syracuse Scholastic Science Fair*
- EM330T The Effect of Ocean Acidification and Oil Spills on *Emiliania Huxleyi* Transparent Exopolymer Particles**
Kunal Ashok Sangani, 16, Junior; Mishka Gidwani, 17, Senior
Fayetteville Manlius High School, Manlius, New York, T: Sally Mitchell
Neuqua Valley High School, Naperville, Illinois, T: Lourdes Collazo
- EV034 Remediation of Toxic Metal Contaminated Soil Longterm Effectiveness of Fishbone Apatite Amendment**
Kenneth Magwood, 18, Senior, Syracuse Academy of Science Charter School,
Syracuse, New York, T: Erdal Duman
- Syracuse, USNY10, Dr. Nelson Ying Tri Region Science and Engineering Fair*
- CS028 IMRT v. 3DCRT: Modular Efficiency in Radiotherapy of Pituitary Adenoma**
Marissa Nicole Komanski, 17, Junior, City Honors School, Buffalo, New York,
T: Kelly Hyla
- CS029 Improving Optimization Efficiency during Treatment Planning in Radiation Therapy**
Minerva Huang Ringland, 17, Junior, City Honors School, Buffalo, New York,
T: Kelly Hyla
- MI033 The Characterization of a Short Chain Oxidoreductase Enzyme in *M. tuberculosis***
Dana Victoria Hogan, 18, Senior, City Honors School, Buffalo, New York,
T: Kelly Hyla
- Troy, USNY07, Greater Capital Region Science and Engineering Fair*
- EM031 Biogas: An Investigation in Alternative Energy**
Katherine Rose Picchione, 16, Junior, Academy of the Holy Names, Albany,
New York, T: Donna Mooney
- EV023 A Physical, Chemical and Biological Assessment of the Upper Tributaries of the Alplaus Kill**
Ethan Churchill Strayer, 17, Senior, Niskayuna High School, Niskayuna, New York,
T: Paul Scott
- EV024 Ground and Stand Level Factors in a Northeast North American Forest with Beech Bark Disease**
Zachary Taylor Wood, 17, Senior, Burnt Hills - Ballston Lake Senior High School,
Burnt Hills, New York, T: Regina Reals

Utica, USNY08, Utica College Regional Science Fair

CB030 Heads or Tails? The Regeneration of Planaria

Rachel DiCioccio, 15, Freshman, Clinton High School, Clinton, New York,
T: Laurie Rosenburgh

Westchester, USNY05, Progenics Westchester Science and Engineering Fair

AS023 The Effect of Urbanization on Occupancy and Detection Rates of Eastern Screech Owls in Suburban Areas

Kyle Thomas Bardwell, 17, Senior, Ossining High School, Ossining, New York,
T: Angelo Piccirillo

BE024 A Study of the Cognitive Neuroscience of Arithmetic Combinatorial Processing Using Magnetoencephalography (MEG)

Liza Joely Strauss, 18, Senior, Mamaroneck High School, Mamaroneck, New York, T: Guido Garbarino

BE025 An Investigation of the Economic, Social, and Consequential Factors that Affect Moral Decision-Making

Katherine Michelle Mangialardi, 17, Junior, Ossining High School, Ossining,
T: Angelo Piccirillo

BE308T Discovering the Keys to a Positive, Lifelong Relationship between People with Special Needs and Their Nondisabled Siblings: A Worldwide Study to Help Guide Parents & Siblings with this Challenging Relationship

Elyse Mara Blueglass, 18, Senior; # Morgan Blueglass, 18, Senior; Amanda Buonagurio, 17, Junior

Somers High School, Lincolndale, New York, T: Greg Horrace

Yorktown High School, Yorktown Heights, New York, T: Michael Jay Blueglass

BE309T Investigating the Familial and Genetic Aspects of Repetitive Behaviors in Autism

Jenna Hayley Behrendt, 18, Senior; Asa Toreen Jordan, 17, Senior
Ossining High School, Ossining, New York, T: Angelo Piccirillo

BE310T The Effects of the Initial Transition from Shod to Barefoot Running on Tibial Shock and Muscle Activation

Evan Daniel Olin, 16, Junior; Catherine Marie Conte, 16, Sophomore
Ossining High School, Ossining, New York, T: Angelo Piccirillo,
T: Valerie Holmes

BI302T The Use of Click-Chemistry and the Tetrazine-Norbornene Complex to Synthesize Herceptin Radiolabelled to Zr-89 and Ga-67

Gabriel Isaac Weissmann, 17, Senior; Priya Mohindra, 16, Junior

Horace Greeley High School, Chappaqua, New York, T: Carol Diguglielmo

Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass

EE037 Increasing the Efficiency of Solar Tracking Systems

Michael Anthony Cerabona, 17, Senior, Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass

EN025 Regulatory Signatures of Cancer Cell Lines Inferred from Gene Expression Data

Jayanth Krishnan, 17, Senior, Mahopac High School, Mahopac, New York,
T: Mark Langella

ME049 Using the Degree of End Organ Damage to Predict the Outcomes of Heart Failure Patients after Mechanical Circulatory Support Device Implantation

Qiaoyi Li, 18, Senior, Briarcliff High School, Briarcliff Manor, New York,
T: Michael Inglis

MI027 Analysis of the Bacterial Heat Shock Response to Photodynamic Therapy-Mediated Oxidative Stress

Tyler Gordon St. Denis, 17, Senior, John Jay High School, Cross River, New York, T: Ann Marie Lipinsky

MI028 A Solution to the Worldwide Malaria Epidemic: *T. gondii* Mitochondria-Associated Proteins as Potential Drug Targets of Tomorrow

Matthew Karmen McIntyre, 18, Senior, Yorktown High School, Yorktown Heights, New York, T: Michael Blueglass

NORTH CAROLINA

Charlotte, USNC01, Charlotte-Mecklenburg Regional Science Fair

EV001 The Assessment of Silver Nanoparticles in the Environment on Gene Expression in *C. elegans*

Alexander Michael Cecil, 17, Junior, E.E. Waddell High School, Charlotte, North Carolina, T: Tamica A. Stubbs

EV301T The Affect of Dissolved Oxygen Productivity in an Aquatic Ecosystem

Fady Hani Ibrahim, 18, Senior; Ramy Hani Ibrahim, 17, Senior
E. E. Waddell High School, Charlotte, North Carolina, T: Tamica A. Stubbs

Durham, USNC02, North Carolina Central Region III Science Fair

BI030 Activating Pro-Caspase-3 as an Anti-Cancer Strategy

Avery Thorpe Young, 17, Junior, William G. Enloe High School, Raleigh, North Carolina, T: Kenneth Cutler

EV050 What Environmentally Safe Detergent Is Most Effective in Cleaning Birds Involved in an Oil Spill?

Caroline Nikolaidis, 15, Sophomore, Huron High School, Ann Arbor, Michigan, T: Lisa Benton

EV038 Long-wavelength Light as a Catalyst for MS2 Photoinactivation by Cationic Porphyrins

Marc Herman Webb, 17, Senior, Josephine Dobbs Clement Early College High School, Durham, North Carolina, T: Courtney Blake

Raleigh, USNC50, North Carolina State Science Fair

CB023 Inter-alpha-Trypsin Inhibitor Heavy Chain 4 Promotes Lung Injury but Inhibits Cell Migration Post Endotoxin Exposure

Greeshma Somashekar, 17, Junior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin

CH312T A Study on the Photo-catalytic Disinfectant Effect of Substrate-Embedded, Annealed, and Anodized TiO₂ Thin Films on *E. coli*

Pranav Nagaraj Haravu, 16, Junior; Vipul Tushar Vachharajani, 17, Junior
North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin

CS039 The CM Equine Facial Evaluation System: A Computational Approach to Equine Temperament Analysis

Catherine Grace McVey, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Robert R. Gotwals

EM032 A Novel Approach to Optimal Parameter Growth Analysis and Environmental Regulation Systems for Green Microalga, *S. dimorphus*

Aakash Indurkha, 17, Junior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Myra Halpin

EV028 Effects of Di-butyl phthalate (DBP) on Developing Medaka Embryos

Yunqian Tang, 19, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Amy Sheck

ME309T The Involvement of MicroRNAs in the Repair Mechanisms of Mesenchymal Stem Cells after Heart Attack

Arjun Bhattacharya, 17, Senior; Karthikeyan Ardhanareeswaran, 18, Senior
William G. Enloe High School, Raleigh, North Carolina, T: Brian Wood

PH030 Stealth Technology: I Can See You...But You Can't See Me!!!

Brittany Christine Williams, 14, Freshman, E.A. Laney High School, Wilmington, North Carolina, T: Sharon Cicero

PH031 Correlation between Peel Speed and Intensity of Triboluminescence in Adhesive Tape

Elizabeth Caldwell Schroder, 18, Senior, North Carolina School of Science and Mathematics, Durham, North Carolina, T: Jonathan Bennett

NORTH DAKOTA

Fargo, USND03, Southeast North Dakota Regional Science and Engineering Fair

ET057 Natural Selection

Caleb Kyle Meyer, 16, Sophomore, Hope-Page Public School, Hope, North Dakota, T: Jeffrey Ryan Hovde

