



**62<sup>ND</sup> ANNUAL  
CSEF AWARDS CEREMONY  
APRIL 7, 2017**

# **COLORADO SCIENCE AND ENGINEERING FAIR**

## **2017 AWARDS CEREMONY**

Welcome..... Ms. Courtney Butler, CSEF Director

### **Presentation of Signature Special Awards**

Announcers: Michael Bemski & Dolly Morrow

Teacher of the Year Nominees.....CSEF

Lockheed Martin Teacher of the Year Award.....Edwin Scholz

### **Presentation of Local Organizational Special Awards**

Announcer: Michael Bemski & Dolly Morrow

Air & Waste Management Association	Consumer Energy Education Foundation
American Association of University Women	Dairy Tech, Inc.
American Chemical Society	Eppler Family
American Industrial Hygiene Association	Fort Collins Conservation District
American Institute of Aeronautics & Astronautics	Frank Armbruster Foundation
American Institute of Chemical Engineers	Geological Society of America
American Institute of Professional Geologists	Gromko Family
American Meteorological Society	Human Factors & Ergonomics Society
American Public Power Association & Platte River Power Authority	Institute of Electrical & Electronics Engineering
American Statistical Society	Koppa Research, LLC
American Vacuum Society	Little Shop of Physics
ASM International	Lockheed Martin
Biophysical Society	National Centers for Environmental Information
Colorado Association of Meat Processors	National Defense Industrial Association
Colorado Association of Science Teachers	National Renewable Energy Laboratory
Colorado Biology Teachers' Association	Rocky Mountain Association of Geologists
Colorado BioScience Institute	Rocky Mountain Water Environment Association
Colorado Chemistry Teachers' Association	SACNAS, Colorado State University Chapter
Colorado Dental Association	Science Toy Magic
Colorado Division of Reclamation, Mining & Safety	Society for Mining, Metallurgy and Exploration
Colorado Environmental Health Association	Society of Manufacturing Engineers
Colorado Foundation for Agriculture	Society of Women Engineers
Colorado Geographic Alliance	Soil & Water Conservation Society
Colorado Medical Society	SPIE-the international society for optics & photonics
Colorado Mineral Society	The Aquaponic Source
Colorado Mycological Society	The Inventors' Roundtable
Colorado Native Plant Society	Trout Unlimited
Colorado Scientific Society	United States Air Force
<u>Colorado State University</u>	United States Department of Commerce
College of Agricultural Sciences	United States Geological Survey
Department of Biochemistry & Molecular Biology	United States Navy & Marine Corps
Department of Chemistry	University of Colorado, Denver
Department of Horticulture & Landscape Architecture	University of Northern Colorado, MAST Institute
Energy Institute	Vaughan Web Works, LLC
School of Biomedical Engineering	Wilkins Family
Colorado Veterinary Medical Association	Wojtaszek Family
Colorado's Touchstone Energy Cooperatives	Women in Physics
Colorado-Wyoming Society of American Foresters	Zonta Club of Boulder County
Comstock Family	
Constant Family	

### **Presentation of National Organizational Special Awards\***

Announcers: Michael Bemski & Dolly Morrow

American Psychological Association	NASA	United States Metric Association
Arizona State University	National Oceanic & Atmospheric Administration	Water Environment Federation
Association for Women Geoscientists	Ricoh	Yale Science & Engineering Association
Intel Corporation	Society for In Vitro Biology	
Mu Alpha Theta		

\*These awards will only be announced at the ceremony, and given to the students on Saturday.

# **COLORADO SCIENCE AND ENGINEERING FAIR**

## **2017 AWARDS CEREMONY**

### **Presentation of CSEF Special Awards**

Announcer: Dr. Carol Morrow

Pioneers of Science Awards\* ..... Sam Bartlett  
Poster Art Contest..... Courtney Butler  
Student Choice Awards..... Courtney Butler  
Elemer Bernath Technical Writing Award .....Madison Martinez  
Ralph F. Desch Memorial Technical Writing Award .....Madison Martinez

### **Presentation of Grand Awards**

Announcer: Dr. Carol Morrow

Junior and Senior Division Category Awards ..... Nancy Vaughan

Animal Sciences	Behavioral & Social Sciences	Chemistry & Biochemistry
Earth & Space Sciences	Energy	Engineering
Environmental Sciences	Math & Computer Sciences	Medicine & Health
Microbiology & Molecular Biology	Physics	Plant Sciences

### **Presentation of Scholarships**

Announcer: Dr. Carol Morrow

Ryan Patterson Scholarship .....Ryan Patterson  
Colorado State University.....Dr. David Holm  
Adams State University .....Dr. Larry Sveum  
Colorado School of Mines.....CSEF  
University of Colorado, Boulder.....CSEF

### **Presentation of CSEF Top Awards**

Announcer: Dr. Carol Morrow

Junior Division Best CSEF Project Awards..... Courtney Butler  
Senior Division Best CSEF Project Awards..... Courtney Butler

### **Colorado ISEF Finalist Recognition**

Closing Remarks ..... Courtney Butler

*Thousands. I could see thousands of brilliant minds. I was on the stage at the awards ceremony, looking out at an ocean of people, the next generation of scientists, people who would go on to change the world. The music erupted around me, the spotlights raced about the hall, and names continued to be called; each one eliciting deafening cheers from the crowd. We were an unstoppable force gazing unflinchingly into the challenges of the future and forging ahead. With the powers of science and ingenuity, we were superhuman. Some of us developed more accurate diagnostics, others created affordable prosthetics, and still others probed the secrets of galaxies. The science fair scorched a vision of a bright tomorrow into my consciousness. As a scientist, I intend to help actualize this vision.*

**Logan Collins (CSEF Alumni 2013 - 2015)**

# **SPECIAL AWARDS ORGANIZATIONS**

## **Air & Waste Management Association Rocky Mountain States Section**

The Air & Waste Management Association is a nonprofit professional organization that enhances knowledge and expertise by providing a neutral forum for information exchange, professional development, networking opportunities, public education, and outreach to more than 8,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society.

## **American Chemical Society Colorado Local Section**

The American Chemical Society, founded in 1876, is a congressionally chartered independent membership organization which represents professionals at all degree levels and in all fields of chemistry and sciences that involve chemistry. With more than 163,000 members, the ACS is the world's largest scientific society and one of the world's leading sources of authoritative scientific information. ACS is at the forefront of the evolving worldwide chemical enterprise and the premier professional home for chemists, chemical engineers and related professions around the globe.

## **American Industrial Hygiene Association Rocky Mountain Section**

The Rocky Mountain Section of the American Industrial Hygiene Association (AIHA-RMS) is dedicated to the prevention of workplace-related illness and injury through the anticipation, recognition, evaluation, and control of contaminants and stressors that may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers and the general public. Its membership is comprised of professionals working in industrial hygiene and associated fields. AIHA-RMS continually offers training events, presentations and tours, professional development courses, and mentorship opportunities to its members as well as the general public.

