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!
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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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,

Paul S. Otellini
President and Chief Executive Officer
Intel Corporation
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*
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,

Jerry Brown

EDMUND G. BROWN JR.
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
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
Welcome from the Mayor of Los Angeles

City of Los Angeles
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 of 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,

ANTONIO R. VILLARAIGOSA
Mayor
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.
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–INCOSE
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
- 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.

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<th>Event/Group</th>
<th>Location</th>
<th>Day</th>
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<td>Advisory Council Meeting</td>
<td>403 B</td>
<td>5/8-5/9, 5/11-5/12</td>
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<tr>
<td>AP Testing</td>
<td>150 A/B</td>
<td>5/9-5/12</td>
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<tr>
<td>Excellence in Science &amp; Technology Panel sponsored by Intel Corporation</td>
<td>West Hall A</td>
<td>5/10</td>
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<tr>
<td>Finalist Project Exhibits</td>
<td>Halls H &amp; J</td>
<td>5/8-5/12</td>
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<td>Finalist Resource Center</td>
<td>406 A/B</td>
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<td>Grand Awards Ceremony</td>
<td>West Hall A</td>
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<tr>
<td>Housing Information</td>
<td>Registration Complex</td>
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<tr>
<td>HUB (Center of Exhibit Hall)</td>
<td>Halls H &amp; J</td>
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<td>IB Testing</td>
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<td>Information Desk</td>
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<td>Intel e-Lounge</td>
<td>152, 153 A-C</td>
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<td>Intel ISEF Expo 2011</td>
<td>Hall G</td>
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<td>International/Volunteer Office</td>
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<td>Locator Card Kiosk</td>
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<td>Official Party Registration</td>
<td>Registration Complex</td>
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<td>Opening Dinner</td>
<td>West Hall B</td>
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<tr>
<td>Opening Ceremony</td>
<td>West Hall A</td>
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<tr>
<td>Press Room</td>
<td>303 A/B</td>
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<tr>
<td>Public Visitation</td>
<td>Halls H &amp; J</td>
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<tr>
<td>Retail Store</td>
<td>151</td>
<td>5/8-5/13</td>
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<tr>
<td>Scientific Review Committee (SRC)</td>
<td>404 A/B</td>
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<tr>
<td>Society for Science &amp; the Public</td>
<td>Registration Complex</td>
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<tr>
<td>Information Booth</td>
<td>West Hall A</td>
<td>5/12</td>
</tr>
<tr>
<td>Special Award Ceremony</td>
<td>J. W. Marriott Hotel</td>
<td>5/8</td>
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<tr>
<td>Student Pin Exchange</td>
<td>Diamond Ballroom</td>
<td>5/9-5/12</td>
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<tr>
<td>(Finalists and Student Observers Only)</td>
<td>409A, 409B, 411</td>
<td>5/9-5/12</td>
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<tr>
<td>Symposia</td>
<td>South Lobby</td>
<td>5/7-5/13</td>
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<tr>
<td>Tour Desk</td>
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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, #IntelISEF - www.twitter.com/intel_education
@society 4science - 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
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. 411 (theatre)
2:30 p.m.–4:00 p.m.

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

APPAREL

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:

GRAPHIC CONNECTION
custom apparel

1-888-821-2725
www.gcsportswear.com
# Open Daily

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<td><strong>Finalist Exhibit Hall and the HUB</strong>&lt;br&gt;Sunday (Project Set-up and D&amp;S Inspections)</td>
<td>8:00 a.m.-8:00 p.m.~OFP</td>
</tr>
<tr>
<td>Monday (Project Set-up and D&amp;S Inspections)</td>
<td>8:00 a.m.-6:00 p.m.~OFP</td>
</tr>
<tr>
<td>Tuesday</td>
<td>8:00 a.m.-9:30 a.m.~Finalists with Infractions only&lt;br&gt;9:30 a.m.-11:30 a.m.~Finalists only for Press/PR purposes</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8:15 a.m.-11:45 a.m.&lt;br&gt;1:15 p.m.-3:45 p.m., 4:15 p.m.-6:00 p.m.~Finalists &amp; Judges only&lt;br&gt;9:00 a.m.-9:00 p.m.~Public Visitation Day Noon-2:00 p.m.~OFP</td>
</tr>
<tr>
<td>Thursday</td>
<td>8:00 a.m.-9:00 p.m.~Public Visitation Day Noon-2:00 p.m.~OFP</td>
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<tr>
<td><strong>Finalist Resource Center</strong>&lt;br&gt;Sunday-Monday</td>
<td>8:00 a.m.-9:00 p.m.</td>
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<tr>
<td>Tuesday</td>
<td>8:00 a.m.-9:00 p.m.</td>
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<tr>
<td><strong>Intel e-Lounge</strong>&lt;br&gt;Sunday</td>
<td>3:00 p.m.-10:00 p.m.</td>
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<tr>
<td>Monday—Thursday</td>
<td>8:00 a.m.-6:00 p.m.</td>
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<tr>
<td><strong>Intel ISEF Expo 2011 booths</strong>&lt;br&gt;Monday</td>
<td>1:00 p.m.-4:00 p.m.</td>
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<tr>
<td>Tuesday</td>
<td>9:00 a.m.-5:00 p.m.</td>
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<tr>
<td>Wednesday</td>
<td>9:00 a.m.-1:00 p.m.</td>
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<tr>
<td>Thursday</td>
<td>(Free coffee and pastries will be served) 8:00 a.m.-4:00 p.m.</td>
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<tr>
<td><strong>International/Volunteer Office</strong>&lt;br&gt;Sunday—Thursday</td>
<td>8:00 a.m.-10:00 p.m.</td>
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<td>Friday</td>
<td>8:00 a.m.-10:00 p.m.</td>
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<tr>
<td><strong>Local Information Desk</strong>&lt;br&gt;Sunday—Tuesday</td>
<td>8:00 a.m.-7:00 p.m.</td>
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<td>Wednesday—Thursday</td>
<td>8:00 a.m.-5:00 p.m. Noon-2:00 p.m.</td>
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<tr>
<td><strong>Official Party Registration</strong>&lt;br&gt;Saturday</td>
<td>3:00 p.m.-7:00 p.m.</td>
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<tr>
<td>Sunday—Thursday</td>
<td>8:00 a.m.-9:00 p.m.</td>
</tr>
<tr>
<td>Friday</td>
<td>8:00 a.m.-10:00 a.m.</td>
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<tr>
<td><strong>Retail Store</strong>&lt;br&gt;Saturday</td>
<td>3:00 p.m.-7:00 p.m.</td>
</tr>
<tr>
<td>Sunday—Thursday</td>
<td>8:00 a.m.-7:00 p.m.</td>
</tr>
<tr>
<td>Friday</td>
<td>8:00 a.m.-3:00 p.m.</td>
</tr>
<tr>
<td><strong>Tour Booth</strong>&lt;br&gt;Sunday—Friday</td>
<td>8:00 a.m.-5:30 p.m.</td>
</tr>
</tbody>
</table>