- MI058 The Antibacterial and Preserving Abilities of Wildflower Extract**
Jennifer Marie Riemann, 16, Sophomore, Hankinson High School, Hankinson, North Dakota, T: Marcus John Friskop
Grand Forks, USND05, Northeast North Dakota Regional Science and Engineering Fair
- MA038 Mathematical Flowers: Patterns in Dots Generated by Intersection Points**
Vahid Fazel-Rezai, 14, Freshman, Red River High School, Grand Forks, North Dakota, T: Laurie Crummy
Grand Forks, USND50, North Dakota State Science and Engineering Fair
- EV044 The Biocidal Attributes of the Family Lamiaceae**
Dre Erik Howard Steinwehr, 15, Sophomore, Hankinson High School, Hankinson, North Dakota, T: Marcus John Friskop
- PS029 The Comparison of Commercial Bactericides on *Phaseolus vulgaris* Production**
Lindsey Marie Stein, 18, Senior, Hankinson High School, Hankinson, North Dakota, T: Marcus John Friskop
- PS030 The Agricultural Impact of Curlycup Gumweed on Barley Cultivars**
Tanner John Coppin, 17, Junior, Hankinson High School, Hankinson, North Dakota, T: Marcus John Friskop
Jamestown, USND04, Southeast Central North Dakota Science and Engineering Fair
- MA043 Size Does Matter, But Does Shape?**
Tyler Gordon Toepke-Floyd, 15, Freshman, Wishek Public School, Wishek, North Dakota, T: Joshua Jacob Wiest
- PH051 Light Speed II**
Ben Luke Schuler, 15, Freshman, Wishek Public School, Wishek, North Dakota, T: Josh Wiest
Mandan, USND01, Southwest Central North Dakota Regional Science and Engineering Fair
- AS053 Dairy Farmers Dream III**
Matthew Joseph Schaeffbauer, 16, Sophomore, Strasburg Public School, Strasburg, North Dakota, T: William Arthur Malaski
- CH032 Cold Pack Chemistry**
Suzanne Barbara Ternes, 16, Sophomore, Strasburg Public School, Strasburg, North Dakota, T: William Arthur Malaski
- EM048 Heat Loss vs. Roof Types**
Emmanuelle Hulm, 16, Sophomore, Strasburg Public School, Strasburg, North Dakota, T: William Arthur Malaski
Williston, USND06, Northwest North Dakota Regional Science Fair
- EN042 Strong Soil: Safe Roads**
Sarah Nicole Telehey, 15, Freshman, Trinity Christian School, Williston, North Dakota, T: Annette Kreft
- MI052 Salty Situation**
Jessa Lynn Dee Zimmerman, 16, Junior, Trenton High School, Trenton, North Dakota, T: Robert Turcotte
- OHIO**
Alliance, USOH08, Ohio Region XIII Science and Engineering Fair
- CS037 Computer Sleuth: Identification by Text Analysis, Year Two**
Daniel William Moran, 17, Junior, Minerva High School, Minerva, Ohio, T: Molly Winters
- MI045 Antimicrobial Efficacy of *Myrciaria dubia* on Gram-positive and Gram-negative Pathogens *in vitro***
Tyler Daniel Kubina, 18, Senior, Tuscarawas Valley High School, Zoarville, Ohio, T: Lucinda Martin
Archbold, USOH06, Northwest Ohio Science and Engineering Fair
- EM005 Viability of Bioremediation of Lake St. Marys, Ohio via Reintroduction of Native Mussels**
Andrew Benedict Favorito, 17, Senior, Paulding High School, Paulding, Ohio, T: LeeAnn M. Favorito

- ET007 Energy Released via a Calorimetric Test of Various Biomass Resources: A Study of Dehydrated Fruit and Vegetable Matter**
Jared David Kern, 17, Junior, Miller City - New Cleveland High School, Miller City, Ohio, T: Ryan Matthew Benroth
Athens, USOH01, Southeastern Ohio Regional Science and Engineering Fair
- MI023 Red Globe Grape Anthocyanin Extraction, Isolation, and Characterization and Their Antibacterial Effects against Causative Agents of Hoof Rot**
Sarah Marie Cox, 16, Junior, Zane Trace High School, Chillicothe, Ohio, T: Jason A. Clark
Cleveland, USOH02, Northeastern Ohio Science and Engineering Fair
- EN014 EGFR-Targeted Gold Nanoparticle Constructs for Cancer Nanomedicine**
Trent Kaveh Navran, 17, Senior, Solon High School, Solon, Ohio, T: Anthony Sanson
- EN016 Can Recycled Rubber Materials Be Used in Concrete to: Reduce Environmental and Landfill Waste, Reduce Petroleum Usage, and Reduce the Carbon Footprint While Improving the Infrastructure of Bridges, Roads and Buildings?**
John Charles Boykin, 16, Junior, St. Peter Chanel, Bedford, Ohio, T: Linda D Boykin
- ME036 The Programming of and the Application of Automated Digital Microscopy in Analyzing Lung Inflammation and Cellular Imagery**
Joseph Darius Soltzberg, 18, Senior, Hawken School, Chesterland, Ohio, T: Robert Shurtz
- PH017 D+D Fusion Reactions in an Inertial Electrostatic Confinement Fusion Reactor**
William Wellborn Jack, 16, Sophomore, Hudson High School, Hudson, Ohio, T: Heidi Gauntner
Dayton, USOH04, Montgomery County Science and Engineering Fair
- CS005 RingerAlert**
William Barbaro, 16, Sophomore, Carroll High School, Dayton, Ohio, T: Kathleen Keller
- ET016 Harvesting the Wind, A Four Year Study**
Ryan William-Dennis Blanford, 18, Senior, Carroll High School, Dayton, Ohio, T: Laurie Fuhr
- ME032 Investigation of Cerebral Processing Using FMRI Revealed Brain Deactivation**
Shannon Marie Bidwell, 16, Sophomore, Dayton Christian High School, Miamisburg, Ohio, T: Linden Edward Kurtz
Marion, USOH07, Marion Area Science and Engineering Fair
- EN020 Bracing Systems: Investigating the Effects of Different Bracing Systems on the Lateral Load Capacity of a Structure**
Megan Catherine Russell, 14, Freshman, Buckeye Valley High School, Delaware, Ohio, T: Jill Ann Johnson
- MI025 Examining the Effects of Foxo3a, a Transcription Factor Associated with Muscle Atrophy in Runt Piglets**
Sachin Raviteja Rudraraju, 16, Junior, Olentangy Liberty High School, Powell, Ohio, T: Jessica Stried
- Shaker Heights, USOH05, Hathaway Brown Upper School Fair*
- CB002 The Role of the Retinoid X Receptor in Astrocytes in Alzheimer's Disease**
Adriana Elysse Zinn, 17, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Kelly Hunt
- EN006 The Effect of Pluronic and Hyperthermia on Cancer Cell Permeability**
Jennifer Dara Huang, 18, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Hunt
- ME011 Differential Interaction of FilaminA, RACK1, and CFTR in CFTR- and deltaF-CFTR Expressing Cell Lines**
Margaret Harris Heard Landefeld, 18, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Hunt

Upper Arlington, USOH09, Central Ohio Regional Science and Engineering Fair

CB018 Effect of microRNA-146a on Osteoclast Differentiation
Saaket Milind Pradhan, 16, Junior, Dublin Coffman High School, Dublin, Ohio,
T: Laura A Brennan

EE309T Smart Grid Structure and Generation Patterns to Minimize Loss and Environmental Impact

Kevin A. Yuh, 17, Junior; Manting Lao, 16, Junior
Upper Arlington High School, Upper Arlington, Ohio, T: Laura Allison Brennan

EN026 Micro-Magnetic Rotor Pump for Controlled Fluid Transport

Manjari Randeria, 16, Junior, Upper Arlington High School, Columbus, Ohio,
T: Laura Brennan

Wilberforce, USOH03, Miami Valley Science and Engineering Fair

ME061 Dental Sealant Deterioration

Azad Sunil Dhingra, 16, Junior, Springfield High School, Springfield, Ohio,
T: Pamela J. Clark

MI041 The Protective Effects of the Violacein Pigment against UV-C Irradiation in *Chromobacterium violaceum*

Andrew Nickolas Abboud, 18, Senior, Tippecanoe High School, Tipp City, Ohio,
T: Jimmy Moore

OKLAHOMA

Ada, USOK50, Oklahoma State Science and Engineering Fair

AS042 Social Immunity of *Apis mellifera* as an Antimicrobial Indicator of CCD

Ashley Nicole Sowder, 18, Senior, Southmoore High School, Moore, Oklahoma,
T: Darla Kay Wyatt

Ada, USOK07, East Central Oklahoma Regional Science and Engineering Fair

EV006 Enhanced Adsorption of Arsenic on Aquifer Solids: Impact of Oxidative Treatment of Aquifer Solids

Jenna Reed Huling, 17, Junior, Ada High School, Ada, Oklahoma,
T: Scott G Huling

Alva, USOK01, Northwestern Oklahoma State University Regional Science Fair

BE049 Do Different Size of Fonts Affect Reading Rate?

Daniela Galindo, 15, Freshman, Shattuck High School, Shattuck, Oklahoma,
T: Jenica A Long

ME303T Get Your Groove On!!!

Madelyn Brooke Messenger, 16, Sophomore; Jade Vaughna Lee, 16, Sophomore
Vici High School, Vici, Oklahoma, T: Trisha Ann Salisbury

Bartlesville, USOK02, Bartlesville District Science Fair

CS001 Determining the Optimal Combination of Trial Division and Fermat's Factorization Method

Joseph Christopher Woodson, 17, Junior, Home School, Tulsa, Oklahoma,
T: Pamela Kay Woodson

EM301T Waste Not Want Not: Using Blue-Green Algae to Remove Urea and Carbon Dioxide

Brian Scott Bates, 17, Senior; Katelyn Elizabeth McCarley, 17, Junior
Bartlesville High School, Bartlesville, Oklahoma, T: Betty Annie Henderson

Edmond, USOK03, Central Oklahoma Regional Science and Engineering Fair

EM006 Heavy Metal Bioremediation: A Second Year Study of Tar Creek

Paige Hunter Parrack, 17, Senior, Southmoore High School, Moore, Oklahoma,
T: Darla Wyatt

Miami, USOK04, Northeastern Oklahoma A&M Science and Engineering Fair

AS012 Contraceptive Conundrum. A Multigenerational Study of Exposure to Birth Control in *Drosophila melanogaster*

Hannah Claire Pagels, 15, Freshman, Grove High School, Grove, Oklahoma,
T: Keliana D. Steen

Muskogee, USOK05, Muskogee Regional Science and Engineering Fair

AS301T Melting Pot? Or Not? Analysis of the Validity of the Hardy-Weinberg Equilibrium in the Local Population

Destin Sam Stratton, 16, Sophomore; **#** Dalton Klain Brossett, 18, Senior
Muskogee High School, Muskogee, Oklahoma, T: Terri Brossett

- ET034 The Answer My Friend Is Blowin' in the Wind: Determining Energy Efficiency of Windmill Blades**
Ashlie R. Tull, 15, Freshman, Muskogee High School, Muskogee, Oklahoma,
T: Dawn R. Gott
Oklahoma City, USOK06, Oklahoma City Regional Science and Engineering Fair
- BE013 How Do the Variables Age, Gender, and Years of Musical Training Affect Perception of Musical Intervals?**
Samantha Arden Morrison, 15, Sophomore, Classen School of Advanced Studies, Oklahoma City, Oklahoma, T: Carolyn M. Bish
Wilburton, USOK09, Eastern Oklahoma Regional Science and Engineering Fair
- MI012 Evaluating the Antimicrobial Properties of Essential Oils on Selected Bacteria**
Jeffrey Gage Holleman, 14, Freshman, Cascia Hall Preparatory School, Tulsa, Oklahoma, T: Sally Fenska

OREGON

Albany, USOR07, Central Western Oregon Science Expo

- EV012 Production of Ammonia Nitrate by Combusting Chicken Litter with Hog Fuel**
Joseph Phillips Meyer, 17, Senior, Tillamook High School, Tillamook, Oregon,
T: Clair Oliver Thomas

- PS026 Biological Control of *Meloidogyne chitwoodi*: Host Status and *Paecilomyces lilacinus* Fungal Parasitization**
Heidi Marie Wade, 16, Junior, Crescent Valley High School, Corvallis, Oregon,
T: Adam Kirsch