## **American Institute of Aeronautics & Astronautics Rocky Mountain Section**

The American Institute of Aeronautics and Astronautics (AIAA), Rocky Mountain Section is comprised of over 1300 members in Colorado, Wyoming, and Montana. The AIAA is a group of engineers, scientists, educators, students, and others who share a passion for the aerospace engineering field. Our organization is one section of the international AIAA, which is the world's largest technical society of more than 35,000 individual and corporate members from 80 countries, who are all part of an innovative, high-value profession dedicated to the global aerospace profession. AIAA is dedicated to igniting and celebrating aerospace ingenuity and collaboration. It's all part of AIAA's shared commitment to inspire innovation and drive technological progress in the U.S. and throughout the world.

## **American Institute of Professional Geologists Colorado Section**

The Colorado Section of the American Institute of Professional Geologists is a non-profit organization whose purposes include the advancement of the geological sciences, the promotion of high standards of ethical conduct among its members, and the representation and advocating of the geological profession before government and the public.

## **American Meteorological Society Denver/Boulder Chapter**

The American Meteorological Society promotes the development and dissemination of information and education on the atmospheric and related oceanic and hydrologic sciences and the advancement of their professional applications. Founded in 1919, the AMS has a membership of more than 14,000 professionals, students and weather enthusiasts. AMS publishes nine atmospheric and related oceanic and hydrologic journals, sponsors more than 12 conferences annually and offers numerous programs and services.

## **American Public Power Association & Platte River Power Authority**

The American Public Power Association (APPA) Demonstration of Energy and Efficiency Developments (DEED) program offers funding for projects that will develop and demonstrate new technologies and techniques in electric power production, distribution and use. APPA is the national service organization for community-owned, not-for-profit electric utilities.

## **American Statistical Association Colorado/Wyoming Chapter**

The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy. The ASA members serve in industry, government, and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare. The David Young Memorial Award is named after a former professor from the University of Colorado at Denver, Department of Preventive Medicine and Biometrics. David's skills in both science and statistics allowed him to collaborate with medical investigators at the University of Colorado and help communicate research results.

## **American Vacuum Society Rocky Mountain Chapter**

The American Vacuum Society was founded in 1953 and is organized into 10 technical divisions and 2 technical groups that encompass a range of established, as well as emerging, science and technology areas. The society promotes communication, dissemination of knowledge, recommended practices, research, and education in the use of vacuum and other controlled environments to develop new materials, process technology, devices, and related understanding of material properties for the betterment of mankind. The AVS divisions include advanced surface engineering, applied surface science, biomaterial interfaces, electronic materials and processing, magnetic interfaces and nanostructures, nanometer-scale science and technology, plasma science and technology, surface science, thin film and vacuum technology.

### **ASM International**

ASM International was founded in 1913 as The Steel Treaters Club. ASM International serves materials professionals, nontechnical personnel, and managers worldwide by providing high quality materials information, education and training, networking opportunities, and professional development resources in cost-effective and user-friendly formats. ASM is where materials users, producers and manufacturers converge to do business. The materials engineering "family" plays a critical role in society, and serves nearly every industry, from basic manufacturing to nanotechnology and biomaterials.

### **Biophysical Society**

The Biophysical Society was founded in 1958 to encourage development and dissemination of knowledge in biophysics. It does so through its many programs, including its meetings, publications, and committee outreach activities. The Society's members, now over 9,000, work in academia, industry, and in government agencies throughout the world.

### **Colorado Association of Meat Processors**

The purpose of the Colorado Association of Meat Processors is to provide members with formal and informal opportunities for education and information exchange. Members adhere to the principles of humane treatment and handling of animals and livestock; and support full measure and full disclosure within the trade and to its community and moving toward an even safer, healthier meat and food supply for the consumer.

### **Colorado Association of Science Teachers**

The Colorado Association of Science Teachers is a membership organization that represents educators from elementary and secondary schools, colleges and universities and informal science education. CAST provides its members with professional development opportunities, updates on science events around the state, awards for excellence in science education, and FREE memberships to the Denver Museum of Nature and Science, Dinosaur Ridge and the Alligator Farm. It also provides discounts at the Denver Zoo.

### **Colorado Biology Teachers' Association**

The Colorado Biology Teachers' Association is dedicated to the improvement of biological science instruction at all educational levels. Our activities include a Spring Seminar and a Fall Workshop to improve teacher and student understanding of a variety of biological topics; co-sponsorship of the Colorado Science Conference for Professional Development each fall in Denver; mini-grants for the support of classroom activities; Outstanding Biology Teacher Award program; and a web site to keep teachers informed about a variety of activities designed to improve teaching.

### **Colorado BioScience Institute**

The BioGENEius Challenge is the premier competition for high school students that recognizes outstanding research in biotechnology. The BioGENEius Challenge program promotes excellence and enables students to develop original and personalized independent research projects and compete against thousands of other distinguished students. The U. S. National and International BioGENEius Challenge is a competition comprised of more than 25 students winners from around the United States and the world. Each winner is provided an all-expense paid trip for the student and chaperone to compete at the U.S. National and International competition held in San Diego, CA June 2017.

### **Colorado Chemistry Teachers' Association**

Colorado Chemistry Teachers Association supports over 1,100 chemistry teachers in the state of Colorado through email, newsletter, classes, etc.

### **Colorado Dental Association**

The mission of the Colorado Dental Association is to provide CDA membership and the public with superior service and to demonstrate effective leadership in advocacy, education, communication and quality products and services that enhance member practices, professional growth and patient care. The CDA is a diverse and synergistic association, led by dynamic, "people-centered" officers and staff that proactively serve and meet professional and related personal needs of member dentists and the oral health needs of Colorado communities. The CDA is recognized as the preeminent model for state dental associations.

### **Colorado Division of Reclamation, Mining & Safety**

The Colorado Division of Reclamation Mining and Safety is responsible for mineral and energy development, policy, regulation and planning. The division is comprised of the Office of Mined Land Reclamation and the Office of Active and Inactive Mines. The Office of Mined Land Reclamation issues reclamation permits from either the Minerals or Coal Programs. Together, these two programs regulate mining and reclamation activities at coal, metal, aggregate and other mineral mines. The Office of Active and Inactive Mines reclaims and safeguards abandoned mine sites that are dangerous and create environmental hazards. The program also provides safety training for mine operators and employees.