Participants are encouraged to visit [www.societyforscience.org/intelisef2011](http://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.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m.—5:00 p.m.</td>
<td>Project Drop-Off LACC Loading Dock</td>
<td>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.</td>
</tr>
<tr>
<td>8:00 a.m.—8:00 p.m.</td>
<td>Setup of Projects/Display &amp; Safety Inspections</td>
<td>Halls H &amp; J</td>
</tr>
<tr>
<td>8:00 a.m.—9:00 p.m.</td>
<td>SRC Interviews</td>
<td>Halls H &amp; J</td>
</tr>
<tr>
<td>3:00 p.m.—10:00 p.m.</td>
<td>Intel e-Lounge</td>
<td>152, 153 A–C</td>
</tr>
<tr>
<td>4:30 p.m.—6:00 p.m.</td>
<td>Advisory Council Meeting</td>
<td>403 B</td>
</tr>
<tr>
<td>7:00 p.m.—9:00 p.m.</td>
<td>Student Pin Exchange</td>
<td>JW Marriott Hotel, Diamond Ballroom</td>
</tr>
</tbody>
</table>

**Monday, May 9**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m.—Noon</td>
<td>SRC Interviews</td>
<td>404 A/B</td>
</tr>
<tr>
<td>8:00 a.m.—6:00 p.m.</td>
<td>Project Setup/Display &amp; Safety Inspection</td>
<td>Halls H &amp; J</td>
</tr>
<tr>
<td>8:00 a.m.—6:00 p.m.</td>
<td>Intel e-Lounge</td>
<td>152/153 A–C</td>
</tr>
<tr>
<td>8:30 a.m.—4:00 p.m.</td>
<td>Symposia</td>
<td>409-411</td>
</tr>
<tr>
<td>1:00 p.m. - 4:00 p.m.</td>
<td>Intel ISEF Expo 2011</td>
<td>Hall G</td>
</tr>
<tr>
<td>1:00 p.m.—2:00 p.m.</td>
<td>Advisory Council Meeting</td>
<td>403 B</td>
</tr>
<tr>
<td>3:30 p.m.—6:30 p.m.</td>
<td>Opening Ceremony Dinner</td>
<td>West Hall B</td>
</tr>
</tbody>
</table>
**Opening Ceremony Pre-Show**
West Hall A

*Casual Attire—Doors open at 6:10 p.m.*

**Opening Ceremony**
West Hall A

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 *It's Effin' Science*. The keynote will be by Jeffrey Katzenberg, Chief Executive of Dreamworks Animation SKG. Mr. Katzenberg's production company has produced hit movies such as *Shrek* and *Kung Fu Panda*. 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.

**Final Project Infractions List**

Posted at Registration, outside of Exhibit Halls, and on www.societyforscience.org/intelisef2011.

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**Tuesday, May 10**

**Project Infraction Clearance**
Halls H & J

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 Finalists 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.

**Intel e-Lounge**

8:00 a.m.–6:00 p.m.

**Symposia**

8:30 a.m.–5:30 p.m.

See full schedule on pages 31–36.

**Intel ISEF Expo 2011**

Hall G

10:00 a.m.–11:30 a.m. **Press/Public Relations Time with Finalists**

Halls H and J

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.

**Excellence in Science and Technology Panel**

West Hall A

*Presented by Intel Corporation—Casual Attire*

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 Osheroff, and Richard Roberts. The panel will be moderated by NPR Science Correspondent Joe Palca.

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**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

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!

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

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 409-411 See full schedule on pages 31–36.
- **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 Halls H & J Meal vouchers will be provided to Finalists for Lunch.
- **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 West Hall A Ceremony in which Special Award Organizations, academic institutions and government agencies give awards.

**Friday, May 13**

- **9:00 a.m.–Noon** Grand Awards Ceremony West Hall A 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.
- **Noon–2:00 p.m.** Exhibit Hall Open for Project Teardown Halls H & J 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.
- **1:00 p.m.–Midnight** Tour to Disneyland South Hall Lobby 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.

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.
Symposium 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

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

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
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
Symposium Schedule

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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SSP and Intel are proud to announce that the Intel International Science and Engineering Fair will be held in Pittsburgh, Pennsylvania in May, 2012.

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To learn more: 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 Kitchen 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
Eddy 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
Rendevous 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
Smeraldis 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 (L.A. 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

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

<table>
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<tr>
<th>Bank</th>
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<tbody>
<tr>
<td>Bank of America</td>
<td>888 7th Street @ Figueroa</td>
<td>(213) 312-9000</td>
</tr>
<tr>
<td>Bank of the West</td>
<td>333 S. Hope Street @ 3rd St.</td>
<td>(213) 912-9000</td>
</tr>
<tr>
<td>Chase Bank</td>
<td>915 Wilshire Blvd. @ Francisco St.</td>
<td>(213) 986-7865</td>
</tr>
<tr>
<td>City National Bank</td>
<td>725 S. Figueroa St. @ 7th St.</td>
<td>(213) 624-1403</td>
</tr>
<tr>
<td>US Bank</td>
<td>555 S. Flower St. @ 5th St.</td>
<td>(818) 227-4300</td>
</tr>
<tr>
<td>Wells Fargo</td>
<td>633 W. 5th Street @ Grand Ave.</td>
<td>(213) 612-6300</td>
</tr>
<tr>
<td>Wells Fargo</td>
<td>445 S. Figueroa St. @ 4th St.</td>
<td>(213) 236-7700</td>
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<tr>
<td>Wells Fargo</td>
<td>717 W. Olympic Blvd. @ Figueroa</td>
<td>(213) 688-2680</td>
</tr>
<tr>
<td>Wells Fargo</td>
<td>707 Wilshire Blvd. @ Hope St.</td>
<td>(213) 483-2681</td>
</tr>
<tr>
<td>Wells Fargo</td>
<td>333 S. Grand Ave. @ 3rd St.</td>
<td>(213) 253-6600</td>
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### Copy and Mail Services

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

<table>
<thead>
<tr>
<th>Drugstore</th>
<th>Address</th>
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<tbody>
<tr>
<td>Rite Aid</td>
<td>900 W. 7th St. @ Hope St.</td>
<td>(213) 986-0083</td>
</tr>
<tr>
<td>Walgreens</td>
<td>917 W. 7th St. @ Grand Ave.</td>
<td>(213) 694-2880</td>
</tr>
<tr>
<td>Urgent Care Medical Pharmacy</td>
<td>1127 Wilshire Blvd. @ Grand Ave.</td>
<td>(213) 482-0644</td>
</tr>
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### Grocery Store