Bend, USOR08, High Desert Science Expo

- AS054 The Effect of Heated and Unheated Aspartame on *Vanessa cardui* Growth and Survivorship**
Irene Zhen Peaks, 16, Sophomore, Bend Science Station, Bend, Oregon,
T: David Walton Bermudez

- ET310T Electromagnetic In-line Generator**
Jacob Drew Waggoner, 17, Junior; Huawei Zhou, 17, Senior
Bend Senior High School, Bend, Oregon, T: David Walton Bermudez
Cascades Academy of Central Oregon, Bend, Oregon

Gresham, USOR01, Gresham-Barlow Science Expo

- BE040 The Effect of Theatre Arts Participation on Academic Success**
Arianne Christine Melton, 15, Freshman, Gresham Union High School, Gresham, Oregon, T: Kathleen Childress

- EM039 Biochar Carbon Sequestration: The Effects of Feedstock and Temperature of Pyrolysis on Chemical and Physical Stability of Biochar**
Meghana Vijay Rao, 15, Freshman, Jesuit High School, Portland, Oregon,
T: Dr. Markus Kleber

- MA031 A Novel Implementation of the Elliptic Curve Method, Stage 2: Using Weierstrass and Edwards Elliptic Curves for Faster Factorization**
Aishwarya Ananda Vardhana, 16, Junior, Jesuit High School, Portland, Oregon,
T: John Gorman

Hillsboro, USOR04, Beaverton-Hillsboro Science Expo

- AS004 The Effects of Lecithin on the Behavior of the Wild Strand, dpy-11 Strand and bli-1 Strand of *Caenorhabditis elegans***
Tori Erica Graf, 16, Junior, Hillsboro High School, Hillsboro, Oregon,
T: Steve Sears

- EV033 An Experimental Study of the Impact of Airborne Pollutants on the Peak Expiratory Flow (PEF) Rate of Asthmatic Subjects PLUS A Novel Risk Assessment Model to Predict the Adverse Effect of PM10 and TVOCs on the PEF Rate**

- #** Naomi C Shah, 15, Sophomore, Sunset High School, Portland, Oregon,
T: Susan Holveck

- ME018 Improved Root Canal Therapy: Is There a Synergistic Effect When Bioactive Glass and Chlorhexidine Are Combined?**
Sara Jean Hays, 17, Junior, Sunset High School, Portland, Oregon,
T: Karen Tweed Hays

- PH007 The Effect of Tracking Error on the Measurement Exoplanet Light Curves**
 Brian Ronald Graham, 16, Junior, Southridge High School, Beaverton, Oregon,
 T: Bradford Hill
Portland, USOR50, Intel Northwest Science Expo
- AS052 The Territorial Roaming Patterns of *Felis catus* (The Domestic Cat)**
 Savannah Joy Tobin, 16, Sophomore, West Salem High School, Salem, Oregon,
 T: Michael S. Lampert
- BI028 From Models to Medications: Identification of Medication Leads for Treating Methamphetamine Addiction**
 Yamini T. Naidu, 16, Sophomore, Valley Catholic High School, Beaverton, Oregon,
 T: Michael J. Seiwald
- CB043 Is Mitochondria-targeted Antioxidant SS31 a Potential Therapeutic Target to Treat Alzheimer's Disease?**
 Tejaswini Parlapalle Reddy, 17, Senior, Merlo Station High School-School of Science and Technology, Beaverton, Oregon, T: Joel Laney
- CS057 Novel Foundational Algorithms for Automatic Music Analysis with Wide Applicability in Signal Processing**
 # Vignesh Leonardo Shiv, 17, Senior, Catlin Gabel School, Portland, Oregon,
 T: Andrew Merrill
- EE322T Inertial Electrostatic Confinement Fusion Using an Electrostatic Focusing Lens**
 Demitri Joseph Hopkins, 18, Senior; Forrest Evan Betton, 17, Senior; Eric Michael Thomas, 18, Senior
 Merlo Station High School, Beaverton, Oregon, T: Joel Laney, T: Bernadette Buxton
- ME090 Evaluation of Margining Algorithms in Treatment Planning Systems for Tumor Volumes Typical of Stereotactic Body Radiation Therapy and Stereotactic Radiosurgery**
 Kelly McKenzie Carson, 17, Junior, Oregon Episcopal School, Portland, Oregon,
 T: Peter Langley
Portland, USOR02, Portland Public Schools Science Expo
- BE020 It's Not All about Me: A Linguistic Investigation of Popular Songs**
 # Annelise Cummings, 15, Sophomore, Cleveland High School, Portland, Oregon,
 T: Ronda Royal
- CS020 VIFIT: An Open Source Program to Evaluate Potentially Seizure-Inducing Media**
 # Alexander Eskil Harding, 16, Sophomore, Cleveland High School, Portland, Oregon,
 T: Ronda Royal
Portland, USOR05, Aardvark Science Exposition
- CS309T The Multimodal Real-Time Recognition of Emotion in Human Speech**
 # Akash Krishnan, 16, Junior; # Matthew Philip Fernandez, 17, Junior
 Oregon Episcopal School, Portland, Oregon, T: Peter Langley, T: Steve Decker
- EN035 Creating Porous TiO₂ Nanoparticles to Improve the Charge Carrier Efficiency of Photoelectrochemical Cells**
 Ayush Gupta, 17, Junior, Oregon Episcopal School, Portland, Oregon,
 T: Peter Langley
- MI051 Effect of Culture Axenicity on Prochlorococcus Phage Infection Kinetics**
 ## Laurie Ann Rumker, 18, Senior, Oregon Episcopal School, Portland, Oregon,
 T: William G. Lamb
West Linn, USOR06, CREST—Jane Goodall Science Symposium
- MA029 A Creative Solution for Division by Zero**
 Markus Robert Woltjer, 16, Sophomore, Wilsonville High School, Wilsonville, Oregon, T: James Ronald O'Connell
- MI006 Investigating Acyl-homoserine Lactone Based Quorum Sensing Dependency in Mucoid and Nonmucoid *Pseudomonas aeruginosa* Biofilm Development**
 Spencer Chang, 16, Junior, West Linn High School, West Linn, Oregon,
 T: Amy Schauer
- PS004 Rubus Endophytes: Application and Implication for Biological Control**
 ### Ann C. Bernert, 18, Senior, West Linn High School, West Linn, Oregon,
 T: Jon Isensee

PENNSYLVANIA

Harrisburg, USPA01, Capital Area Science and Engineering Fair

ME020 Nanoliposomal Delivery for Small Interfering RNA in Melanoma

Felix Duc Huy Nguyen, 17, Senior, Hershey High School, Hershey, Pennsylvania,
T: Jason Ambler

PH020 The Optimization of an Electrostatic Solar Sail through Three-Dimensional Plasma Simulation

Austin Joseph Hess, 18, Senior, Mechanicsburg Area Senior High School,
Mechanicsburg, Pennsylvania, T: Monica Shirey

Lancaster, USPA02, North Museum Science and Engineering Fair

EE053 A Stand-Off Seismo-Acoustic Method for Humanitarian Demining

Marian Joan Bechtel, 16, Sophomore, Hempfield High School, Landisville,
Pennsylvania, T: Neal Kuhn

PH039 The Close Binary Fraction: A Bayesian Analysis of SDSS M Dwarf Spectra

Benjamin Mathias Clark, 15, Senior, Penn Manor High School, Millersville,
Pennsylvania, T: David Bender

Philadelphia, USPA03, Delaware Valley Science Fairs

AS046 Analysis and Characterization of the Bioactive Antimicrobial Natural Products from Marine Sponges

Bernadette Ann Hritz, 17, Senior, Villa Joseph Marie High School, Holland,
Pennsylvania, T: John R. Porter

AS047 Retinal Phototransduction Protein Distribution in Ventral vs. Dorsal Hemiretina of the *Pantodon buchholzi*

Sanjana Salwi, 16, Junior, High Technology High School, Lincroft, New Jersey,
T: Michael Roche

BI042 The Effects of the Human Diet on Omega Fatty Acid Levels

Hannah Kim, 15, Freshman, Parkland High School, Allentown, Pennsylvania,
T: Loretta Igo

CB308T Characterization of Enolase, a Glycolytic Enzyme in *Plasmodium yoelii*

Tara Katherine Knox, 18, Senior; Kacie Catharine Farrell, 18, Senior;
Savannah Marie Lee, 17, Junior
Mount Saint Joseph Academy, Flourtown, Pennsylvania, T: Blanche Haughton

CH030 From Dusk to Dawn: Contact Lenses in the Night Tear Proteome

Jack Huang, 17, Junior, Parkland High School, Allentown, Pennsylvania,
T: Laura Kowalski

CS052 Monte Carlo Simulation of a Serial Dilution PCR Experiment

Jonah Milton Kallenbach, 16, Sophomore, Germantown Academy Upper School,
Fort Washington, Pennsylvania, T: Susanne Johnston

EE071 Acoustic Imaging Using Optimized Beamforming Techniques

Andrew Beekman Feldman, 16, Junior, Manalapan High School, Englishtown, New
Jersey, T: Bharathi Srinivas

EM045 The Effect of Nitrogen, Sulfur, and Phosphorus Compounds on Bioremediation of Oil Spills by *Pseudomonas fluorescens* and *Bacillus subtilis*

Meghan Marjorie Shea, 16, Sophomore, Unionville High School, Kennett Square,
Pennsylvania, T: Sandra Litvin

MA039 Entries of Random Matrices

Benjamin Jerome Kraft, 18, Senior, Liberty High School, Bethlehem, Pennsylvania,
T: Gregory Minton

MA040 Proof of an Archimedean Proposition Using Euclidean Geometry

Alan Ziyuan Yang, 14, Freshman, Upper Dublin High School, Fort Washington,
Pennsylvania, T: Sharon Bisio

ME085 Mechanistic Study of Sulforaphane Induced Cytotoxicity

Angela Jin Han, 16, Sophomore, High Technology High School, Lincroft,
New Jersey, T: Michael T. Roche

MI054 Survey of Bacterial Prevalence in Raw Milk

Lucy Michelle Hritz, 15, Freshman, Villa Joseph Marie High School, Holland,
Pennsylvania, T: Dr. Cynthia Keler

PH048 Extending the Motional Stark Effect Diagnostic to Low Magnetic Fields:

Towards Implementing a Laser-induced Fluorescence Technique
Nicole Yeechi Tsai, 17, Senior, High Technology High School, Lincroft, New Jersey, T: Michael Roche

Pittsburgh, USPA04, Pittsburgh Regional Science and Engineering Fair

CB029 Novel Role of BAT3 in Regulation of Basal Macroautophagy

Ishan Chatterjee, 16, Junior, Fox Chapel Area High School, Pittsburgh, Pennsylvania, T: Gregory Schubert