### **Colorado Environmental Health Association**

The Colorado Environmental Health Association is a nonprofit professional organization that was established in 1947 as the Rocky Mountain Section of the National Association of Sanitarians and enjoys an outstanding reputation statewide as an innovative, progressive organization dedicated to advancing the cause of general, professional or technical environmental health. The CEHA is educationally structured, providing scholarships, one-day trainings, and an Annual Educational Conference to educate and inform environmental health professionals.

### **Colorado Foundation for Agriculture**

The Colorado Foundation for Agriculture was established in 1991 to promote agricultural literacy in Colorado. CFA is governed by a nine-member board of directors that administers the Agriculture in the Classroom program in Colorado. Projects and materials developed by CFA are made available at no or minimal cost to Colorado educators and others interested in educating about agriculture. The CFA is the only organization that provides our state's educators with current information about Colorado agriculture and natural resources on a regular basis.

### **Colorado Geographic Alliance**

The Colorado Geographic Alliance, part of a network of fifty Geographic Alliances across the country, was founded in 1989 by the National Geographic Society and geographers in Colorado. The COGA's main objective is to provide resources and professional development for elementary and secondary school teachers, ensuring the public understands the rationale behind comprehensive geography education throughout the state of Colorado. COGA is a state-wide educator's organization in which the collective knowledge of experienced teachers of geography is shared with others to strengthen the position of geography in all Colorado schools. Communication and programs supported by COGA develop and foster grassroots collaboration to facilitate interaction of teachers and to encourage conversations about geographic concepts across the state.

### **Colorado Medical Society**

The Colorado Medical Society, founded in 1871, is an association of physicians which promotes the science and art of medicine, the betterment of public health and the welfare of the medical profession and the patients it serves. The CMS is an advocate for its physician members, acting as a conduit for continuing medical education and physician liaison with managed care and health maintenance organizations and health insurance providers. The organization works to make the physician's practice more efficient and cost effective and to help physicians navigate the rapidly evolving practice environment. The CMS Education Foundation was founded in 1982 to support educational activities in Colorado, including sponsoring the Colorado Science and Engineering Fair.

### **Colorado Mineral Society**

The Colorado Mineral Society was founded in 1936 by a group of distinguished individuals within the mineralogical field with the purpose of promoting the study of minerals and other geologic materials, of encouraging mineral collecting as hobby, and of conducting public meetings, lectures, and field trips. The Colorado Mineral Society is the only private organization that has presented special awards during the entire 62-year history of the state science fair.

### **Colorado Mycological Society**

The Colorado Mycological Society is a not for profit organization that was established in 1967 to advance the understanding of, and to stimulate interest in, the field of mycology. CMS members collect mushroom specimens for identification, preservation and study as well as for consumption. The CMS also provides consulting services to the Denver Botanic Gardens, the Rocky Mountain Poison Center, county agents and others.

### **Colorado Native Plant Society**

The Colorado Native Plant Society is a non-profit organization dedicated to furthering the knowledge, appreciation and conservation of native plants and habitats of Colorado through education, stewardship and advocacy. We encourage education about plants, conservation of natural areas and good land stewardship of native plant communities and ecosystems.

### **Colorado State University College of Agricultural Sciences**

The College of Agricultural Sciences at Colorado State University is dedicated to training men and woman in the sciences of tomorrow's agriculture. It is the science of agriculture that will meet future global challenges to produce safe food, protect the environment and landscape, provide biofuels and energy sources as well as meet the economic challenges of change. By the year 2050, the world population will have increased from the 7 billion of today to over 9 billion. In order to feed those global masses, we must increase our global food production by 70%. We must increase food production with less land, less water and less resources. Existing technology cannot meet this challenge, so new science and technology needs to be developed. Young scientists need to be attracted into the fields of agriculture to create new ideas and ways of thinking to increase food production safely in a harmonious fashion with our environment. New technology can then potentially be used for biofuels and energy production that is also in harmony with our environment.

### **Colorado State University**

#### **Department of Biochemistry & Molecular Biology**

The Department of Biochemistry and Molecular Biology at CSU is committed to providing high quality undergraduate education. As a biochemistry major, a student's studies will include macromolecular structure and function; cellular biochemistry; metabolism; gene expression, structure, replication and repair; cell organization, communication, growth, aging and death with an emphasis on animal cells. The Biochemistry major is ideally suited for pursuing advanced degrees in biochemistry, molecular biology or related life sciences; for health professions; and for employment in the biotechnology industry.

### **Colorado State University**

#### **Department of Chemistry**

The study of chemistry prepares students for a variety of careers, and the undergraduate program at Colorado State University has been designed to give graduates the background necessary to enter any one of these interesting and exciting areas. Chemists are employed in a wide array of professional fields in private industry, government and education. Chemists work in research, development, analysis and testing, consulting, industrial quality control, environmental resource management and forensics. Participation in internships, volunteer activities, and cooperative education opportunities are available to students through the department to enhance a students' practical training and development.

### **Colorado State University**

#### **Dept. of Horticulture & Landscape Architecture**

The focus of the Department of Horticulture and Landscape Architecture is to solve problems for people, agriculture and the environment and to improve policy making and public education while developing a workplace conducive to scholarship and creativity fostered by teamwork and individual diversity. The undergraduate program at CSU includes concentrations in landscape business, landscape design and contracting, nursery and landscape management, turfgrass management, landscape architecture, floriculture, horticultural business management, horticultural food crops production, horticultural food crops seed science, horticultural science, horticultural therapy and viticulture and enology.

### **Colorado State University Energy Institute**

The Energy Institute is a multidisciplinary alliance that integrates experts from many fields with the goal of improving quality of life - by taking research innovations to the global marketplace more efficiently and at an accelerated pace. The Energy Institute team has the breadth, depth, and entrepreneurial drive to make a global impact. Over 160 faculty represent fields as diverse as the natural sciences, engineering, agricultural sciences, natural resources, humanities, applied human sciences, veterinary medicine, and business. In addition, a growing number of students and industry leaders are tapping into our growing network.

### **Colorado Veterinary Medical Association & CVMA Auxiliary**

The Colorado Veterinary Medical Association is a proactive group of more than 2,200 professionals representing each setting of veterinary medicine - clinical practice, public health, academe, corporate, and uniformed services. CVMA members are determined to work together to advance the science and art of veterinary medicine. The CVMA exists to enhance animal health and welfare; promote the human/animal bond; protect public health; advance the well-being of veterinarians; and foster excellence in veterinary medicine through education, advocacy and outreach.

### **Colorado's Touchstone Energy Cooperatives**

Colorado's Touchstone Energy Cooperatives are the electric co-ops that provide power to 72% of the land mass of Colorado. The electric co-ops have initiated the Colorado EnergyWise Project to support and encourage greater energy efficiency by Colorado's co-op member-owners. Sponsorship of these awards is supported by CoBank, one of the primary lenders to electric co-ops across the country.