*Outside food cannot be brought into the LACC*

<table>
<thead>
<tr>
<th>Grocery Store</th>
<th>Address</th>
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<tbody>
<tr>
<td>Famima</td>
<td>727 W. 7th St. @ Fower St.</td>
<td>(213) 627-7334</td>
</tr>
<tr>
<td>Famima</td>
<td>700 Wilshire Blvd. @ Hope St.</td>
<td>(213) 622-2006</td>
</tr>
<tr>
<td>Famima</td>
<td>525 W. 6th St. @ Grand Ave.</td>
<td>(213) 629-5100</td>
</tr>
<tr>
<td>Ralphs Grocery Store</td>
<td>645 W. 9th St. @ Flower St.</td>
<td>(213) 452-0840</td>
</tr>
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### Medical/Dental

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

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<tr>
<th>Miscellaneous Stores</th>
<th>Address</th>
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<tbody>
<tr>
<td>Staples Office Supply</td>
<td>835 Wilshire Blvd. @ Figueroa St.</td>
<td>(213) 243-5792</td>
</tr>
<tr>
<td>Target</td>
<td>3535 S. La Cienega</td>
<td>(310) 895-1131</td>
</tr>
<tr>
<td>Walmart</td>
<td>4101 S. Crenshaw Blvd.</td>
<td>(323) 299.8014</td>
</tr>
</tbody>
</table>
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  
Harvey Bjornlie—Volunteers  
Karen Cerwin—Volunteers  
Kathy DiRanna—Co-Chair, Judges  
Melina Duarte—Education Outreach  
Dean Gilbert—Chair, Local Arrangements Committee  
Chris Gould—Co-Chair, Judging  
Michael Horton—Education Outreach  
Jerry Loomer—Display & Safety  
Joe Reuter—Local Chair, Display & Safety  
Ed Rodevich—Education Outreach  
Yamileth Shimojyo—Education Outreach  
Irene Swanson—Judges  
Jo Topps—Volunteers  
Margery Weitkamp—Display & Safety  
Gary Widdison—Member at Large  
Susan Gomez-Zweip—Volunteers
Society for Science & the Public thanks the dedicated Committee members of the Intel ISEF 2011:

### Advisory Council

<table>
<thead>
<tr>
<th>Chair</th>
<th>Secretary</th>
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<tbody>
<tr>
<td>Tony Ortiz</td>
<td>Emily M. Keeler</td>
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<tr>
<td>Karen Kinsman, Past Chair</td>
<td>Donna E. Leonardi</td>
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<tr>
<td>Martha Vogel, Incoming Chair</td>
<td>James Lowery</td>
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<tr>
<td>Ingrid Weigand</td>
<td>Michele J. Mann</td>
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<tr>
<td>Lucy Adams</td>
<td>Shannon D. Sample</td>
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<tr>
<td>Nancy Aiello</td>
<td>Timothy J. Sears</td>
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<tr>
<td>Kathleen Bethel</td>
<td>Joyce Stark</td>
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<tr>
<td>Trace Bowen</td>
<td>Gary Stresman</td>
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<tr>
<td>John Cole, D &amp; S Chair</td>
<td>Joan Wagner</td>
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<tr>
<td>Cathy Collins</td>
<td>Robert Yost</td>
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<tr>
<td>Ronda Fields</td>
<td>Peter Zavodszky</td>
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<td>Wilma M. Giol-Ruiz</td>
<td>Marion Zeiner</td>
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<td>Jack Johnson</td>
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### Scientific Review Committee

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Nancy Aiello</td>
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<tr>
<td>Henry Disston</td>
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<tr>
<td>Marcus Friskop</td>
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<td>Jennifer Green</td>
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<td>Paula Johnson</td>
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<td>Maria Lavooy</td>
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<td>Chris Miller</td>
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<td>Evelyn Montalvo</td>
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<td>Jason Shuffitt</td>
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<td>Jim Stevens</td>
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### Judging Advisory Committee

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<tr>
<td>Leonard Duda</td>
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<tr>
<td>David Feinstein</td>
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<tr>
<td>Bill Glaunsinger</td>
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<td>Lorna Glaunsinger</td>
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<td>Christopher Gould</td>
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<td>Arnetia Maasha</td>
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<td>Linda Mantel</td>
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<td>Alicia Martinez</td>
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<td>Robert Reis</td>
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<td>Cheryl Scott</td>
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<td>Charles Vukotich</td>
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<td>Robert Yost</td>
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### Display & Safety Committee

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<td>John Cole</td>
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<td>Courtney Butler</td>
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<td>Tom Carson</td>
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<td>Pamela Ceglinski</td>
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<td>Rob-Bob Ceglinski</td>
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<td>Kelly Corkern</td>
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<td>Bob Haines</td>
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<td>Henry Hartman</td>
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<td>Darcy Hecht</td>
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<td>Diane Hecht</td>
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<td>Judy Jones</td>
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<td>Valerie Lucchesi-Elliott</td>
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<td>Tony Marable</td>
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<td>Roger Milovina</td>
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<td>Bonnie Schmidt</td>
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<td>Steve Scott</td>
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<td>Dayon Taylor</td>
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<td>Tina Webb-Browning</td>
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</table>
Thank You

Society for Science & the Public, Intel and the Los Angeles Local Arrangements Committee recognize with gratitude the judges, volunteers, parents, teachers and fair directors who make the Intel ISEF possible year after year. The following individuals and volunteers are recognized for their special dedication to Intel ISEF 2011.

Nancy Aiello
S.R. (Buddy) Bounds
Bill Chown
Glen Cook
John Cole
Nolan Danchick
Ibby Dickson
Michael Foy
Nadine Haines
Henry Hartman
Karen Kinsman

Hynda Kleinman
James Lowery
Tony Marable
Theo Olson
Becky Rotundo
Joe Schwer
Larry Sernyk
Junior Warner
Laura Werner
Andy Yeager
Michelle Yost
Intel ISEF 2011 Survey
We want your feedback.

The survey solicits feedback on Intel ISEF 2011.

After the fair, follow the link www.societyforscience.org/isef2011AttendeeSurvey
In 1996, Intel became the title sponsor of the ISEF. Since then, it has heightened the program’s visibility and made the Intel ISEF a world-renowned program with true international flavor and participation. Society for Science & the Public thanks Intel for its many contributions to the Intel ISEF.

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President and Chief Executive Officer
Shelly Esque
Vice President, Corporate Affairs

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Hillsboro, Oregon

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Corporate Marketing Group
Santa Clara, California

And the many Intel employees who support Intel ISEF and affiliated fairs around the world.
This week, more than 1,600 of the world’s most innovative young minds are gathered in Los Angeles, California to show off their incredible science research. After the judges have chosen the top winners, YOU will have the chance to vote for your favorite. May the best world-changing idea win.

Go to http://intel.ly/intel-edu to learn more about the contest.

Voting begins on Wednesday, May 18 and ends on Wednesday, June 1.
Society for Science & the Public (SSP), a nonprofit membership organization based in Washington, D.C., owns and has administered the ISEF since its inception in 1950. Through the Intel ISEF, SSP encourages students to apply their imagination to excel in the sciences while exploring their unique and personal visions of the future.