CS042 Optimizing Keyboards for People with Disabilities

Natalie Janet Nash, 16, Junior, Vincentian Academy, Pittsburgh, Pennsylvania, T: Thomas Adams

CS043 IrisScribe Eye-Typing Interface

Matthew Thomas Vernacchia, 17, Senior, Upper Saint Clair High School, Upper Saint Clair, Pennsylvania, T: Colin Syme

EV035 Nitrate Retention Chemistry—Development of an Environmentally-Friendly Manure

Adam Joseph Dando, 16, Sophomore, Franklin Regional Senior High School, Murrysburg, Pennsylvania, T: Richard Sunny

Reading, USPA05, Reading and Berks Science and Engineering Fair

CS024 Internet Communication in a Multiplayer FPS Game

Matthew Adam Weidner, 15, Freshman, Brandywine Heights Area High School, Mertztown, Pennsylvania, T: Kevin Dolan

EM024 Big Problem... Small Solutions: A Comparison of Bioaugmentation and Biostimulation

Miranda Elizabeth Haslam, 15, Sophomore, The King's Academy, Mohrsville, Pennsylvania, T: Linda Rentschler

York, USPA06, York County Science and Engineering Fair

ET068 Maximizing Algal Growth and Lipid Yields through Varying Iron3+ Concentration and Bioavailability: A Continued Investigation on Finding Optimal Growing Conditions for *Scenedesmus sp.* for Biofuel Production

Yanqi Chen, 16, Sophomore, Central York High School, York, Pennsylvania, T: Dianna Guise

ME101 Evaluation of Transdermally Delivered Aspirin

Purnima Malik, 17, Senior, Central York High School, York, Pennsylvania, T: Dianna Guise

RHODE ISLAND

Warwick, USRI50, Amgen Rhode Island Science and Engineering Fair

CH019 Synthesis and Characterization of AuAg Alloy Nanoparticles for GFP Enhancement

Daniel Ling, 16, Junior, East Greenwich High School, East Greenwich, Rhode Island, T: Nicholas Rath

CS035 Improving Highway Interchanges with Computer-Based Evolution

Cassidy Meier Laidlaw, 14, Freshman, Barrington High School, Barrington, Rhode Island, T: Karen Fletcher

SOUTH CAROLINA

Aiken, USSC01, Central Savannah River Area Science and Engineering Fair

MI020 What Is the Effect of Different Concentrations of Tart Cherry Juice on the Growth of *Escherichia coli*?

Rebecca Hope Caughman, 15, Sophomore, Batesburg-Leesville High School, Batesburg-Leesville, South Carolina, T: Catherine W. Watson

Charleston, USSC03, Low Country Science Fair

BE033 Damaging Effects to Cognitive Ability Due to Long-Term Treatment with a High Fat/High Cholesterol Diet

Ana Nicole Lanier, 16, Sophomore, Academic Magnet High School, North Charleston, South Carolina, T: Laura Eicher

- MI034 The Difference in Bacterial Growth on Gold Plated, Silver Plated and Copper Earring Hooks after Eight Hours of Wear and Twenty-Four Hours of Incubation at Body Temperature**
Elizabeth Claire Mappus, 16, Sophomore, Academic Magnet High School, North Charleston, South Carolina, T: Laura Eicher
Columbia, USSC04, USC Central South Carolina Region II Science and Engineering Fair
- CS306T iPhone Based Personnel Observations with Online Data Visualization**
Tyler Thomas Smith, 17, Senior; Benjamin Robert Gustafson, 17, Senior
Dutch Fork High School, Irmo, South Carolina, T: Barry Preston Lindler
- EE040 GNut, III: An A.I.R.V.I.S. (Anthropometric Interactive Robot with Vision Intelligence & Speech)**
Arjun Aggarwal, 16, Junior, Lexington High School, Lexington, South Carolina, T: Praveen Aggarwal
- PS020 Enzyme-Mediated DNA Methylation in Arabidopsis thaliana: The Effect of Abiotic Stress on MET1, DRM2, and CMT3 Gene Expression**
Afia Zarrin Khan, 16, Junior, Spring Valley High School, Columbia, South Carolina, T: Dale C. Soblo
Florence, USSC05, Sand Hills Regional Science Fair
- EE082 Solar Cell Enhancement with Natural Dye and Surface Roughness**
Andrew Christian Woods, 17, Junior, Mayo High School for Math, Science and Technology, Darlington, South Carolina, T: Daniel Christian Woods
Hilton Head Island, USSC02, Sea Island Regional Science Fair
- BE043 Marshmallow Morality: A Case Study of Distributive Justice and Delay of Gratification in Children Ages 5 to 9 Years Old**
Clara Jordan Chalk, 18, Senior, Hilton Head Preparatory School, Hilton Head Island, South Carolina, T: Tina Webb-Browning
- BE313T An fMRI Study of the Regions of Brain Activation While Processing SAT Math Problems**
Cara Marie Borelli, 18, Senior; ## Qiuzi Zhu, 17, Senior
Hilton Head Preparatory School, Hilton Head, South Carolina, T: Tina Webb-Browning
- EM040 A Comparison of *Thelypteris kunthii*, *Bambusa multiplex*, and *Microstegium vimineum* on the Voltage Produced by a Plant Microbial Fuel Cell**
Reid William D'Amico, 18, Senior, Hilton Head Preparatory, Hilton Head, South Carolina, T: Tina O. Webb-Browning
- MI309T A Novel Approach to the Reduction of Viable Pathogenic Bacteria Utilizing Visible Light and the Addition of a Photo-Initiator**
Adam Brandon Oppenheimer, 17, Junior; # Mark Ryan Oppenheimer, 15, Sophomore, Hilton Head Preparatory School, Hilton Head Island, South Carolina, T: Tina Webb-Browning
- PH054 Laser Cushion: The Suppression of ASE in Solid State Lasers**
Brian Paul Ludewig, 16, Sophomore, Hilton Head High School, Hilton Head Island, South Carolina, T: Nancy Clouse
Spartanburg, USSC07, Piedmont South Carolina Region III Science Fair
- BE032 A Comparison of Forgetting Curves in Humans and Rats**
Chad Deniz Erturk, 16, Freshman, Spartanburg Day School, Spartanburg, South Carolina, T: Richard Gale Keen
- ET012 Oil from Plastic: Fuel of the Future**
Tyler A. Moon, 14, Freshman, Fort Mill Area Homeschoolers, Fort Mill, South Carolina, T: Debbie Moon

SOUTH DAKOTA

- Aberdeen, USSD01, Northern South Dakota Science and Math Fair*
- AS028 The Effect of Lycopene and Vitamin A on the Regeneration of Planarian Flatworms**
Kaylee Anna Bahr, 18, Senior, Aberdeen Central High School, Aberdeen, South Dakota, T: Charles Hermansen

- EN305T Using Stoichiometric Calculations to Analyze Theoretical Yields of Rocket Propellant**
Joshua Lloyd Clemens, 17, Senior; Ethan Allan Steward, 18, Senior
Northwestern School, Mellette, South Dakota, T: Denise Mary Clemens
- ET039 Think Green!**
Charles Jerome Rossow, 18, Senior, Herreid High School, Herreid, South Dakota,
T: Stephan Joseph Volk
- Brookings, USSD02, Eastern South Dakota Science and Engineering Fair*
- BE037 Sound of Mathness: Encore**
Megan Marjorie Minatra, 16, Junior, Waverly South Shore High School, Waverly,
South Dakota, T: Ryon Gross
- EE051 Navibot, Phase IV**
Matthew Joseph Hummel, 17, Junior, Florence High School #14-1, Florence,
South Dakota, T: James Leonard Chilson
- ME064 At the Beat of My Heart**
Hope Georgia Goode, 14, Freshman, Garretson High School, Garretson, South
Dakota, T: Julie Marie Mueller
- MI044 Milk Extravaganza**
Brittany Jean Berndt, 18, Senior, Deubrook Area High School, White, South Dakota,
T: Nancy Buehner
- Mitchell, USSD04, South Central South Dakota Science and Engineering Fair*
- AS032 Protein Supplements and Their Effects on Adult and Larval Stages of *Tenebrio molitor*, Year II**
Alexis Whitney Olson, 17, Junior, Mitchell High School, Mitchell, South Dakota,
T: Julie A. Olson
- BE312T The Benefits of Colored Plastic Overlays on Reading Fluency**
Reva Ann Bork, 18, Senior; Rhennetta Jo Bork, 18, Senior
Mitchell High School, Mitchell, South Dakota, T: Julie Ann Olson
- EE046 Unremitted Energy**
Taylor Frances Kinyon, 17, Junior, Plankinton High School, Plankinton,
South Dakota, T: Bob Sprang
- Rapid City, USSD03, High Plains Regional Science and Engineering Fair**
- MI038 Ultraviolet Light Effects on *Escherichia coli***
Matthew Charles Wilen, 16, Junior, Sturgis Brown High School, Sturgis,
South Dakota, T: Kristin Wheaton
- TENNESSEE**
- Chattanooga, USTN01, Chattanooga Regional Science and Engineering Fair*
- ME093 Making Heartbeats Go LOKO**
Darby Kathryn Schumacher, 15, Freshman, Girls Preparatory School, Chattanooga,
Tennessee, T: Linda Dizer
- PH052 Positrons: Element of Dark Matter**
Michael Anthony Labbe, 16, Sophomore, Notre Dame High School, Chattanooga,
Tennessee, T: Carl Anthony Labbe
- Clarksville, USTN06, Middle Tennessee Science and Engineering Fair*
- MI304T Assessment of Various Organic Electron Donors for Electrical Production by *Geobacter grbiciae* in a Novel H-Type Microbial Fuel Cell**
Jyotishka Biswas, 16, Junior; Jiahe Gu, 17, Junior
Hume-Fogg Academic High School, Nashville, Tennessee, The School for Science
and Math at Vanderbilt, Nashville, Tennessee, T: Chris Vanags
- PH026 The Construction of a Small Dense Plasma Focus Using a Novel Experimental Setup**
Adam Joseph Bowman, 15, Sophomore, Montgomery Bell Academy, Nashville,
Tennessee, T: James E. Dickens
- Cookeville, USTN02, Cumberland Plateau Regional Science and Engineering Fair*
- EV032 A Novel Method for Comparing Humic Substances by UV-Visible Spectroscopy**
Kiara Wenhan Cui, 16, Junior, Cookeville High School, Cookeville, Tennessee,
T: Hong Zhang