### **Comstock Family**

The Heather Comstock Memorial Award is sponsored by the Comstock family in remembrance of Heather Comstock. Before her untimely death, Heather was an honor student at the University of Michigan. She was a biology major studying stem cell research. She had a real zest for life and some say she was going to save the world.

### **Consumer Energy Education Foundation**

Consumer Energy Education Foundation (CEEF) is excited to provide awards to this year's CSEF winners for their hard work and success in the 62nd Colorado Science and Engineering Fair. CEEF's Energy Day Academic Program was created to engage students in STEM education and to motivate, challenge, and inspire young minds to seek careers in science and technology. In order to receive your monetary prize, we ask that you please attend the Award Ceremony at Energy Day Denver on Saturday, September 23, 2017.

### **Fort Collins Conservation District**

Conservation districts originated in 1937 when President Roosevelt wrote letters to every state Governor asking them to establish locally held volunteer boards that could initiate, champion and/or manage land stewardship and conservation programs. The Fort Collins Conservation district was formed in 1945 along with many Districts across Colorado and the Nation to assist landowners heal from the scars of the Dust Bowl days. The purpose of the conservation district is to deal with soil and water conservation problems through a cooperative effort with groups and organizations concerned with water and soil conservation issues.

### **Geological Society of America**

The Geological Society of America, headquartered in Boulder, supports the global community in scientific discovery, communication, and application of geoscience knowledge. The Society's membership unites thousands of earth scientists from every corner of the globe in a common purpose to study the mysteries of our planet (and beyond), advance geoscience research and discovery, share scientific findings, provide service to society and the geosciences profession, and contribute to stewardship of Earth.

### **Human Factors & Ergonomics Society Rocky Mountain Section**

The Rocky Mountain Chapter of the Human Factors and Ergonomics Society was founded in 1978 as a part of what was then the Human Factors Society. The chapter offers networking opportunities and conducts professional programs of interest to human factors engineers, product designers, industrial psychologists, corporate ergonomists, software engineers, safety engineers and professionals in related fields.

### **Institute of Electrical & Electronics Engineering High Plains Section**

The Institute of Electrical and Electronics Engineers (IEEE), an association dedicated to advancing innovation and technological excellence for the benefit of humanity, is the world's largest technical professional society. It is designed to serve professionals involved in all aspects of the electrical, electronic and computing fields and related areas of science and technology that underlie modern civilization.

### **Koppa Research, LLC**

Koppa Research is a private institute dedicated to expanding our understanding of the warping of space-time. In physics general relativity, explains gravity, warping of space-time, and large scale interactions, and quantum mechanics, explains particle scattering, the photoelectric effect, and interactions of the small and minute. For a century, physicists have endeavored to answer the challenging question, how to relate these two apparently divergent fields. One of the keys to better understanding the warping of space-time to understand how general relativity and quantum mechanics relate. The current focus of Koppa Research is to further explore the surface tension theory, its merits and shortfalls, and to help disseminate information regarding the theory so that others may participate in its development, refinement, and/or revision.

### **Little Shop of Physics**

The Little Shop of Physics is a group of science educators and science students based out of Colorado State University. The mission of the LSOP is to find creative ways to share the wonder of science; to present unique hands-on science experience to diverse ranges of students; to involve undergraduates in significant and meaningful service; and to share ideas and insights with current and future teachers. The Matthew McCausland Memorial Award recognizes the spirit of this kind-hearted inventor, and is given to the student who displays the most creativity and "out of the box" thinking.

### **Lockheed Martin**

Headquartered in Bethesda, MD, Lockheed Martin is a global security company that is principally engaged in the research, design, development, manufacturing, integration and sustainment of advanced technology systems, products and services. Lockheed's operating units are organized into the four broad business areas of aeronautics, electronic systems, information systems and global solutions, and space systems. Space Systems has major operations in Colorado and is focused on human space flight, global communications systems, commercial space, sensing and exploration systems, missile defense systems, strategic missiles, commercial launch systems, and surveillance and navigation systems.

### **National Centers for Environmental Information**

The National Centers for Environmental Information (NCEI) is part of the US Department of Commerce, National Oceanic & Atmospheric Administration. The National Centers for Environmental Information provide stewardship, products and services for geophysical data describing the solid earth, marine and solar-terrestrial environment, as well as Earth observations from space. NCEI's data holdings currently contain more than 400 digital and analog databases, some of which are very large. As technology advances, so does the search for more efficient ways of preserving this data.

### **National Defense Industrial Association**

The National Defense Industrial Association (NDIA) is America's leading Defense Industry association promoting national security. NDIA is proud to provide a legal and ethical forum for the exchange of information between Industry and Government on National Security issues. Our members foster the development of the most innovative and superior equipment, training and support for our warfighters and first responders through our divisions, local chapters, affiliated associations and events.

### **National Renewable Energy Laboratory**

NREL is the only federal laboratory dedicated to the research, development, commercialization, and deployment of renewable energy and energy efficiency technologies. At NREL, we focus on creative answers to today's energy challenges. From breakthroughs in fundamental science to new clean technologies to integrated energy systems that power our lives, NREL researchers are transforming the way the nation and the world use energy.

### **Rocky Mountain Association of Geologists**

The Rocky Mountain Association of Geologists was founded in 1922 and is one of the largest and most active associations of geologists in the United States. The Rocky Mountain Association of Geologists supports professional exchange and education through sponsorship of events, publications, training, and seminars. RMAG publishes a monthly newsletter, *The Outcrop*, a quarterly scientific journal, *The Mountain Geologist*, and regular guidebooks on a variety of subjects.

### **SACNAS**

#### **Colorado State University Chapter**

Founded in 2007, the SACNAS, Colorado State University Chapter's mission is to further the work of, improve the effectiveness of and to enhance the public understanding of and appreciation for Chicanos, Hispanics/Latinos, Native Americans, Alaska Natives, Native Hawaiians and other underrepresented minorities in the sciences; to promote the recruitment and retention of underrepresented minority students at Colorado State University; and to provide a forum for all students from the STEM disciplines to come together for academic excellence, community service, professional development, mentorship opportunities and social activities at Colorado State University.

### **Science Toy Magic, LLC**

Science Toy Magic closed its science toy store this past year. Science Toy Magic now gives science presentations to schools and organizations world-wide in Spanish, French, German, Mandarin, Italian, Swedish, Hawai'ian, Navajo, Irish, the Warlpiri Australian aboriginal language and proposing Arabic. Matt Hannifin gives humorous and multi-lingual science presentations to schools' world language and science departments. Matt has presented to the NASA Master's Forum, and was inducted into Who's Who among America's Teachers. Science Toy Magic congratulates every participant for changing your lives forever- prizes or no prizes. Matt learned from early unsuccessful projects. He succeeded only by persevering to become a patented inventor, commercial hot air balloon pilot, pyrotechnician, laser lightshow designer, advanced scuba diver, and holographer. Science Toy Magic encourages you to improve the ideas from this year's project. You and your families ROCK!