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Senior Accountant

Specialist — Awards and Education Programs Administration

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2011 marks the seventh consecutive year that Ricoh Americas Corporation has provided scholarships to students whose Intel ISEF projects have best reflected the principles of sustainability.

For over three decades, Ricoh has led the office automation industry in creating green technologies and environmental management systems that promote the triple bottom line of people, planet and profit.

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Ricoh is the Official Imaging Sponsor of the Intel ISEF 2011
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  
Flora Esther Duarte, 16, Freshman; Emilcen Juana Espinoa, 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 Blustamante, 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 Ensenanza 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 Genoprotectent
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 Dmitreyevich 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 Zarvorny
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 Problematizing 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; # Paulo 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, Imperatirz, Maranhao, Brasil, T: Zilmar Timoteo Soares

EM308T Bioremoval 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


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 Veira 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 Fluminen, Macae, RJ, Brasil, T: Margarida Lourenco Castelloo

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
EEEP 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
Finalist Directory

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 Porpaczy

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

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

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

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)
Tiange 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

CS030  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 LX56
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

CS04T  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, TWNO01, 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, Taichung 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—I

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, CR1001, Feria Nacional de Ciencia y Tecnología

EE023  Solar Energy Conversion into Mechanical Power  

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, CR1002, 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 Kovan, 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, Njurm, 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 Bitaghy, 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, Alsedia 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

FRANCE
Paris, FRA002, C.Génial

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
**Finalist Directory**

**HONG KONG SAR OF THE PEOPLE’S REPUBLIC OF CHINA**

*Hong Kong, HKGO01, 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 Ramachanderan, 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 Subban, 14, Junior  
Sri Ramakrishna High School, Puttur, India, T: Vasanthi Kendila - Sri Ramakrishna High School Puttur, Puttur Karnataka, Karnataka, India, T: Vasanthi Kendila

**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**  
Acmeola 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.W.A.L.E.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
<table>
<thead>
<tr>
<th>Location</th>
<th>Category</th>
<th>Title</th>
<th>Authors</th>
<th>School</th>
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</tr>
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<tbody>
<tr>
<td>Tokyo, JPN002, Japan Science &amp; Engineering Challenge</td>
<td><strong>BE305T Development of a Biofeedback System Enabling Control of Nervousness</strong></td>
<td>Yoshito Morikawa, 18, Senior; Ryota Fukumoto, 18, Senior</td>
<td>Waseda University Senior High School, Nerima, Tokyo, Japan, T: Yasushi Nakajima</td>
<td><strong>EA304T Characterization of Volcanic Lightning and Modeling How Volcanic Lightning Occurs at Sakurajima Volcano in Kagoshima, Japan</strong></td>
<td>Nobutada Kawazoe, 17, Junior; Taiki Maehata, 17, Junior; Rushia Kanai, 17, Junior</td>
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<td><strong>JORDAN</strong></td>
<td><strong>BE021 Designing a Glass System to Control the Light Intensity and Room Temperature</strong></td>
<td>Sanad Nidal Abu-Haikal, 16, Junior, Modern Montessori School, Amman, Jordan, T: Raed Mustafa shami</td>
<td><strong>BE021 Designing a Glass System to Control the Light Intensity and Room Temperature</strong></td>
<td><strong>BE021 Designing a Glass System to Control the Light Intensity and Room Temperature</strong></td>
<td>Sanad Nidal Abu-Haikal, 16, Junior, Modern Montessori School, Amman, Jordan, T: Raed Mustafa shami</td>
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<td><strong>JORDAN</strong></td>
<td><strong>ME055 Natural Fighter of Blood Lipids</strong></td>
<td>Laith Omar Shannak, 16, Junior, Modern Systems Schools, Amman, Jordan, T: Mohammad Mustafa Salah</td>
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<td>Laith Omar Shannak, 16, Junior, Modern Systems Schools, Amman, Jordan, T: Mohammad Mustafa Salah</td>
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<td><strong>JORDAN</strong></td>
<td><strong>PS012 Everlasting Flowers</strong></td>
<td>Zeina Yousef Qaisieh, 16, Sophomore, Modern Systems Schools, Amman, Middle East, Jordan, T: Eman Faisal Shuheiber</td>
<td><strong>KAZAKHSTAN</strong></td>
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<tr>
<td>Astana, KAZ001, DARYN National Junior Science Projects Competition</td>
<td><strong>EV043 Entomophilous Steppe Plants of the Village Karabaty</strong></td>
<td>Yelena Aleksandrovna Galaton, 17, Sophomore, High School OZAT, Kostanai, Kazakhstan, T: Galina Vasilyevna Vartanian</td>
<td><strong>MA041 Additive Sequence</strong></td>
<td><strong>MA041 Additive Sequence</strong></td>
<td>Nikita Maksimovich Nikita, 17, Sophomore, High School #1, Ekibastuz, Ekibastuz, Kazakhstan, T: Gulzhan Yesenbayevich Yesenbayeva</td>
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<tr>
<td><strong>KAZAKHSTAN</strong></td>
<td><strong>MA310T Minimal Lie Rings</strong></td>
<td>Tole Ernstudy Tolegenov, 17, Junior; Yeren Aibynovich Adepkan, 17, Junior</td>
<td><strong>KAZAKHSTAN</strong></td>
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<td><strong>MA310T Minimal Lie Rings</strong></td>
<td>Tole Ernstudy Tolegenov, 17, Junior; Yeren Aibynovich Adepkan, 17, Junior High School in Physics and Math, Almaty, Almaty, Kazakhstan, T: Arkhat Sadyrbayevich Dolyayev</td>
<td><strong>MA310T Minimal Lie Rings</strong></td>
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<td>Tole Ernstudy Tolegenov, 17, Junior; Yeren Aibynovich Adepkan, 17, Junior High School in Physics and Math, Almaty, Almaty, Kazakhstan, T: Arkhat Sadyrbayevich Dolyayev</td>
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</tbody>
</table>
LEBANON
Beirut, LBN001, Lebanon Science Fair
BE022  Alcohol Test
Nadia Robert Matrak, 16, Freshman, Ecole Du Saint Coeur, Bekfaya, Mount Lebanon, Lebanon, T: Eliane Robert Dagher

EV307T  HD Converter
Doha Raouf 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 Alizarani, 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, Tecnologico de Monterrey Campus Guadalajara, Zapopan, Jalisco, Mexico, T: Alma Delia Zamarripa Flores
BE052  Kualli 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 Santillan, 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, Aguascalientes, 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 Beper
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 Chamami

NIGERIA
ABUJA, NGA001, Nigeria Science Fair

EM313T  Orange Peels: The Untapped Goldmine
Sukurat Oyindamola Quadri, 15, Junior; Ayisat Yetunde Ibwenmni Abiodun, 15, Junior; Fatiga Oyebola Olabisi, 15, Junior Doregos Private Academy, Ipaja, Nigeria, T: Olaide Oluwaseyi Lawal