- EV316T The Effects of Engineered Nanoparticles on the Chemoattraction of a Strain of the Ciliated Protozoan, Tetrahymena**
 Laura Gunderson, 17, Senior; Joseph Lynn Black, 16, Senior
 Cookeville High School, Cookeville, Tennessee, T: Nicole Harrison
Jackson, USTN03, West Tennessee Regional Science and Engineering Fair
- AS033 Evaluation of Climate Trends and Salamander Population Densities, a Three-Year Study**
 ## Nathaniel Wade Hubbs, 16, Junior, Camden Central High School, Camden, Tennessee, T: Karen Gauthier
Knoxville, USTN04, Southern Appalachian Science and Engineering Fair
- CS305T A Genetic Algorithm Approach to Minimizing Beam Loss in High Power Particle Accelerators**
 Scotty Allan Chung, 18, Senior; Yajit Kumar Jain, 17, Senior;
 Carlos E. del-Castillo-Negrete, 17, Senior
 Oak Ridge High School, Oak Ridge, Tennessee, T: Karl Donald Flatau
- EN313T Modeling and Characterization of Novel Heusler Magnetocaloric Effect Alloys**
 Mathilda Marie Lloyd, 17, Senior; Yiwei Li, 18, Senior
 Oak Ridge High School, Oak Ridge, Tennessee, T: Karl Donald Flatau
- EV312T Activation of the Hexose and Amino Acid Transport Systems in *Chlorella protothecoides (vulgaris)* for Enhanced Biomass Production via Amphitrophic (Mixotrophic) Reaction Using Alternative Organic Carbon Sources**
 Michael James Hulick, 18, Senior; Andrew Michael Howington, 18, Senior
 Morristown Hamblen High School East, Morristown, Tennessee,
 T: Robert Edward Gant
Memphis, USTN05, Memphis-Shelby County Science and Engineering Fair - North Region
- ME091 A Novel Discovery: Thalamic Neurodegeneration in Huntington's Disease**
 Bowei Deng, 17, Junior, White Station High School, Memphis, Tennessee,
 T: Angel Perkins

TEXAS

- Austin, USTX13, Austin Energy Regional Science Festival*
- CH301T Kinetic Analysis of Nanometallic Catalyst in Reduction of Nitrophenol: Investigation of a New Class of "Super Catalyst"**
 Quoc-Bao Duy Nguyen, 16, Senior; Mai-Anh N. Vu, 15, Sophomore
 Westwood High School and McNeil High School, Austin, Texas, T: Michele Acker
- EM306T Detecting Oil Spills Using Synthetic Aperture Radar**
 Calvin Ling, 16, Junior; Mark Sands, 16, Junior
 The Liberal Arts and Science Academy High School, Austin, Texas,
 T: David Journeyay
- EN301T Algae-based Atmospheric Revitalization for Zero-G and Aerospace Application**
 Alexander Raymond Crisara, 16, Sophomore; Alexander Jahan Rabii, 14, Freshman
 L C Anderson High School, Austin, Texas, T: Joel Taylor
- ME304T Scaffolds that Baffle: A Study of in vitro Differentiation of Cells via Notch Signaling in a 2D/3D Biomaterial Environment**
 # Shantanu Abhishek Banerjee, 17, Junior; # Varun Akella Koneru, 17, Junior
 Westwood High School, Austin, Texas, T: Michele Acker
- PH004 Light Amplification by Stimulated Emission of Radiation Photon Inhibition**
 Blaine Mitchell Oldham, 15, Sophomore, James Bowie High School, Austin, Texas,
 T: Catherine Miller
Brownsville, USTX04, Rio Grande Valley Regional Science and Engineering Fair
- EE028 The Big Launch: Arm Angle Advantage**
 Andrew Dean Moser, 16, Sophomore, Homer Hanna High School, Brownsville, Texas, T: Diana Williams
- EM019 Going Green**
 Alfonso Alejandro Gonzalez, 15, Freshman, Veterans Memorial High School, Brownsville, Texas, T: Linda Raquel Camacho
- EM314T The Effect of Limonene Based Paint on Soil Quality**
 Javier Dominguez, 18, Senior; Laura Irene Hernandez, 18, Senior
 Weslaco East High School, Weslaco, Texas, T: Connie Sinoy

Dallas, USTX01, Beal Bank Dallas Regional Science and Engineering Fair

AS013 Coping with Copepods: The Influence of *Macrocyclus albidus* on the Survival and Morphology of *Vibrio cholerae* 01

Madeleine Amanda Ball, 18, Senior, Ursuline Academy of Dallas, Dallas, Texas, T: Roxanne Leitner

CH009 Semifluorinated Polymer Brushes by Surface Initiated Atom Transfer Radical Polymerization (SI-ATRP) on Layer-by-Layer Macroinitiator Modified Substrates

Ishita Madan, 17, Senior, Plano West Senior High School, Plano, Texas, T: Deanna Shea

CS016 myRhythm 1.0: Developing a Remote Heart Rate Monitoring Software Dashboard

Shravan Shaastri, 15, Sophomore, Jasper High School, Plano, Texas, T: Peri Haynes

EM015 A Comparison of the Efficiencies of Active Radon Gas Mitigation Systems

Rachel A. Hodge, 16, Sophomore, Jasper High School, Plano, Texas, T: Peri Haynes

EN013 Fabrication and Characterization of Polymeric Solar Cells via Spraycoating

Rohan Virang Shah, 17, Senior, Plano East Senior High, Plano, Texas, T: Julie Baker

ET033 Algae as a Biofuel, Part II

Daisuke Dennis Takeda, 19, Senior, Newman Smith High School, Carrollton, Texas, T: Karl Jones

EV015 A Cheaper Alternative to a Cleaner Future II: A Study to Optimize the Efficiencies of Dye Sensitized Solar Cells

Sirish Chandra Kamarajugadda, 17, Senior, Plano East Senior High School, Plano, Texas, T: Julie Baker

ME310T Neuroscience of Longevity: Effects of Stress and Antioxidant Genes on the Lifespan of Transgenic *Drosophila melanogaster*

Lisa P Michaels, 15, Freshman; Tess P Michaels, 17, Senior

Shepton High School, Plano, Texas, T: Deanna Shea

Plano West Senior High School, Plano, Texas

El Paso, USTX02, Sun Country Science Fair

CS058 End of Course Exam Arrangement Accelerator

I. Hsun Liao, 16, Junior, Americas High School, El Paso, Texas, T: Craig M. Peters

EM051 Carbon Footprint: Which Fuel Leaves a Smaller Carbon Footprint?

Vidal Castaneda, 16, Sophomore, Americas High School, El Paso, Texas,

T: Sandra Blough

Fort Worth, USTX03, Fort Worth Regional Science and Engineering Fair

BI004 Type 2 Diabetes in the Age of Epigenetics: Diet Takes Over!

Sailee Yadav, 15, Sophomore, James W. Martin High School, Arlington, Texas,

T: Sushma Yadav

CB021 Targeting AMP Kinase to Reverse Cisplatin Resistance in Ovarian Cancer

Shree Bose, 16, Junior, Fort Worth Country Day, Fort Worth, Texas,

T: Sharon Hamilton

CS041 Prefix-Tree Based Anomaly Detection in Critical Software Systems

Favyen Bastani, 16, Junior, Texas Academy of Mathematics and Science, Denton,

Texas, T: Farokh Bastani

MA034 RBCAM: A Rule-Based Disease Trending Tool

Anjana Ram, 17, Junior, Texas Academy of Mathematics and Science, Denton,

Texas, T: Ram Laksharain

Houston, USTX05, Science Engineering Fair of Houston

AS058 Oyster Restoration, Part II

Gabriella Dora Quintana, 16, Sophomore, Friendswood High School, Friendswood,

Texas, T: Teresa Lawrence

BE319T Impulsivity, Obsessiveness, and School Grades

Christina R. Wassef, 17, Junior; Audrey Claire Wassef, 17, Junior

Clear Lake High School, Houston, Texas, T: Kurt Oian

BE320T Peer and Parent Health Behaviors

Alyssa Marie Blackburn, 16, Junior; Gina Lulu Toumajian, 17, Junior

Bellaire High School, Bellaire, Texas, T: Anna Loonam

- BI047 Chitosan Nanoparticle Uptake for Cancer Therapy**
 Andy Tran, 16, Sophomore, Michael E. DeBakey High School for Health Professions, Houston, Texas, T: Barbara Williams
- CH039 Carbon Nanotube Synthesis and Characterization**
 Neerja Aggarwal, 17, Junior, L.V. Hightower High School, Missouri City, Texas, T: John Glenn Ramon
- CS061 Class Scheduling Using Genetic Algorithms**
 Rishi Suresh, 15, Sophomore, Clear Brook High School, Friendswood, Texas, T: Leatrice Devault
- EE087 An Alternative Optical Analyzer**
 Nicholas Andrew McCoy, 16, Sophomore, The Academy of Science and Technology, The Woodlands, Texas, T: Susan M. Caffery
- ET313T Harnessing the Sun: Using Natural Dyes for Energy**
 Kaiser Leigh Tin-U, 16, Sophomore; Serene Yu, 15, Sophomore; Kimberly Thien Vu, 16, Sophomore
 Michael E. DeBakey High School for Health Professions, Houston, Texas, T: Barbara Williams
- ME096 Inflammation Is Skin Deep with Gingerol and Transfersomes**
 Kishore Balasubramanian, 14, Freshman, Klein Oak High School, Spring, Texas, T: Brenda Fabian
- ME100 Trafficking Chitosan Nanoparticles in HepG2 Cells**
 Thomas Mark Kunciewicz, 16, Sophomore, DeBakey High School for Health Professions, Houston, Texas, T: Barbara Williams
- PH059 Collision Course: 4486 Mithra**
 Omkar Vikas Joshi, 17, Senior, Bellaire Senior High School, Bellaire, Texas, T: Anna Loonam
- PS032 Plant Grafting III**
 Taylor Rae Lawson, 16, Sophomore, The Academy of Science and Technology, The Woodlands, Texas, T: Larry Walker
Kilgore, USTX06, East Texas Regional Science Fair
- ET041 Mama's Homemade Fuel: Now Carbon-Emission Free!**
 Caitlin Michelle Butler, 18, Senior, Carlisle High School, Price, Texas, T: Charla Jordan
Laredo, USTX07, United Independent School District Regional Science Fair
- BE023 Paper versus Screen & Memorization Effects**
 Allison Kay Herrera, 17, Senior, John B Alexander High School, Laredo, Texas, T: Rebecca E Lopez
Laredo, USTX14, Laredo Independent School District Science Fair
- BE027 Chemical Mind Bend**
 Ricardo Alejandro Perez, 16, Sophomore, Joseph W. Nixon High School, Laredo, Texas, T: Itzel Hinojosa
- ME050 Electromagnetic Radiation's Effect on *Drosophila melanogaster***
 Michael Christopher Guevara, 18, Senior, Joseph W. Nixon High School, Laredo, Texas, T: Eduardo Ernesto Lopez
- PH306T Magnetism vs. Temperature**
 Jose Luis Mata, 17, Junior; Juan Carlos Alonso, 17, Junior
 Dr. Leonides G. Cigarroa High School, Laredo, Texas, T: Jesus Dario Perez
Lubbock, USTX08, South Plains Regional Science and Engineering Fair
- ME009 Intracellular Calcium and Prostate Cancer**
 Dalia Martinez-Marin, 17, Senior, Lubbock High School, Lubbock, Texas, T: Sue Diggs
- MI004 Antifungal Effects of *Eisenia foetida* Bacteria on *Batrachochytrium dendrobatidis* (Bd): Quantifying Fungal Biofilm Formation (Novel Method) and Zoospore Attachment, Year III**
- ### Jayton Lewis Rainey, 17, Senior, Slaton High School, Slaton, Texas, T: Shari Singleton**
Odessa, USTX09, Permian Basin Regional Science Fair
- CB031 Wake Up Call—Is Cardiovascular Disease on the Line?**
 Michael C Godwin, 18, Senior, Andrews High School, Andrews, Texas, T: Cindy W. Tochtermann