### **Society for Mining, Metallurgy & Exploration Colorado Section**

A member society of the American Institute of Mining, Metallurgy and Petroleum Engineers, SME's roots date back to 1871. Since its inception, SME has continued to evolve over the years to stay abreast of industry changes and to reflect the ever-broadening interests of its members. SME is organized into eight distinct divisions: coal & energy, environmental, industrial minerals & aggregates, mineral and metallurgical processing, mining & exploration, underground construction association, the International Marine Minerals Society, and the woman's auxiliary to the AIME. More than 60 local SME sections facilitate the exchange of information and increase grassroots participation in SME programs and services.

### **Society of Manufacturing Engineers Colorado Chapter 354**

The Society of Manufacturing Engineers is the premier source for manufacturing knowledge, education and networking. Through its local chapters, technical communities, publications, expositions and professional development resources, SME promotes an increasing awareness of manufacturing engineering and keeps manufacturing professionals up to date on leading trends and technologies. Headquartered in Michigan, the Society has members in more than 70 countries and represents manufacturing across all industries.

### **Society of Women Engineers Rocky Mountain Section**

The Society of Women Engineers is a nonprofit educational and service organization that empowers women to succeed and advance in the field of engineering and to be recognized for their life-changing contributions as engineers and leaders. Founded in 1950, SWE is the driving force that establishes engineering as a highly desirable career for women through an exciting array of training and development programs, networking opportunities, scholarships, outreach and advocacy activities and much more. SWE consists of women and men who are graduate engineers as well as those with equivalent engineering experience and/or those interested in supporting SWE's mission. The Rocky Mountain Section along with the Pikes Peak Section work cooperatively to provide a variety of continuing development and career guidance activities to members throughout the states of Colorado and Wyoming.

### **Soil & Water Conservation Society Colorado Chapter**

The Soil & Water Conservation Society is a nonprofit scientific and educational organization, founded in 1943, that serves as an advocate for conservation professionals and for science-based conservation practice, programs and policy. The mission of the society is to foster the science and art of natural resource conservation. The work of the society targets conservation of soil, water, and related natural resources on working land. The society also works to discover, develop, implement and constantly improve ways to use land that sustains its productive capacity and enhances the environment at the same time.

### **SPIE – the international society for optics & photonics**

SPIE is an international society advancing an interdisciplinary approach to the science and application of light. The not-for-profit society advances emerging technologies through interdisciplinary information exchange, continuing education, publications, patent precedent, and career and professional growth.

### **The Aquaponic Source**

The Aquaponic Source is a Longmont, Colorado based company founded on the mission of being the trusted resource for everything the home or school aquaponic gardener needs. "What is aquaponic gardening", you ask? At its most basic, aquaponics is a synergistic growing system in which you grow both fish and plants. The fish waste feeds the growing plants using organic hydroponic techniques. The plants, in turn, clean and filter the water that returns to the fish environment. At the Aquaponic Source we are aquaponic gardeners ourselves and are passionate about the fun, the productivity, and the earth-changing potential of this technology. We are dedicated to aquaponic gardening "how to" and building community around our shared experiences

### **Trout Unlimited**

Trout Unlimited is a nonprofit volunteer organization that is dedicated to improving Colorado's fishing habitats and the preservation of their cold water ecosystems. Trout Unlimited, through its state council, Colorado Trout Unlimited, along with the local chapter, Boulder Flycasters, works to conserve, protect and restore North America's cold-water fisheries and watersheds. By the next generation, Trout Unlimited will ensure the robust populations of native and wild cold-water fish once again thrive within their North American range, so that tomorrow's children can enjoy healthy fisheries in their home waters.

### **United States Air Force**

Air Force ROTC Detachment 90 at Colorado State University is the tenth largest Air Force ROTC unit in the nation. The mission of Detachment 90 is to commission highly qualified Air Force officer candidates by recruiting, educating, training and motivating cadets at both CSU and the University of Northern Colorado and prepare them to lead in the world's greatest air, space, and cyberspace force.

### **United States Department of Commerce**

The US Department of Commerce promotes job creation, economic growth, sustainable development and improved standards of living for all Americans by working in partnership with business, universities, communities and our nation's workers. The department touches the daily lives of the American people in many ways, with a wide range of responsibilities in the areas of trade, economic development, technology, entrepreneurship and business development, environmental stewardship, and statistical research and analysis. Cutting-edge science and technology at the department fosters innovation, and a focus on research and development that moves quickly from the lab to the marketplace generates progress and new 21st century opportunities.

### **United States Navy & Marine Corps**

The Office of Naval Research is an executive branch within the Department of Defense that provides technical advice to the Chief of Naval Operations and the Secretary of the Navy. Science and technology investments enable the technical superiority of our naval forces by producing knowledge and transitions and growing a healthy science and engineering workforce. ONR has six science and technology departments that coordinate and execute the research: Expeditionary Maneuver Warfare & Combating Terrorism; Command, Control Communications, Computers, Intelligence, Surveillance and Reconnaissance; Ocean Battlespace Sensing; Sea Warfare and Weapons; Warfighter Performance; and Naval Air Warfare and Weapons.

### **University of Colorado, Denver**

At the University of Colorado Denver, Anschutz Medical Campus, the Medical Scientist Training Program provides rigorous training for students interested in a career in clinical medicine and basic science research. The MST Program's mission is to provide students with the breadth and depth of training necessary to excel as clinician scientists. Colorado has strengths in molecular and cellular biology, immunology, biomedical engineering, virology, neuroscience, endocrinology, pharmacology, and cancer biology, which provide an exciting spectrum of research opportunities for MSTP students.

### **Wilkins Family**

The Wilkins family recognizes the critical role of research and development in sparking the next generation of innovative start-up companies. The award is given to a student that has created an invention or innovation in computer science or engineering, and has undertaken further steps to realize its commercial potential.

### **Wojtaszek Family**

The Paul Wojtaszek Memorial Award is sponsored by Paul's family and friends and given to the project deemed to be the foremost study in the field of medicine & health in the senior division. The award is named for Dr. Paul Wojtaszek, who for decades was a judge for the CSEF in the senior division for medical projects. Paul looked to not only recognize excellence, but also provide insight to students as to how to attain it. This award is intended to celebrate Paul's life in association with the science fair he loved.

### **Women in Physics**

#### **Colorado State University Chapter**

CSU's Women in Physics group was founded a few years ago with the mission to advance the role of women in physics and other sciences through professional development, mentoring, outreach, and community involvement.