MI302T  Jatropha Antibacterial Soup
Zainab Morenikeji Adedipe, 14, Junior; Olaooluwa Emmanuel Bamidele, 15, Junior Homat Group of Schools, Ikorodu, Nigeria, T: Adedoyin Idoowu Ojubunmi

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 Ghafoor, 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 Bioremediation 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 spilanthoides Cass (Buttonwood) and Its Importance in Medicine
Kelvin Russell Cespedes Nano, 15, Senior; Angel Francisco Solis Gozar, 15, Senior
Educational Institution Divina Pastora, Oxpampa, Pasco, Peru, T: Irma Soledad Valdivia Mamani
Finalist Directory

PHILIPPINES

Pasig City, PHL001, Intel Basic Philippine Science Fair

**BIO24** Milkfish (Chanos chanos Forsskål) 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 Fernades, 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

**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 Chevez, 16, Junior
Adela Rolon Fuentes, Toa Alta, Puerto Rico, T: Ruth Rosa

Caguas, TEPR04, Caguas Regional Science Fair

**EE076** Electronic Sunflower: Sun Tracker
Enddy Yavier 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 - Valentín, 16, Junior; Emily Bernardeau - Rivera, 16, Junior
Natividad Rodriguez Gonzalez, Arroyo, Puerto Rico, T: Teresa Cordero Velez

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

EN315T Petiveria alliacea, Pimiento 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, 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 Continuous Areas
Yamil Rosario-Vazquez, 18, Senior, University Gardens High School, San Juan, Puerto Rico, T: Eric Figueroa

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, Puerto Rico, 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 Allab - 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 Goloveskin, 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, Junior; Dragos Stefan Gherghescu, 17, Junior
“Dimitrie Bolintineanu” High School, Bucharest, Muntenia, Romania, T: Valeria Purcarea-Ciulacu, T: Stefan Lungulete

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-Petersburg, Saint-Petersburg, 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

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
Finalist Directory

Nizhny Novgorod, RUS001, ROST

BI010  How Silica Nanoparticles Damage Fungi?
Diana Galaudtindina, 17, Junior, Gymnasium 7, Kazan, Russian Federation, Kazan, Russia, T: Galina Shevchova

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 Astretov, 17, Junior
Lyceum #40, Nizhny Novgorod, Nizhegorodskaya, Russia, T: Vladimir Kovalyev

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 Uvarychev, 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 Abdulfameed

BE047  Radiation Alert: A Social Study on the Effects of Using a Mobile Phone on the Ear
Ayedh Monef Alshammary, 19, Junior, Al Timyat School, Rafha, Northern, Saudi Arabia, T: Milhan 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
<table>
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<tr>
<th><strong>Code</strong></th>
<th><strong>Title</strong></th>
<th><strong>Participants</strong></th>
<th><strong>Institution(s)</strong></th>
<th><strong>Contact</strong></th>
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<tr>
<td><strong>EE066</strong></td>
<td>Guiding Light: Employing Distorted Magnetic Field for Effective Indoor Navigation</td>
<td>Al Hakam bin Hisham, Makkah, Saudi Arabia, T: Salman Al Mashrafi</td>
<td>Faisal Mohammed Alshaker, 16, Senior, Najd National Schools, Riyadh, Saudi Arabia, T: Jaewoo Chung</td>
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<td><strong>EE318T</strong></td>
<td>Dangerous Gold</td>
<td>Ahmed Yehia Mobarak, 14, Freshman; Faris Yousef Almarshad, 13, Freshman; Abdulrahman Ahmed Alhammadi, 15, Freshman</td>
<td>Al Saad Schools, Khobar, Eastern, Saudi Arabia, T: Abdulkhaleq Al Shinawy</td>
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<td><strong>EN312T</strong></td>
<td>The Unavator: A Single Person Chain Elevator System</td>
<td>Waleed Tayseer Alhaddad, 17, Senior; Mohamed Boukhet, 17, Senior</td>
<td>Dahranah Ahliyaa School, Dammam, East, Saudi Arabia, T: Ahmed Abuqaddouim</td>
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<td><strong>ET053</strong></td>
<td>The Elite Light: A New Sun System that Reduces Electricity Consumption</td>
<td>Ahmed Mohammed Alghuraid, 18, Senior, Aldeffi Secondary School, Jubail, East, Saudi Arabia, T: Khalid Ali Alobaidi</td>
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<td><strong>MA037</strong></td>
<td>Math Out of the Box! Creative Methodology in Simplifying Math</td>
<td>Eithar Mohammedamin Abdulhalim, 17, Junior, 49 Secondary, Makkah, Central, Saudi Arabia, T: Hyat Badre</td>
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<td><strong>MA308T</strong></td>
<td>It Is Not Just of Degree One...! A Theory to Find the Reminder in Polynomials Divisions</td>
<td>Jawaher Saleh A. Enani, 18, Senior; Hend Khalid Bimuhaya, 17, Senior</td>
<td>Riyadh Najd, Riyadh, Central, Saudi Arabia, T: Abdullah Algohee</td>
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<td><strong>ME080</strong></td>
<td>No Painâ€ All Gain! The Stimulative Cardiovascular Metabolic Solution to Disability-Induced Obesity</td>
<td>Saleem Abdulfattah Aldajani, 16, Junior, Dahranah Ahliyaa School, Dammam, East, Saudi Arabia, T: Abdulrahman Ahmed Elshoushi</td>
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<td><strong>ME081</strong></td>
<td>Just 4 minutes! Rapid Method to Diagnose Hepatitis C</td>
<td>Rawan Ahmad A Hadi, 17, Junior, Second Secondary School, Abha, Saudi Arabia, T: Hala Ameen</td>
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<td><strong>ME311T</strong></td>
<td>Chloryripos vs. Fertility: Study the Physiological and Histological Effects of Pesticide (chloryripos) in Fertility</td>
<td>Sara Salah I Alnasser, 17, Junior; Nourah Abdulaziz Alrubaiq, 17, Junior</td>
<td>Dar Al-Uloom Private School, Riyadh, Saudi Arabia, T: Falah Almohanna</td>
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<td><strong>PH312T</strong></td>
<td>Manipulating Bose-Einstein Condensate (BEC) by Immersing Electrons</td>
<td>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</td>
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**SINGAPORE**

**Singapore, SGP001, Singapore Science and Engineering Fair**

| **CS009** | Composing Frusta to Fold Polyhedral Origami                              | Herng 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 Penicilium and Aspergillus
Maria Strakova, 18, Junior, Maria Strakova, 17, Junior
Gymnasium Svatoho 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-Yeung 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 Giurich, 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
Sebastiaan Thomas Remmelzwaal, 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 Woon 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  
Daejon City, KOR002, KSEF (Korea Science & Engineering Fair)  