- EE313T O.F.F.E.R. (Oil Field Fire Extinguishing Robot): An Offer You Can't Refuse**
 Tyler Richard Gilbreath, 18, Senior; Korbin Charles Gilbreath, 18, Senior
 Andrews High School, Andrews, Texas, T: Vickie Gardner
San Angelo, USTX10, District XI Texas Science Fair
- AS060 How Does Taurine Affect the Heart Development of Chick Embryos?**
 # Brooklyn Fayth Carney, 16, Junior, Cornerstone Christian School, San Angelo, Texas, T: Julie Renee Jense
- ET013 Wind Blown: Wind Turbine Design**
 Krista Renee Nussey, 15, Sophomore, Cornerstone Christian School, San Angelo, Texas, T: Scott Sustek
San Antonio, USTX50, ExxonMobil Texas Science and Engineering Fair
- BI027 Lipodystrophy Protein Seipin Functions in Lipid Droplet Biogenesis and Morphology**
 Anita Sanjay Chandrachud, 18, Senior, Texas Academy of Mathematics and Science, Denton, Texas, T: Dr. John Ed Allen
- EA016 Green Energy from the Deep Blue: Using Kites to Generate Electrical Energy from Ocean Currents**
 Rohan Thakur, 16, Sophomore, Clark High School, Plano, Texas, T: Cathy Bambenek
- EE063 Don't Fear, It's Secure: Flexible and Secure RFID System Deployment**
 Shayan J. Mohanty, 17, Junior, Plano Senior High School, Plano, Texas, T: Karen Shepherd
- EN032 The Algae-Mobile 3: Bioactive Energy and Carbon Dioxide Filtration in the Exhaust of a Car**
 # Param Jaggi, 16, Senior, Plano East Senior High School, Plano, Texas, T: Julie Baker
- ME075 KLF4 and KLF4α: Working Together to Fight Pancreatic Cancer**
 Jiawen Wei, 18, Senior, Bellaire Senior High School, Bellaire, Texas, T: Anna Loonam
- PS031 The Efficiency of Duckweed as a Water Filter, Year Two**
 Sharjeel Ahmed Syed, 16, Junior, John Jay Science and Engineering Academy, San Antonio, Texas, T: Gretchen Catron
San Antonio, USTX11, Alamo Regional Science and Engineering Fair
- AS005 The Effects of Nicotinic Acid, Resveratrol, and Rapamycin on the Life Span, Reproduction, and Ability to Cope with Temperature Stress of *Drosophila melanogaster***
 Aaron Samuel Greenfield, 17, Senior, Keystone School, San Antonio, Texas, T: Jason Nydegger
- CH302T Investigation of Rain-X® and Sunscreen Mixture, Year 4: Effect of Polymer Coated Titanium Dioxide on UVA Transmission and Photocatalytic Activity**
 # Brigitte Mary Lee, 16, Junior; # Derek Robert Lam, 16, Sophomore
 Keystone School, San Antonio, Texas, T: Jason Nydegger
- EA005 Astronomical Image Processing: Eliminating Random Atmospheric Noise and Enhancing Low Resolution Images, Year III**
 Amy Charlotte Robinson, 18, Senior, Keystone School, San Antonio, Texas, T: Jason Nydegger
- EM007 Clean Acres: Simulated in situ Bioremediation of Diesel Contaminated Soil Utilizing a Linoleic Acid and *R. rhodochrous* on Soil Type in and Uncontrolled Environment**
 Morgan Walker Sinko, 16, Junior, John Jay Science and Engineering Academy, San Antonio, Texas, T: Richard Lawrence
- ET015 Preventing Foreign Object Damage of Jet Engines with a New Engine Intake**
 Elizabeth Louise Godfrey, 16, Sophomore, Northside Health Careers High School, San Antonio, Texas, T: Daniel Gerald Bump
- ME021 Efficacy of ER-beta Agonists on the Growth of Lung Cancer Cells**
 Jayme Paige Smith, 17, Senior, Northside Health Careers High School, San Antonio, Texas, T: Dan Bump
- ME022 Can Blood Pressure Drug Help Prevent Resistant Breast Cancer**
 Seshidar Rao Tekmal, 18, Senior, Northside Health Careers High School, San Antonio, Texas, T: Daniel Bump

Waco, USTX12, Central Texas Science and Engineering Fair

- BE005 The Effects of Attending Faith-Based Meetings on Performance Anxiety**
Jack Everett Rhoades, 18, Senior, C.H. Yoe High School, Cameron, Texas,
T: Toni Lafferty
- MI005 The Antimicrobial Effects of Ginger (*Zingiber officinale*) on *E. coli* HB101 (*Escherichia coli*) in Ground Beef**
Nisha Pillai, 18, Senior, Temple High School, Temple, Texas, T: Carol Colwell

UTAH

Cedar City, USUT02, Southern Utah Science and Engineering Fair

- EE048 Humanoid Robot Teleoperation**
Bryce Joseph Reitano, 16, Sophomore, Utah Virtual Academy, Murray, Utah,
T: Cole Busby
- EV019 Die-Hard Daphnia**
K. McKlane Ganowsky, 15, Freshman, Dixie Middle School, Saint George, Utah,
T: Terri Lusk
- ME052 Effects of Exercises on a Diabetes Mellitus Type 1**
Haylee Elizabeth Jones, 17, Junior, SUCCESS Academy, St. George, Utah,
T: Charmain Brammer
- PH024 Comparison of Barrel Forces on Frozen and Unfrozen Paintballs**
Ashley Maree Damavandi, 16, Sophomore, SUCCESS Academy, Cedar City, Utah,
T: Ben Kaufman

Layton, USUT01, North Davis Area Science and Engineering Fair

- EV311T Photoautotrophic Filtration: The Effects of *Chlorella pyrenoidosa* on the Reduction of CO₂ Emissions**
Andrew Quinn Ross, 16, Sophomore; # Jed Donald Grow, 15, Sophomore
Clearfield High School, Clearfield, Utah, T: Bruce Staley
- MI036 Vaccine Preservatives: Thimerosal or 2-phenoxyethanol?**
Andrew Kay Andreasen, 18, Senior, Woods Cross High School, Woods Cross, Utah,
T: Janette Duffin
- PS014 Absciscic Acid Effects on *Yucca filamentosa* Under Cold Stress as Measured by Proline Assay: A Study of Botanical Expression of Proline Under Abiotic Stress**
Frances Loren Hubley, 18, Senior, Woods Cross High School, Woods Cross, Utah,
T: Janette Duffin

Ogden, USUT50, Harold W. & Helen M. Ritchey State Science and Engineering Fair of Utah

- CS032 Quaternary Computing**
William Randall Shipley, 17, Junior, Bear River High School, Garland, Utah,
T: Sanford MacSparren
- EM029 The Biological Theshold Limit Value of Malathion for *Artemia franciscana* in Correlation with Environmental Management and Sustainability of a Keystone Population in Aquatic Ecosystems, Phase IV**
Alexa Anne Lunt, 18, Senior, Weber High School, Pleasant View, Utah,
T: Lareen Radle
- PH027 N-Body Computational Analyses of the Aerocapture of Planetesimals Using Symplectic Algorithms**
Ian Alexander Sohl, 16, Junior, DaVinci Academy of Science and the Arts, Ogden, Utah, T: Deborah Neal
- PS013 The Use of Algae in Reducing the Impact of Eutrophication in Waste Water, in Addition to Producing Sufficient Amounts of Algae for the Use of Biofuel Productions**
Kaylee Shandale Glenn, 16, Junior, Weber High School, Pleasant View, Utah,
T: Matt Patterson

Ogden, USUT03, Weber Area Science and Engineering Fair

- BE039 What Are the Effects of Emotional Stimulus on Student Memory and Academic Performance?**
Tessa Ray Carver, 15, Freshman, Weber High School, Pleasant View, Utah,
T: Matthew T. Patterson