### **Zonta Club of Boulder County**

Founded in 1919, Zonta International is a global organization of executives and professionals working together to advance the status of women worldwide through service and advocacy. With more than 30,000 members belonging to more than 1,200 Zonta Clubs in 63 countries and geographic areas, Zontians all over the world volunteer their time, talents and support to local and international service projects, as well as scholarship programs aimed at fulfilling Zonta's mission and objectives. Amelia Earhart was one of its most famous members, and this award is given in her memory.

## **SCHOLARSHIP PROVIDERS**

### **Adams State University**

Since its cornerstone was laid in 1923, Adams State University has grown from a teachers' college into a fine liberal arts and graduate university. Adams State was recently designated the Regional Education Provider for southern Colorado. Today, students can earn a bachelor's degree in any of 25 majors and programs with 28 minors and emphases, 11 Master's degrees in selected majors and a PhD in Counselor Education. The close-knit campus and friendly community create a supportive environment that fosters success. Adams State is a perfect fit for anyone who loves snowboarding, rock climbing, mountain biking - or the idea that professors will know them by name.

### **Colorado School of Mines**

Colorado School of Mines is a public research university devoted to engineering and applied science. It has the highest admissions standards of any public university in Colorado and is among the highest of any public university in the country. CSM has distinguished itself by developing a curriculum and research program geared towards responsible stewardship of the earth and its resources. In addition to strong education and research programs in traditional fields of science and engineering, Mines is one of a very few institutions in the world having broad expertise in resource exploration, extraction, production and utilization. As such, Mines occupies a unique position among the world's institutions of higher education.

### **Colorado State University, Fort Collins**

With more than 150 programs of study in eight colleges, Colorado State University offers a world-class education at one of the nation's top research universities. Academic programs at CSU are among the best in the nation in quality, innovation, and achievement, with internationally known programs in infectious disease, agriculture, cancer research, atmospheric science, sustainability and clean energy, and much more.

### **Colorado State University, College of Natural Sciences**

The College of Natural Sciences' central mission is to train and educate successful scientists, scholars, and responsible citizens. In the College, dedicated professors and strong research programs enable students to become vital participants in the scientific process while preparing to contribute actively and skillfully in a world where knowledge of science and technology has become the standard. Approximately 3,100 of the University's nearly 21,000 undergraduates are enrolled in majors within the College. The College also provides courses for the All-University Core Curriculum as part of the general education component required of all students graduating from the University. Each of our eight departments has strong graduate programs that offer Master of Science and Doctor of Philosophy degrees.

### **University of Colorado, Boulder**

This is not your parents' engineering school. Chalk and talk, so-called gatekeeper courses, and teaching theory without practice went out years ago. In their place, CU-Boulder faculty have pioneered a new approach to engineering education that places the student's needs first. CU Engineering, Colorado's top-ranked engineering college, has a tradition of excellence in engineering education dating back to 1893, and we continually update and improve our programs to reflect the highest standards in teaching and learning, discovery and innovation, and community and culture.

### **Ryan Patterson Scholarship**

The Colorado Science and Engineering Fair, with funds from Intel Corporation have established a nonrenewable scholarship of \$2,000 in the name of Ryan Patterson, the 2001 Intel International Science and Engineering Fair and the 2002 Intel Science Talent Search top winner from Grand Junction, CO. The scholarship is presented to a deserving high school senior based on criteria set by CSEF.

# PIONEERS OF SCIENCE AWARDS

<u>Category</u>	<u>Sponsor</u>	<u>Pioneer Scientist</u>
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## ***Animal Sciences***

***Jody Oaks***

***Temple Grandin***

Mary Temple Grandin (1947 – present) was born with autism. With the help of her mother, her teachers and her mentors, she has overcome those difficulties to become a leader in the agricultural industry. Temple is now a professor at CSU and a leader in the world movement to treat all animals humanely, especially in the cattle processing industry. Temple is literally able to talk to the animals. She is also a passionate advocate for autism, using her experience to prove that people with autism can have great and productive lives.

## ***Behavioral & Social Sciences***

***Karen McCarthy***

***Sigmund Freud***

Sigismund Schlomo Freud (1856 – 1939) was an Austrian psychiatrist and founder of psychoanalysis. Psychoanalysis is the treatment of mental ailments by realizing that present patient symptoms are directly traceable to psychic trauma experienced earlier in life. Originally, Sigmund Freud's work was not well received by the medical profession, but is now accepted practice in treating mental patients. Freudian theory has had a wide impact, influencing anthropology, education, art and literature.

## ***Behavioral & Social Sciences***

***Dan Kowal***

***Margaret Mead***

Margaret Mead (1901 - 1978) was an American social anthropologist, receiving her Ph.D. from Columbia University in 1929. Margaret focused her studies on problems of child rearing, personality and culture. She is best known for work among the people of Oceania. Margaret also rose to become the president of the World Federation for Mental Health.

## ***Chemistry & Biochemistry***

***Dr. Larry Sveum***

***John Dalton***

John Dalton (1766 – 1844), a well-known teacher, is considered the Father of Chemistry. John established the modern theory of atoms and elements, and so paved the way for a huge range of scientific achievements. He was dedicated to his students and to his scientific research while living the simple life of a Quaker.

## ***Earth & Space Sciences***

***Sam Bartlett***

***Edwin Hubble***

Edwin Powell Hubble (1889 - 1953) played a crucial role in establishing the fields of extragalactic astronomy and observational cosmology and is regarded as one of the most important astronomers of all time. Hubble provided evidence that the recessional velocity of a galaxy increases with its distance from the earth, a property known as "Hubble's law". Hubble's Law implies that the universe is expanding. Hubble also discovered that many objects previously thought to be clouds of dust and gas and classified as "nebulae" were actually galaxies beyond the Milky Way. Hubble's name is most widely recognized for the Hubble Space Telescope.

## ***Energy***

***Ed Scholz***

***Christa McAuliffe***

Sharon Christa Corrigan McAuliffe (1948 – 1986) received her bachelor's degree in education and history from Framingham State College in 1970, and also a master's in education supervision and administration from Bowie State University in 1978. She took a teaching position as a social studies teacher at Concord High School in New Hampshire in 1983. In 1985, Christa was selected from more than 11,000 applicants to participate in the NASA Teacher in Space Project and was scheduled to become the first teacher in space. As a member of mission STS-51-L, she was planning to conduct experiments and teach two lessons from Space Shuttle *Challenger*. On January 28, 1986, the shuttle broke apart 73 seconds after launch. In 2004 Christa was posthumously awarded the Congressional Space Medal of Honor.