AS306T  The Mechanism of Lysophosphatidic 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 Keerthiratna, 16, Senior, Vidyartha College, Kandy, Central, Sri Lanka, T: Marawulle Ranhotipedge Ranatunga  

CS064  Live Multifunctional LPT Controlling Software  
Thimiru Sanuka Thilakarathna, 17, Senior, Ananda College, Colombo, Sri Lanka, T: Amith Darmapala  

SWEDEN  
Stockholm, SWE001, Utstallningen Unga Forskare  

CB307T  How Is Plant Photosynthesis Affected by High Light Stress?  
Daniel Lars Nordqvist, 19, Senior; Sarne Erika Johansson, 18, Senior  
Berzeliusskolan, Linkoping, Ostergotland, 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 Sungrkanit, 16, Junior
    Suratpitaya, Maung, Suratthani, Thailand, T: Chalermporn 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 RootExtracts
    Thammarong Tangsai, 16, Junior, Buranarum Luk 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
    Lycée 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 Gumusteppe

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 Exopolysaccaride 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

EV325T  An Ecological Indicator: Harmful Algal Blooms and Monitoring of them by Molecular Methods
    Berivan Karatas, 15, Freshman; Dilruba Reyvan 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 Electroguitar: 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 Dreeval, 17, Junior, Kiev Lyceum #142, Kyiv, Ukraine, T: Nailya 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 Ailtuniji, 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 Raghavannapillai 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
Rosaly Jules Langhinrichsen-Rohling, 14, Freshman, S. S. Murphy High School, Mobile, Alabama, T: Lisa Sudcija

BIO41  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 King 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 Magneto resistive 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, USA01, South Central Arkansas Regional IV Science Fair

CS046  The Data Stronghold
Andruie 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, USA05, 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, USA03, 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

*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

BIO43  **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
BIO49  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
BIO31  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 Spennner  

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  

MI08T  Antimicrobial Brass in Aqueous Medium  
Hyungjin Kim, 17, Junior; Xiaolin Zhu, 16, Junior  
Robert Lewis Stevenson School, Pebble Beach, California, T: Phil Wenzel  

PS022  Triforine 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*

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
*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: Stephen Smith
*Durango, USCO02, San Juan Basin Regional Science Fair*

MA003  The Ordering of the Divisors of an Integer and Related Number Theoretic Functions
Myles Reid Scelnick, 16, Junior, Cherry Creek High School, Greenwood Village, Colorado, T: Stephen Smith

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
*Greeley, USCO06, Longs Peak 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
*Grand Junction, USCO05, Alpine Bank Western Colorado Science Fair*

PH301T  The Effects of Ionization on Spark Energy Content
Tucker Leavitt, 16, Sophomore; Samuel Davis Kater, 16, Freshman
*Meeker, USCO07, Arkansas Valley Regional Science 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 Doulk
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<td><strong>Finalist Directory</strong></td>
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<tr>
<td><strong>Bushnell, USFL18, Sumter County Regional Science Fair</strong></td>
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<tr>
<td><strong>ME003</strong></td>
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<td><strong>PS002</strong></td>
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<td><strong>PS302T</strong></td>
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<tr>
<td>Lachonda Marie Lacey, 15, Sophomore; Breanne Mattea Williams, 15, Sophomore</td>
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<tr>
<td><strong>Fort Myers, USFL05, Thomas Alva Edison Kiwanis Science and Engineering Fair</strong></td>
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<tr>
<td><strong>EN005</strong></td>
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<tr>
<td>Laura Catherine Delaney, 14, Freshman, Lemon Bay High School, Englewood, Florida, T: Jenee Mora</td>
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<tr>
<td><strong>EM005</strong></td>
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<tr>
<td>Nicole Lynn Miller, 16, Junior; Nadia Kemal, 17, Junior</td>
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<td><strong>MI301T</strong></td>
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<tr>
<td>Neil Singh, 16, Junior; Vaibhav Venkat Penukonda, 18, Junior</td>
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<td><strong>Fort Walton Beach, USFL07, Northeast Panhandle Regional Science and Engineering Fair</strong></td>
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<td><strong>BE009</strong></td>
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<tr>
<td>Kevin Michael Knight, 18, Senior, Northwest Florida State College Collegiate High School, Niceville, Florida, T: Ross Hamilton</td>
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<tr>
<td><strong>ET024</strong></td>
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<tr>
<td>Kyle Scott Saleeby, 16, Sophomore, Niceville High School, Niceville, Florida, T: Regina Gaskin</td>
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<tr>
<td><strong>ME013</strong></td>
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<tr>
<td>Aubrey Ward Craig II, 17, Senior, The Collegiate High School at Northwest Florida State College, Niceville, Florida, T: Ross Hamilton</td>
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<tr>
<td><strong>ME033</strong></td>
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<tr>
<td>Shreyans Kirit Patel, 17, Senior, Niceville Senior High School, Niceville, Florida, T: Regina Gaskin</td>
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<tr>
<td><strong>Ft Lauderdale, USFL09, Broward County Science Fair</strong></td>
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<td><strong>CS040</strong></td>
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<td><strong>MA032</strong></td>
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<tr>
<td>Praetheek Nagaraj, 17, Junior, Marjory Stoneman Douglas High School, Parkland, Florida, T: Annette Traverso</td>
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<tr>
<td><strong>MI046</strong></td>
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<tr>
<td>Rohan Batra, 16, Sophomore, American Heritage School, Plantation, Florida, T: Charles Golden</td>
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<td><strong>PH033</strong></td>
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<tr>
<td>Daniel Isao Christe, 17, Junior, American Heritage School, Plantation, Florida, T: Dawn Gregor</td>
</tr>
</tbody>
</table>
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

EE089  SunConditioning II
Juan Carlos Gonzalez, 15, Freshman, Fleming Island High School, Orange Park, Florida, T: John Walters

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

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

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

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: Joseph 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 Mattews 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 Hypocholesterolemic 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
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 Pharmological 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 Manoogian, 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 Renee 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 Chrisko
  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 Kreahling

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

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 Kreahling

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

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

BIO20  Grow Me Some Green!