- EE047 Harnessing Energy from Ocean Waves by Means of Vertical Oscillation and Unidirectional Rotation**
Cody McKay Cummings, 18, Senior, Bonneville High School, Ogden, Utah,
T: Michelle Wood
- ET044 An Investigation of Photovoltaic Enhancement Methods, Phase II**
Lindsey Johnson, 15, Sophomore, Weber High School, Pleasant View, Utah,
T: Lareen Radle
- ET045 Generation of Electricity from Ocean Wave Oscillation**
Jessica Kelsey James, 18, Senior, Weber High School, Pleasantview, Utah,
T: Steven Thorpe
- MI039 Viral Contamination: Comparing and Characterizing Bacteriophages Isolated from Wastewater Treatment Facilities**
Cassandra Wilson, 17, Senior, Weber High School, Pleasant View, Utah,
T: Lareen Radle
- PS018 The Intensity of Anthocyanin Concentration versus the Growth of Plants**
Skye Kirstyn Willard, 17, Junior, Bonneville High School, Ogden, Utah,
T: Michelle Wood
- Provo, USUT04, Central Utah Science and Engineering Fair*
- BE034 Motivation and Performance: Examining the Effect of Motivation on Low Stake Test Scores**
Jacob Johnson, 17, Senior, Salem Hills High, Salem, Utah, T: Brad Shuler
- CB305T Creating an Expression Vector Containing the Apoptin Gene for Genetic Modification of *Arabidopsis thaliana* through Agrobacterium Mediated Gene Transfer**
Ellen Christine Peterson, 17, Senior; Brennan Scott Winkler, 17, Senior
Jordan Applied Technology Center, West Jordan, Utah, T: Gina Sanzenbacher
- CH306T The Synthesis and Size Reduction of Dispersed Aggregates of Molybdenum Oxide Nanoparticles for Use in Long Chain Hydrocarbon Cracking**
Natalia Lynn Anderton, 18, Senior; Brielle Woolsey, 18, Senior
Springville High School, Springville, Utah, T: Steven Haderlie
- EA023 Using Amino Acid Analysis to Distinguish Chondritic Meteorites from Rocks Launched into Space from Earth**
Jane M. Cox, 16, Junior, Timpview High School, Provo, Utah, T: John McIlmoil
- MI035 In vitro Evaluation of the Potential for Resistance Development in Caragenin CSA-13**
Justin Daniel See, 17, Senior, Karl G. Maeser Preparatory Academy, Lindon, Utah,
T: Nathan Marshall
- Salt Lake City, USUT05, Salt Lake Valley Science and Engineering Fair*
- BE041 Audio-Visual HIV/AIDS Education in a Tanzanian Adolescent Population**
Lori Kim, 18, Junior, West High School, Salt Lake City, Utah, T: Brenda Mann
- BI022 Detection and Analysis of Point Mutations of the Oxidative Variety in the K-ras Gene**
Charles Preston Blakemore, 18, Senior, Academy for Math, Engineering and Science, Salt Lake City, Utah, T: Tara Wion
- MA030 Modeling Wind Power Generation Using Polynomial Chaos Expansion**
Ryan Thomas Baker, 17, Junior, Hillcrest High School, Midvale, Utah, T: Jeff Salter
- VERMONT**
Northfield, USVT50, Vermont State Science and Mathematics Fair
- EM044 The Optimization of Bioremediation**
Riya Patel, 15, Sophomore, South Burlington High School, South Burlington, Vermont, T: Mark Lubkowitz
- MI049 Synergy in Antibiotics**
Vishnukumaar Premsankar, 14, Sophomore, South Burlington High School, South Burlington, Vermont, T: Christopher Huston
- PH042 The Effects of Temperature on Surface Tension**
Nikki Michelle White, 17, Senior, Windsor High School, Windsor, Vermont,
T: Jennifer Sarah Townsend

VIRGINIA

Arlington, USVA01, Northern Virginia Science and Engineering Fair

EN009 Towards More Efficient Very-Large-Scale Integrated Networks: Increasing the Degree of Parallelism and Semiconductance in Single-Walled Carbon Nanotube Devices

Yosyp Shvab, 17, Senior, T. C. Williams High School, Alexandria, Virginia, T: Shawn Lowe

EV305T The Toxicity of Bioremediation Agents

Catherine Rose Mitchell, 16, Sophomore; Andrea Elise Green, 15, Sophomore

H. B. Woodlawn, Arlington, Virginia, T: William VanEvera

Charlottesville, USVA02, Virginia Piedmont Regional Science Fair

CB006 Genetic Targets in HPV-Induced Cancers

Arun Brendan Dutta, 17, Senior, Western Albemarle High School, Crozet, Virginia, T: Wally Adesina

MA051 On the Patterns Existing Among Carousel Primes in Base n

Simanta Gautam, 15, Sophomore, Albemarle High School, Charlottesville, Virginia,

T: Jeff Prillaman

Fairfax, USVA03, Fairfax County Regional Science and Engineering Fair

BI012 Crystallization of a Novel Malarial Protein, CelTOS, for X-ray Crystal Structure Determination and Anti-malarial Development

Venkat Arunkumar Iyer, 17, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Andrea Cobb

EE307T Fabrication and Impact Optimization of Angular and Hydrostatic Body Armor

Atif Javed, 18, Senior; Steven Donald Gillen, 17, Junior

Fairfax High School, Fairfax, Virginia, T: Christopher Bird

EM021 The Effect of *E. crassipes* on the Nitrate and Ammonia Levels from Sewage Treatment Waste Water

Kelly M. Martins, 17, Junior, Langley High School, McLean, Virginia, T: Robert Culbertson

EN304T Developing a Urine Test for Tularemia through the Use of Cibacron Blue-Core Shell Nanoparticles to Sequester the Bacterial Antigen Tul4

Rithvik Raju Prasannappa, 17, Junior; Sameer Kumar Singh, 16, Junior

Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Andrea Cobb

ET035 Effect of Various Metal Cofactors on the Catalyzation Rate of Pyruvate to Ethanol by Pyruvate Decarboxylase (EC 4.1.1.1) in *Saccharomyces cerevisiae* when Thiamine Pyrophosphate (TPP) Is Absent

Arrush Choudhary, 15, Sophomore, Chantilly High School, Chantilly, Virginia, T: Latha Shankar

EV321T The Effect of Pollutants on *Eisenia hortensis* (Earthworm) and It's Potential as an Indicator Species

Gillian Claire Gundersen, 17, Senior; Brenda Allison Perez, 17, Senior

Herndon High School, Herndon, Virginia, T: Erin Sikes-Thurston

ME040 The Inhibition of Tumor Cell Growth by Cordycepin

Jason Shao Cui, 15, Freshman, Langley High School, Mclean, Virginia,

T: Jeremy Gilman

ME041 Efficacy of Valproic Acid as a GSK-3 α Inhibitor in Treatment of Amyloid- α Aggregation and Neuronal Apoptosis in Alzheimer's Disease

Shreyas Mahapatra, 17, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Paul Cammer

ME042 Subjugation of *P. aeruginosa*'s Opportunistic Pathogenesis through the Utilization of Novel Anti-Neutrophil Therapy

Aditya Samir Mazmudar, 16, Junior, Fairfax High School, Fairfax, Virginia, T: Kristin Webster

ME043 The Effect of Taurine on Cardiovascular Dysfunction in *Daphnia magna*

Heba Khaled Rashed, 18, Senior, South County Secondary School, Lorton, Virginia,

T: Danielle L Schoolcraft

Harrisonburg, USVA04, Shenandoah Valley Regional Science Fair

EA006 Confirmation of Eratosthenes' Experiment: The Diameter of the Earth Determined Using a Sundial

Holly Elizabeth Peterson, 16, Junior, Sherando High School, Stephens City, Virginia,
T: Susan Saylor

EV010 The Effect of Pesticides and DHA on the Regeneration of Planaria

Christina Yah-yun Lee, 15, Sophomore, Sherando High School, Stephens City, Virginia, T: Susan Saylor

Lynchburg, USVA05, Central Virginia Regional Science Fair

BE019 The Effect of Communication Style on Lateral Eye Movement When Asked a Kinesthetic Question

Elizabeth Marie Hargis, 17, Junior, Central Virginia Governor's School, Lynchburg, Virginia, T: Shannon Beasley

EE034 The Effect of Light Wavelength on Solar Cell Efficiency

Jill Grey Ferguson, 16, Sophomore, Staunton River High School/ Roanoke Valley Governor's School, Moneta, Virginia, T: Kerry Zell

Manassas, USVA06, Prince William-Manassas Regional Science Fair

MI312T Testing the Effect of Variable Surface Adhesiveness on the Movement Velocity of "Gliding" Cyanobacteria to Test Bacterial Gliding Theory for Cyanobacterial Motility

Kevin Timothy Keller, 17, Junior; Abhinav Sai Venkat, 16, Junior
Battlefield High School, Haymarket, Virginia, T: Amanda Jean Esteban

Norfolk, USVA09, Tidewater Science Fair

AS008 Behavioral Evidence for Cerebral Asymmetry in Green Anoles

Rachel Emily Reon, 17, Junior, The Governor's School for Science and Technology, Hampton, Virginia, T: Julian Pittman

EV016 The Impact of Natural Processes and Human Activities on the Water Quality of Various Lakes

Abigail Yu Chen, 15, Sophomore, York High School, Yorktown, Virginia,
T: Deborah Eckstein

Norfolk, USVA50, Virginia State Science and Engineering Fair

EA025 Washington, DC Severe Thunderstorm Wind Events: An Analysis of Correlated Thermodynamic Convective Parameters and Doppler Radar Signatures

Christopher Aaron Manning Gerlach, 15, Sophomore, T. C. Williams High School, Alexandria, Virginia, T: Shawn Lowe

MA013 An Expansion on Analysis of Kasner Polygons Generated by Iterative Processes

Minsuk Kim, 17, Junior, Paul VI Catholic High School, Fairfax, Virginia,
T: Tom Andrewes

Purcellville, USVA07, Loudoun County Science and Engineering Fair

BI011 Determination of Estrogen as a Trigger of Protandric Colony Formation of *Amphiprion ocellaris*

Emily Marie Crisp, 18, Senior, Loudoun County Academy of Science, Sterling, Virginia, T: Jackie Curley

EN017 Determining if *Magnetospirillum magnetotacticum* Can be Used to Kill *Tetrahymena pyriformis* via Magnetically Induced Hyperthermia as a Basis for Alternative Cancer Treatment

Anurag Narain Mathur, 17, Senior, Academy of Science, Sterling, Virginia,
T: Jackie Curley

ME039 Downstream Assay for Laser Capture Microdissection to Examine JC Virus Trafficking into the Central Nervous System

Paul Austin James Howell, 17, Senior, Dominion High School, Sterling, Virginia,
T: Denise Lynne Wingfield

PS010 The Effect of Intraspecific Cooperation in Sibling Plants Descended from the Same Parental Type on the Amount of Biomass Produced

Kelsi Samantha Faley, 16, Sophomore, Heritage High School, Leesburg, Virginia,
T: Amol Chandra Patel

Radford, USVA10, Blue Ridge Highlands Regional Science Fair

ET008 Windbelt Application to Vehicles in Motion

Taylor James Hay, 18, Senior, Southwest Virginia Governor's School, Pulaski, Virginia, T: Kenneth Abel

ME014 The Music of the Heart: The Transformation of Electrocardiogram (ECG) into Sound

Heming Zhao, 18, Senior, Southwest Virginia Governor's School, Pulaski, Virginia, T: Daniel Blake

Richmond, USVA11, Metro Richmond Science Fair

EN019 Celloidosomes: A Journey toward the Bioengineering of Artificial Micro-Glands and Micro-Bioreactors

Samantha Marie Marquez, 15, Freshman, Maggie L. Walker Governor's School for Government and International Studies, Richmond, Virginia, T: Anna Shore

MA016 A Fractal Analysis of Musical Complexity through Time

Jeffery Brunson Holste, 16, Junior, Mills E. Godwin High School, Henrico, Virginia, T: Laura Akesson

Roanoke, USVA08, Western Virginia Regional Science Fair

EN018 An Investigation of the Porosity and Morphology of Fusion-Bonded Epoxy

Rachel Alexandra Strauss, 17, Junior, Roanoke Valley Governor's School for Science and Technology, Roanoke, Virginia, T: Fred Hoffman

MA014 Eigenvalues of the Zakharov-Shabat System

Will Gooding, 17, Senior, Roanoke Valley Governor's School for Science and Technology, Roanoke, Virginia, T: Linda Hanks