## ***Engineering***

***Dave Young***

***Hedy Lamar***

Hedy Lamar (1914 - 2000) was an actress who was a contract star of MGM's "Golden Age." She was also an inventor who, along with George Antheil, invented an early technique for spread spectrum communications and frequency hopping, which is necessary for wireless communication from the pre-computer age to the present day. This work was honored in 1997, when the Electronic Frontier Foundation gave Lamar a belated award for her contributions.

## ***Engineering***

***Ryan Patterson***

***Nicola Tesla***

Nicola Tesla (1856 - 1943) was born in Austria and migrated to the United States in 1884. Tesla pioneered the invention of the fluorescent light, AC induction motor, radio, various transformers, wireless communications, and alternating current power transmission. All of these inventions were critical to the modern industrial revolution, and are still in use today. Throughout his life, Tesla received more than 700 patents, along with the Edison Medal.

## ***Environmental Sciences***

***Sam Bartlett***

***Rachel Carson***

Rachel Louise Carson (1907 - 1964) was an American writer and marine biologist. Her widely known books on sea life combined keen scientific observation with rich poetic description. Carson's book, *Silent Spring* is a provocative study of the dangers involved in the use of insecticides and is widely believed to have initiated the environmental movement in the United States.

## ***Environmental Sciences***

***Elemer Bernath***

***Gifford Pinchot***

Gifford Pinchot (1865 - 1946) studied scientific forestry in France because there were no forestry schools in the US. Gifford created the US Forest Service in Theodore Roosevelt's administration that has managed our nations forests ever since. Gifford believed in managed forests in which the timber industry is allowed to harvest trees using sustainable methods and to protect their use for the public.



# COLORADO SCIENCE AND ENGINEERING FAIR

## TEACHER OF THE YEAR HONOR ROLL

Gary Wilkinson	Monte Vista High School, Monte Vista	2003
Nancy Gettman	Woodlin School, Woodrow	2004
Penny Propst	Merino Jr/Sr High School, Merino	2005
TJ Donahue	Cherry Creek High School, Greenwood Village	2006
Haydee Phelps	Summit Middle School, Boulder	2007
Doug Steward	Monte Vista High School, Monte Vista	2008
Dena Palser	Lone Star School, Otis	2009
James DePue	Wray High School, Wray	2010
Daniel Newmyer	Center High School, Center	2011
David Miner	Brush High School, Brush	2012
Candus Muir	The Classical Academy, Colorado Springs	2013
Loree' Harvey	Monte Vista Middle School, Monte Vista	2014
Diego Martinez	Center High School, Center	2015
Linda Niccoli	Liberty School, Joes	2016

## 2016 INTEL ISEF RESULTS

### Grand Award Winners

**Kathryn Lawrence & Katherine Younglove** from Fairview High School won \$5,000 (Top of Category) and \$3,000 (1<sup>st</sup> Place) in the Chemistry category. Kathryn & Katherine also won the Intel Foundation Cultural and Scientific Visit to China Award.

**Rebecca Bloomfield** from Palmer High School won \$1,000 (3<sup>rd</sup> Place) in the Microbiology category.

**Joyce Xu** from Fairview High School won \$1,000 (3<sup>rd</sup> Place) in the Computational Biology & Bioinformatics category.

**Lillie Bahrami** from Boulder High School won \$500 (4<sup>th</sup> Place) in the Animal Sciences category.

**Trevor Jordan** from Animas High School won \$500 (4<sup>th</sup> Place) in the Engineering Mechanics category.

**Isani Sighn** from Cherry Creek High School won \$500 (4<sup>th</sup> Place) in the Biomedical Sciences category.

### Special & Governmental Award Winners

**Rebecca Bloomfield** won a full tuition scholarship (\$150,000) to the Florida Institute of Technology.

**Edwin Bodoni** from Cherry Creek High School won \$2,000 (1<sup>st</sup> Place) from the American Dental Association Foundation.

**Matthew Hileman** received an Honorable Mention from the International Council on Systems Engineering.

**Trevor Jordan** won \$2,500 (1<sup>st</sup> Place) from the Alcoa Foundation. Trevor also won \$1,000 (3<sup>rd</sup> Place) from NASA. Trevor also received an Honorable Mention from the Society of Experimental Test Pilots.

**Joyce Xu** won \$250 (4<sup>th</sup> Place) from the American Association of Pharmaceutical Scientists. Joyce also won \$500 (3<sup>rd</sup> Place) from the American Statistical Association.

## 2016 BROADCOM MASTERS RESULTS

Broadcom MASTERS, a program of Society for Science and the Public, is a national competition for middle school students. Broadcom MASTERS nominees are eligible to register and complete an online application to compete nationally for valuable prizes and awards. Nine students from Colorado were named as Semifinalists and one was chosen as a Finalist in 2016:

**Emhyr Sumramanian**, grade 8, of Aurora, CO for his project *A Study of Super-Absorbent Polymers and Their Effectiveness in Organic Waste Extraction*. Emhyr attended the Broadcom MASTERS competition in Washington, DC in October 2016 and won \$2,500 2<sup>nd</sup> Place Engineering Award.

# COLORADO SCIENCE AND ENGINEERING FAIR

## Copper Sponsors

(Sponsorships of \$500 - \$749)

**Anheuser-Busch, Inc.**

**Michael Bemski**

## Colorado Engineering Council

The Colorado Engineering Council ([www.coloradoengineeringcouncil.org](http://www.coloradoengineeringcouncil.org)) consists of representatives from 22 professional engineering, architectural and scientific organizations. The CEC coordinates and promotes the interests of the constituent organizations by providing a unified effort devoted to the advancement of the professional, technical, educational, and ethical interests and standards of professional organizations engaged in the various branches of engineering, architecture or science.

## Exponential Engineering Company

### Galvanic Engineering

Galvanic Engineering, LLC is a small Colorado business that provides consulting and contracting services in the fields of electrical and software engineering. Galvanic has extensive experience in the design, manufacture and testing of electronic and electromechanical products, specializing in embedded computing and control systems.

### IEEE, High Plains Section

The IEEE is the world's largest technical professional organization with the goal of advancing technology for humanity. The High Plains Section serves IEEE members in Northern Colorado, Southern Wyoming and Southwest Nebraska.

### Optimal Schedule

Optimal Schedule ([www.optimalschedule.com](http://www.optimalschedule.com)) is a Colorado company providing advanced employee scheduling software to help our clients create more satisfied customers, more efficient managers, and happier employees. We manage the complexity of shift-scheduling, shift-trading and overtime so our clients can focus on operations and everyone works the shifts that make sense for their schedule.

## San Luis Valley Regional Science Fair, Inc.

The San Luis Valley Regional Science Fair (SLV RSF) is located in the San Luis Valley of southern Colorado. The first science fair for the SLV region was held in 1949, making it the oldest science fair in Colorado and one of the oldest in the nation. The fair received nonprofit status in 1981 and today the SLV RSV has a board of directors and a paid program director.