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

BIO03  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
BIO44  **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

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 Nanorobots**
# 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: Justin 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 (NOx), 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 Dioctyl 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
Shalila 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

BI029  Size-Dependent Cytokine Release from Murine Macrophages by Glycopeptide-Coated Gold Nanoparticles
Quentin Kai Aknin, 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**

**BIO25 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 Schoo, 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

PH016 Modeling Quench Propagation in a System of Interconnected Superconducting Coils
Emil Tимерgalievich Khабибулин, 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 Cellulosic 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 Reproductive Capacity
Kathryn Marie Merkling, 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 Lumbricus 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 Phenylalanine 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, USIA50, State Science and Technology Fair of Iowa
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 Phage-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
Finalist Directory

LOUISIANA

Alexandria, USLA07, Louisiana Region IV Science Fair

BI002  Upregulation of ATGL in the Model of Cachectic Rats
Shrishiv Avanti Timbalia, 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

BI032T 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. Josep’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. Josep’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

M1062  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 Dashiel-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 Tryptase mMCP-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 IV 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
<table>
<thead>
<tr>
<th>MI043</th>
<th>Nipping Nephritis in the Bud</th>
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<td>Rahi Dilip Punjabi, 14, Freshman, Advanced Math and Science Academy Charter School, Marlborough, Massachusetts, T: Richard M. Dineen</td>
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</table>

**MICHIGAN**

**Ann Arbor, USMI01, Southeast Michigan Science Fair**

**BI050**  Effects of Fatty Acids on Skeletal Muscle Proliferation and Development

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<thead>
<tr>
<th>Anji Li</th>
<th>16, Junior, Pioneer High School, Ann Arbor, Michigan, T: Angela Subauste</th>
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<td><strong>Big Rapids, USMI06, Mecosta-Osceola Science and Engineering Fair</strong></td>
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**PS017**  Tiny Allies: The Effect of Coprophilous Beetles on Brassica rapa and Lolium perenne Growth and Biomass

<table>
<thead>
<tr>
<th>Rachel Joy Rounds</th>
<th>15, Freshman, MOISD Math Science Technology Center in conjunction with Evart High School, Big Rapids, Michigan, T: Laura Joyce Forbes</th>
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<tr>
<td><strong>Detroit, USMI02, Science and Engineering Fair of Metropolitan Detroit</strong></td>
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**CS025**  Catastrophic Disaster Response and Recovery Logistics System Simulation (C-DRRLSS)

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<tr>
<th>Rohan Arepally</th>
<th>17, Senior, Stoney Creek High School, Rochester Hills, Michigan, T: David Thomson</th>
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</table>
| **CS026**  Optical Music Recognition of Printed Music Score

<table>
<thead>
<tr>
<th>Hyunjoon Song</th>
<th>16, Sophomore, Novi High School, Novi, Michigan, T: James Didio</th>
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</thead>
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**EE036**  Solar Panel Efficiency: A More Colorful Future

<table>
<thead>
<tr>
<th>Samantha Paige Myers</th>
<th>15, Sophomore, Divine Child High School, Dearborn, Michigan, T: Katherine Ellen Higgins-Luthman</th>
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</table>
| **MA017**  Linearly Many Faults in (n,k)-star Graphs

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<tr>
<th>Allen Yuan</th>
<th>17, Senior, Detroit Country Day School, Beverly Hills, Michigan, T: Ross Arseneau</th>
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| **MA018**  Converging Logarithmic Spirals on the Complex Plane

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<thead>
<tr>
<th>Goutham Kapa</th>
<th>17, Senior, Troy High School, Troy, Michigan, T: Rebecca Brewer</th>
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**ME048**  Erythrocyte Dysfunction and Amelioration in Hypercholesterolemic Conditions

<table>
<thead>
<tr>
<th>Siddhartha Gautama Jena</th>
<th>17, Junior, International Academy, Bloomfield Hills, Michigan, T: Megan Phillips</th>
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| **ME307T**  MEG Study of the Default-mode Network in Patients with Schizophrenia

<table>
<thead>
<tr>
<th>Lawrence Kim</th>
<th>15, Sophomore; Xiao Zhu, 17, Senior Troy High School, Troy, Michigan, T: Rebecca Brewer</th>
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**AS056**  Glial Contributions to Circadian Timekeeping in the Drosophila Brain

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<thead>
<tr>
<th>Chengzhen Li Dai</th>
<th>17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Eugene Wesley Menton</th>
</tr>
</thead>
</table>
| **PH045**  Detection of Radioactive Isotopes in the Radon Decay Chain Using a Homemade Ion Chamber

<table>
<thead>
<tr>
<th>Lois Therese Gagnon</th>
<th>16, Junior, Gagnon Family Homeschool, Goodrich, Michigan, T: Thomas Jeremiah Gagnon</th>
</tr>
</thead>
</table>

**Kalamazoo, USMI07, Southwest Michigan Science & Engineering Fair**

**CB004**  Identifying Novel Mechanisms of Cytochrome-P450 2E1 Regulation

<table>
<thead>
<tr>
<th>Nithin Reddy Tumma</th>
<th>17, Junior, Port Huron Northern High School, Port Huron, Michigan, T: Anna Jamison</th>
</tr>
</thead>
</table>
| **MA002**  Reformulating the Newton Direction Computation as a Linear Least Squares Problem for Smoothed Overdetermined L1 Functionals

<table>
<thead>
<tr>
<th>Matthew Russel Bauerle</th>
<th>16, Junior, Bauerle Homeschool, Fenton, Michigan, T: Mark A. Wicks</th>
</tr>
</thead>
</table>

**Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: John Goudie**

**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, USM04, 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

Andrea Aleeah 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 Manuca

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

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-tryp) (N-Ethymethohcarthio)] on Drosophila melangaster
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: Dehydrosoelenopsin B
Sharolyn Shanae Slater, 18, Senior; Hugh Anslum 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

BIO48  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

BIO45  Optimization of Bovine CD1b3 3D Structure: Exploring a Lipid Antigen-Binding Complement Glycoprotein for Potential Malarial Intervention
Rosalie Shinwei Doerksen, 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, USMO01, Southeast Missouri Regional Science Fair

BIO06  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, USMO10, 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, USMO09, 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

JEFFERSON CITY, USMO02, 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, USMO03, 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, USMO04, Greater Kansas City Science and Engineering Fair

ET055  Hydrolyze: 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, USMO06, 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, USMO08, 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, USMO07, 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, USMO05, Missouri Tri-County Regional Science and Engineering Fair

PS006  Identification of the Source of Indeterminant 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 Relevence 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 Zeiszler

**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, USAI50, National American Indian Science and Engineering Fair

BIO23  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 BAC!, 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 Abscisic 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

ME051  Characterization of Tyrphostin AG879 as a Novel Selective Modulator of Amyloid Precursor Protein Gamma-Secretase: Towards Safe Neuroprotective Therapy for Alzheimer's Disease  Shaunik 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 Paine

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 Celtikciloglu
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 Brandt

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

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 Averi 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

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 Raoof, 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

EV030T 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 Indurkhya, 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 Shek

ME309T The Involvement of MicroRNAs in the Repair Mechanisms of Mesenchymal Stem Cells after Heart Attack
Arjun Bhattacharya, 17, Senior; Karthikeyan Ardhanaareeswaran, 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, USNDO3, 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, USNDO5, 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, USNDO5, 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, USNDO4, 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

AS053  Dairy Farmers Dream III
Matthew Joseph Schaefbauer, 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
Williston, USNDO6, 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

MIO52  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

MIO45  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

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

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

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

BE040  The Effect of Theatre Arts Participation on Academic Success
Arianna 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

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
**Finalist Directory**

**PH007** The Effect of Tracking Error on the Measurement of 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  
# Vighnesh 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