WASHINGTON

Bellevue, USWA03, Central Sound Regional Science & Engineering Fair

EV008 Can You Drink a River? An Evaluation of Solar Disinfection Efficiency in the Inactivation of *E. coli* and Coliform Bacteria at a Northern Latitude

Kathryn R McClintic, 16, Junior, Cedarcrest High School, Duvall, Washington, T: Kellie Halverson

Bremerton, USWA50, Washington State Science and Engineering Fair

CH027 Organic Photovoltaics II: Analyzing Amino Substituent Effects of Porphyrins through Synthesis, Characterization and Application of New (Zn) Amino/ carboxyphenylporphyrins in Dye Sensitized Solar Cells

Xisen Tian, 18, Senior, Columbia River High School, Vancouver, Washington, T: Alex Rudine

EA017 A Novel Meta-Analysis of Data Using Sexual Cannibalism as a Mechanism for Tyrannosaurus Rex Reproduction

Nicholas Maximiliano Vergara, 16, Junior, Cedarcrest High School, Duvall, Washington, T: Kellie Lou Halverson

EE064 Electrowetting for Novel Electromechanical Applications

Andrey Sushko, 16, Junior, Hanford High School, Richland, Washington, T: Brian Palmer

Kennewick, USWA01, Mid-Columbia Regional Science and Engineering Fair

ET040 Analysis of Conducting Polymer PEDOT (Poly (3,4-Ethylenedioxythiophene)) and Nanostructured Titania for Solid-State Dye-Sensitized Solar Cells

Akshai Baskaran, 18, Senior, Kennewick High School, WA, Washington, T: Chitra Sivaraman

PS011 The Use of Sodium Polyacrylate to Increase Crop Production in Dry-Land Farming

Kira Elizabeth Powell, 16, Junior, Odessa High School, Odessa, Washington, T: Jeffery Wehr

Tacoma, USWA02, South Sound Regional Science Fair

AS045 In Search of the Causative Genetic Element(s) Affecting Entropion Eyelid Development in Newborn Lambs: Is It OAR16_14874751?

Aerin Erika Towle, 17, Senior, Sumner High School, Sumner, Washington, T: Gregory Alan Pile

- EN036 eHeart: ECG Signal Processing System for Automatic Detection of Cardiac Abnormalities**
Vamsi Chunduru, 17, Senior, Capital High School, Olympia, Washington,
T: Jennifer Echtele
- EV315T Seasonal Succession of Phytoplankton Species in Quartermaster Harbor and as Precursors to Alexandrium catenella Blooms**
Elizabeth Anne Meucci, 18, Senior; Alyssa Ashley Ylescupidex, 18, Senior
Bellarmine Preparatory School, Tacoma, , T: Ron Nilsen

WEST VIRGINIA

Fairmont, USWV50, West Virginia State Science and Engineering Fair

- CB028 TLR3-Mediated Signaling Protects Astrocytes Against Oxidative Stress through SOD2 Upregulation**
Swetha Krishna Doppalapudi, 16, Junior, Morgantown High School, Morgantown, West Virginia, T: Gregory Konat
- Keyser, USWV01, West Virginia Eastern Panhandle Regional High School Science Fair*
- ET047 The Effect of Winglet Angle on the Induced Drag of an Airplane**
Taylor Mason Hose, 16, Junior, Hedgesville High School, Hedgesville, West Virginia, T: Andrew Ferber
- MA049 The Fractal Geometry of the Mandelbrot and Julia Sets: A Simple Relationship in the Complex Plane**
Aishwarya Saluja, 15, Sophomore, Hedgesville High School, Hedgesville, West Virginia, T: Andrew Ferber
- MI063 The Effect of Citrus Extract on *Mycobacterium avium* Subspecies Paratuberculosis under Aerobic and Anaerobic Conditions**
Erin Allison Weddle, 16, Junior, Musselman High School, Inwood, West Virginia, T: Brenda Waterworth

West Liberty, USWV03, West Liberty State University Regional Science and Engineering Fair

- AS024 A Continuing Study of Aggression during Shelter Competition between Invasive and Indigenous Species of Crayfish**
Vincent Jacob O'Leary, 15, Sophomore, Wheeling Central Catholic High School, Wheeling, West Virginia, T: Theresa Fultz

WISCONSIN

Glendale, USWI02, Nicolet Science and Engineering Fair

- BE018 Who Pays More for Nationally Branded Products—Educated or Less Enlightened, Old or Young?**
Sara Elisabeth Miller, 14, Freshman, Nicolet High School, Glendale, Wisconsin, T: Gary Stresman
- EE033 The Design & Construction of an Improved Point-of-Use Antimicrobial Water Purification System**
Jonathan Charles Fuqua, 18, Senior, Nicolet High School, Glendale, Wisconsin, T: Gary Stresman
- MI311T The Effect of Essential Oils on the Growth of Streptococcus pneumoniae**
Emily Galan Murphy, 15, Freshman; Adam Jacob Salerno Kallas, 14, Freshman
Nicolet High School, Glendale, Wisconsin, T: Melissa Trepte

Madison, USWI04, Capital Science and Engineering Fair

- CB027 Effects of Chemoattractant Leukotriene B4 in Neutrophil Response to CuSO4 Induced Wounding**
Maya Pema Dorje, 18, Senior, James Madison Memorial High School, Madison, Wisconsin, T: Rick Erickson
- EN046 Engineering *E. coli* for Biosynthesis of Hydrocarbons**
Suman Gunasekaran, 16, Freshman, James Madison Memorial Senior High School, Madison, Wisconsin, T: Brian Pfleger

Milwaukee, USWI50, Badger State Science and Engineering Fair

- CS045 High School Facebook Network Analysis**
Angela Chen, 15, Freshman, Nicolet High School, Glendale, Wisconsin, T: Gary Stresman

EM030 Making a Good Use of a Bad Weed: From Garlic Mustard into Biofuel
Becky Chu, 16, Junior, Divine Savior Holy Angels High School, Milwaukee, Wisconsin, T: Betty Jo Azpell

EN015 Improving the Efficacy of Orthotics for Neuropathic Foot Ulcerations
Isabelle Cicely Gill, 14, Freshman, Nicolet High School, Glendale, Wisconsin, T: Eliot Scheuer

Milwaukee, USWI03, University School of Milwaukee—Science Fair

BE014 Effects of the Full Moon on Human Behavior
Dominique Helen Tlomak, 14, Freshman, University School of Milwaukee, Milwaukee, Wisconsin, T: Marja Konkol

EE012 Rotational Impact Forces and Hockey Helmet Design
Ashton Rhys Wackym, 16, Junior, University School of Milwaukee, Milwaukee, Wisconsin, T: Robert Juranitch

EM009 Improving the Efficiency of Petrophilic Microbes
Kern Khanna, 15, Sophomore, University School of Milwaukee, Milwaukee, Wisconsin, T: Robert Juranitch

Sheboygan, USWI01, Lakeland Science and Engineering Fair

EA014 A Study of the Relationship between the Current and the Seiche in Lake Superior at Bayfield, WI
Alexandra Jean Gephart, 17, Junior, Bayfield High School, Bayfield, Wisconsin, T: Richard Erickson

WYOMING

Greybull, USWY01, Northern Wyoming District Science Fair

EM001 Soil Amendment Variations: Their Role in Improving Surface Mine Reclamation

Travis Cole Sylvester, 17, Junior, Greybull High School, Greybull, Wyoming, T: Joel Kuper

EM002 Application of Hydrothermal Mesophiles as a Control for Oil Contamination
Jessica Fay Hunt, 17, Sophomore, Greybull High School, Greybull, Wyoming, T: Joel Kuper

Laramie, USWY50, Wyoming State Science Fair

BI009 Unusual Cold Denaturation of the Small Protein Domain
Natalie Melinda Shih, 17, Senior, Laramie Senior High School, Laramie, Wyoming, T: Erin Klauk

CS008 A Comparison of Factoring Efficiency: Iterated Function Method vs. Quadratic Sieve
Maurice Olympic Shih, 14, Freshman, Laramie Junior High School, Laramie, Wyoming, T: Erin Klauk

MA004 Continued Fractions and Mathematical Constants
Gabriel Wolfgang Shih, 16, Sophomore, Laramie Senior High School, Laramie, Wyoming, T: Erin Klauk

URUGUAY

Atlantida, URY001, Feria Nacional de Clubes de Ciencia

CS301T Visually Impaired Helps Program (PADV)
Luis Gustavo Aceredo, 20, Senior; Matias Rodriguez, 17, Senior
Technological Top Institute of Paysandu, Paysandu, Uruguay,
T: Bruno Rodriguez Techera

EM302T Our Native Fruits: Opportunity or Utopia?
Maria Fernandez, 16, Junior; Yamila Cuendes, 16, Junior; Gonzalo Camejo, 16, Junior
Jose Alonso y Trelles, Tala, Canelones, Uruguay, T: Gladys Clavijo

EM303T Automatic Cheese Washed
Luis Pereyra, 15, Freshman; # Romina Rostan, 15, Freshman
Escuela Agraria La Concordia, Colonia Concordia - Dolores, Soriano, Uruguay, T: Fernando Piazze

VIETNAM

Hochiminh city, VNM001, Ho Chi Minh Science Fair

EM034 ARMOR SHRIMP - The Friendly Waste

An Hai Nguyen, 17, Junior, Tran Dai Nghia High School for the Gifted, Ho Chi Minh, Ho Chi Minh, Vietnam, T: Lan Huong Thi Nguyen

Hue, VNM002, Thua Thien Hue Science Fair

PH311T Determining Heights and Angles in Space by Using Plane Mirror System

Tien Thuc Ha, 17, Junior; Long Pham Phuoc Doan, 17, Junior; Thien Van Bao Nguyen, 17, Junior

Quoc Hoc Special Senior High School for the Gifted, Hue, Thua Thien Hue, Vietnam, T: Chi Thi Kim Le

VIRGIN ISLANDS

St. Croix, TEVI01, The Virgin Islands Science Fair

ET312T The Ultimate Car

Joariam Fragosa, 17, Junior; Cydmarie Ayala, 16, Junior

St. Croix Career & Technical Educational Center, Kingshill, Virgin Islands, T: Joseph Shrader

St. Croix, TEVI02, The Good Hope School Science Fair

CB037 Plasmids for Prostate Cancer: Construction of Single Chain Variable Fragments (ScFv) F77 for Prostate Cancer Monoclonal Antibody Therapy Research

Gabriela Isla-Inez Canales, 15, Sophomore, The Good Hope School, Fredriksted, Virgin Islands, T: Jane Coles

MI057 Killer Extracts II: A Study on the Antibacterial Effectiveness of Psidium guajava

Eliza W Mongeau, 17, Junior, The Good Hope School, Frederiksted, St.Croix, Virgin Islands, T: Mary Jane Coles



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