## Sundyne Corporation

**Dr. Larry & Carol Sveum**

## Vaughan Web Works, LLC

Nancy Vaughan of Vaughan Web Works, LLC develops and maintains WordPress websites. For more information, please contact Nancy at [nevaughan17@gmail.com](mailto:nevaughan17@gmail.com) or by phone at 303-817-4271. Vaughan Web Works considers supporting the Colorado Science and Engineering Fair (CSEF) an honor and a privilege.

## CSEF Contributors

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# COLORADO SCIENCE AND ENGINEERING FAIR

## Platinum Sponsors

(Sponsorships of \$5,000 - \$9,999)



Lockheed Martin Corporation ([www.lockheedmartin.com](http://www.lockheedmartin.com)), a security and aerospace company, engages in the research, design, development, manufacture, integration and sustainment of advanced technology systems and products for defense, civil and commercial applications in the US and internationally.



From daily weather forecasts, severe storm warnings and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's ([www.noaa.gov](http://www.noaa.gov)) products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need, when they need it.

## Gold Sponsors

(Sponsorships of \$2,500 – 4,999)



The Colorado Dental Association ([www.cdaonline.org](http://www.cdaonline.org)) is an organization, representing greater than 80% of Colorado dentists, and that strives to advance dentistry and oral health in Colorado.



The Society of Petroleum Engineers is a worldwide society with over 80,000 members and locally, the Denver Section (<http://denver.spe.org>) has approximately 1,200 active members. Besides being a proud sponsor of the Denver Metro RSF and the CSEF, we also support 5 colleges and universities by providing scholarships to students of the junior and senior class level with a minimum 2.5 GPA and who participate in a Petroleum Engineering Curriculum.

## Silver Sponsors

(Sponsorships of \$1,000 – 2,499)

### Black & Veatch

Black & Veatch (<http://bv.com>) is an employee-owned, global leader in building Critical Human Infrastructure™ in Energy, Water, Telecommunications and Government Services. Through our *Building a World of Difference*® Foundation, Black & Veatch is able to coordinate our charitable donations with the volunteer involvement of our professionals to organizations and programs worldwide. We focus our efforts on improving the areas of education, health and human services, the environment, public safety and emergency services.

### CableLabs

CableLabs ([www.cablelabs.com](http://www.cablelabs.com)) is a non-profit research and development consortium that is dedicated to creating innovative ideas that significantly impact our cable operator members' business. CableLabs also serves to define interoperable solutions among our members and their technology vendors in order to drive scale, reduce costs, and create competition in the supply chain.

### Colorado Medical Society

The Colorado Medical Society ([www.cms.org](http://www.cms.org)) is a nonprofit organization whose membership comprises the majority of physicians, residents, and medical students in Colorado. The Society's mission is to promote the science and art of medicine, the betterment of public health, and the welfare of Colorado physicians and their patients.

### ICAT Managers

ICAT ([www.icat.com](http://www.icat.com)) is a leading provider of property insurance to businesses and residential property owners located in hurricane and earthquake regions of the US. Our purpose is to assist businesses and people to recover from natural disasters and to provide best-of-market product and services to our policy holders, agents and brokers.

### IEEE, Denver Section

The IEEE is a global organization of over 400,000 engineers and technical professionals with over 3600 members in the Denver – Boulder metropolitan area. The mission of the IEEE Denver Section is to enrich the professional and personal lives of the Rocky Mountain Region members, developing them into valued contributors to society through quality programs, continuing education, career development and community service; in collaboration with IEEE, industry, government and academia.

### National Renewable Energy Laboratory

The National Renewable Energy Laboratory is the only federal lab dedicated to the research, development, commercialization, and deployment of renewable energy and energy efficiency technologies. NREL focuses on creative answers to today's energy challenges. From breakthroughs in fundamental science to new clean technologies to integrated energy systems that power our lives, NREL researchers are transforming the way the nation and the world use energy.

### Seagate Technology

Seagate ([www.seagate.com](http://www.seagate.com)) is the world's leading provider of storage devices, providing solutions for enterprise, desktop, mobile computing, consumer electronics and retail markets. Seagate has the broadest product portfolio in the industry, offering hard disk, solid state hybrid and solid state drives.

# COLORADO SCIENCE AND ENGINEERING FAIR

## Diamond Sponsors

(Sponsorships of ≥ \$10,000)



Bayswater Exploration and Production LLC is a Denver, CO based oil and gas development company that was established in 2004. The company owns and operates oil and gas properties throughout the Rocky Mountains, the Midcontinent Region, California, and the Permian Basin. Bayswater's strategy includes finding new opportunities in old fields, acquiring and drilling low cost development areas; and prospect generation/sales. Bayswater strategically partners with various companies and individuals to effectively implement those strategies discussed above. Bayswater's team has decades of experience adding value to oil and gas assets in North America.



## Colorado State University

Colorado State University ([www.colostate.edu](http://www.colostate.edu)) is one of the nation's leading research universities, with world-class research in infectious disease, atmospheric science, clean energy technologies and environmental science. Founded in 1870, CSU is the "University of Choice" for Colorado residents. In addition to excellent programs in those areas, CSU offers among the very best professional programs in the US in veterinary medicine, engineering, alternative energy, occupational therapy, journalism, agriculture and construction management.

The Colorado of Natural Sciences ([www.natsci.colostate.edu](http://www.natsci.colostate.edu)) comprises a dynamic community of scholars in the physical, mathematical, behavioral and life sciences. Our mission is to conduct cutting edge research in our foundational fields, to actively engage in important interdisciplinary research and to educate and inspire the next generation of scholars, researchers and professional leaders.

The College of Natural Sciences Education & Outreach Center ([www.cns-eoc.colostate.edu](http://www.cns-eoc.colostate.edu)) is an incubator for innovation in STEM education. We serve both CSU and K-12 students and faculty through a wide variety of programs. Particular emphasis is on finding new ways to promote scientific creativity and innovation, attributes essential for global competitiveness in the 21<sup>st</sup> century.



Congratulations to all participants at the Colorado Science and Engineering Fair. We know you learned a lot of new skills, had fun, and are anxious to celebrate your well-deserved success! You have all demonstrated that you can solve problems and create solutions, sticking with it despite the many challenges. At Intel, we believe that's how we all learn to be successful, and we applaud your hard work. All of us at Intel wish you the best of luck today and thank you for your participation. Please keep innovating!



Verizon Foundation, in partnership with leading nonprofits, is working to bring access to technology and hands-on learning opportunities to our youth that will prepare them for success in tomorrow's high-tech world. The Foundation's goal is to inspire tomorrow's creators to use technology to build brighter futures for themselves, their families and the world. #weneedmore