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 Hritzo, 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 Vernachia, 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, Murrysville, 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 Barelli, 18, Senior; ##  Quizi 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 Rosso, 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, USSD02, Eastern 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

MM046 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

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

MI040 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
Clarksville, USTN02, Middle Tennessee Science and Engineering Fair

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

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
Cookeville, USTN02, Cumberland Plateau Regional Science and Engineering Fair
**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: Kari Donald Flatau

**EN313T** Modeling and Characterization of Novel Heusler Magnetostrictive Effect Alloys
Mathilda Marie Lloyd, 17, Senior; Yiwei Li, 18, Senior
Oak Ridge High School, Oak Ridge, Tennessee, T: Kari Donald Flatau

**EV312T** Activation of the Hexose and Amino Acid Transport Systems in *Chlorella protothecoides* (vulgaris) for Enhanced Biomass Production via Amphitropic (Mixotrophic) Reaction Using Alternative Organic Carbon Sources
Michael James Holick, 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 Journeay

**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 Sino
Dallas, USTX01, Beal Bank Dallas Regional Science and Engineering Fair

AS013  Coping with Copepods: The Influence of *Macrocyclops 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

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 Laksnarain

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 Kunczewicz, 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 fetida 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. Tochterman
EE313T  O.F.F.E.R. (Oil Field Fire Extinguishing Robot): An Offer You Can’t Refuse
Kyler 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 Chandrahhas, 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

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

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
#  Brigette 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

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
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 Daphina
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  Abscisic 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 Threshold 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
### Kassandra 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 cervisiae 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: Jerome Gilman

ME041  Efficacy of Valproic Acid as a GSK-3α 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

EVO10 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

EVO16 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 Andrews

Purcellville, USVA07, Loudoun County Science and Engineering Fair

BIO11 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

**MA014 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
<table>
<thead>
<tr>
<th>EN036</th>
<th>eHeart: ECG Signal Processing System for Automatic Detection of Cardiac Abnormalities</th>
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<tbody>
<tr>
<td></td>
<td>Vamsi Chunduru, 17, Senior, Capital High School, Olympia, Washington, T: Jennifer Echtle</td>
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<thead>
<tr>
<th>EV315T</th>
<th>Seasonal Succession of Phytoplankton Species in Quartermaster Harbor and as Precursors to Alexandrium catenella Blooms</th>
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<tbody>
<tr>
<td></td>
<td>Elizabeth Anne Meucci, 18, Senior; Alyssa Ashley Ylescupidez, 18, Senior Bellarmine Preparatory School, Tacoma, T: Ron Nilsen</td>
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</tbody>
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**WEST VIRGINIA**

*Fairmont, USWV50, West Virginia State Science and Engineering Fair*

<table>
<thead>
<tr>
<th>CB028</th>
<th>TLR3-Mediated Signaling Protects Astrocytes Against Oxidative Stress through SOD2 Upregulation</th>
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<tr>
<td></td>
<td>Swetha Krishna Doppalapudi, 16, Junior, Morgantown High School, Morgantown, West Virginia, T: Andrew Konat</td>
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</tbody>
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*Keyser, USWVO1, West Virginia Eastern Panhandle Regional High School Science Fair*

<table>
<thead>
<tr>
<th>ET047</th>
<th>The Effect of Winglet Angle on the Induced Drag of an Airplane</th>
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<td></td>
<td>Taylor Mason Hose, 16, Junior, Hedgesville High School, Hedgesville, West Virginia, T: Andrew Ferber</td>
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<thead>
<tr>
<th>MA049</th>
<th>The Fractal Geometry of the Mandelbrot and Julia Sets: A Simple Relationship in the Complex Plane</th>
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<td></td>
<td>Aishwarya Saluja, 15, Sophomore, Hedgesville High School, Hedgesville, West Virginia, T: Andrew Ferber</td>
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<thead>
<tr>
<th>MI063</th>
<th>The Effect of Citrus Extract on <em>Mycobacterium avium</em> Subspecies Paratuberculosis under Aerobic and Anaerobic Conditions</th>
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<td></td>
<td>Erin Allison Weddle, 16, Junior, Musselman High School, Inwood, West Virginia, T: Brenda Waterworth</td>
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*West Liberty, USWV03, West Liberty State University Regional Science and Engineering Fair*

<table>
<thead>
<tr>
<th>AS024</th>
<th>A Continuing Study of Aggression during Shelter Competition between Invasive and Indigenous Species of Crayfish</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Vincent Jacob O'Leary, 15, Sophomore, Wheeling Central Catholic High School, Wheeling, West Virginia, T: Theresa Fultz</td>
</tr>
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</table>

**WISCONSIN**

*Glendale, USWI02, Nicolet Science and Engineering Fair*

<table>
<thead>
<tr>
<th>BE018</th>
<th>Who Pays More for Nationally Branded Products—Educated or Less Enlightened, Old or Young?</th>
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<tr>
<td></td>
<td>Sara Elisabeth Miller, 14, Freshman, Nicolet High School, Gendale, Wisconsin, T: Gary Stresman</td>
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<tr>
<th>EE033</th>
<th>The Design &amp; Construction of an Improved Point-of-Use Antimicrobial Water Purification System</th>
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<td></td>
<td>Jonathan Charles Fuqua, 18, Senior, Nicolet High School, Glendale, Wisconsin, T: Gary Stresman</td>
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</table>

*Madison, USWI04, Capital Science and Engineering Fair*

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<tr>
<th>MI311T</th>
<th>The Effect of Essential Oils on the Growth of <em>Streptococcus pneumoniae</em></th>
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<tr>
<td></td>
<td>Emily Galan Murphy, 15, Freshman; Adam Jacob Salerno Kallas, 14, Freshman Nicolet High School, Glendale, Wisconsin, T: Melissa Trepte</td>
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<tr>
<th>CB027</th>
<th>Effects of Chemoattractant Leukotriene B4 in Neutrophil Response to CuSO4 Induced Wounding</th>
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<td></td>
<td>Maya Pema Dorje, 18, Senior, James Madison Memorial High School, Madison, Wisconsin, T: Rick Erickson</td>
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<tr>
<th>EN046</th>
<th>Engineering <em>E. coli</em> for Biosynthesis of Hydrocarbons</th>
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<td></td>
<td>Suman Gunasekaran, 16, Freshman, James Madison Memorial Senior High School, Madison, Wisconsin, T: Brian Pfleger</td>
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*Milwaukee, USWI50, Badger State Science and Engineering Fair*

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<tr>
<th>CS045</th>
<th>High School Facebook Network Analysis</th>
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<tbody>
<tr>
<td></td>
<td>Angela Chen, 15, Freshman, Nicolet High School, Glendale, Wisconsin, T: Gary Stresman</td>
</tr>
</tbody>
</table>
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, USWI03, University School of Milwaukee–Science 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 Acerrodo, 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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