

The 2016 Planning Committee gives our sincerest thanks and appreciation to:

PREMIERE SPONSOR



ELITE SPONSORS



Solar Turbines

A Caterpillar Company



PROGRAM SPONSOR



FEBRUARY 21-27, 2016

NATIONAL ENGINEERS WEEK

"Engineers Make a World of Difference"



The San Diego County Engineering Council , The American Institute of Aeronautics and Astronautics & California Society of Professional Engineers

Presents:

2016 Awards Banquet

February 26, 2016

Located at:

San Diego Air & Space Museum

Balboa Park

Premiere Sponsor:



Welcome to National Engineers Week!

National Engineers Week is the fourth week of February. It is observed by more than 70 engineering, education, and cultural societies, and more than 50 corporations and government agencies. The purpose of National Engineers Week is to call attention to the contributions to society that engineers make. It is also a time for engineers to emphasize the importance of learning math, science, and technical skills.

Fun Fact: The celebration of National Engineers Week was started in 1951 by the National Society of Professional Engineers in conjunction with President George Washington's Birthday. President Washington is considered as the nation's first engineer, notably for his survey work.

The National Engineers Week foundation is a formal coalition of more than 100 professional societies, major corporations and government agencies dedicated to ensuring a diverse and well-educated future engineering workforce. This is done by increasing awareness and interest in engineering and technology careers among young students and by promoting pre-college literacy in math and science. National Engineers Week (NEW) also raises public understanding and appreciation of engineers' contributions to society. Although NEW is a nationwide event, each major county puts together their own E-Week and San Diego county does just that. The week in San Diego has many events with the culmination being the awards banquet which is sponsored by the San Diego County Engineering Council (SDCEC) and hosted at the San Diego Air & Space Museum in Balboa Park.

The purpose of the events of NEW San Diego is to promote and celebrate the engineering profession through broad participation in NEW activities, which bring the engineering societies together in this effort, and to inform the general public about what engineering is and how it benefits society.

Upcoming events include:

- Engineering Day at the Mall, sponsored by ASCE/YMF, will be held on Saturday, February 27th at 10:00 AM – 4:00 PM. <http://www.new-sandiego.org/edayatthemall.html>.
- MATHCOUNTS San Diego Competition: To be held on February 27, 2016, at the UC San Diego Warren Lecture Hall (Mathews Lane), 8:00 AM - 3:30 PM. The event is hosted by ASME, ASCE CSPE, and other San Diego engineering societies. For more information see: <http://www.new-sandiego.org/mathcounts.html>
- Engineering Outreach Advocacy Meeting: To be held in April 2016. See page 10 for further details.

San Diego County Engineering Council (SDCEC) NEW 2016 Planning Committee

Name	Society	Office, Sub-Committee
Chris Root	AIAA	Chair, Banquet MC,
Debra Kimberling	SWE	Vice-chair
Ken Discenza, PE	CSPE	Treasurer, Proclamations Banquet Coordinator
Dr. Gerald Gerace	IEEE	Awards Chair
Mehdi Khalili, PE	CSPE	Publicity Chair / Webmaster
Peter Livingston, PE	CSPE	MathCounts Coordinator
Kevin Anub	ASCE-YMF	E-day at the Mall Chair
John Klemunes	APWA	Programs

Society Representatives:

Chris Root	(AIAA) American Institute of Aeronautics and Astronautics
Craig Shannon	(ASCE) American Society of Civil Engineers
Hugh Egan	(ASHRAE) American Society of Heating, Refrigerating, And Air Conditioning Engineers
Dr. Robert (Bob) Klug	(ASM) Materials Information Society
Philip Young	(ASME) American Society of Mechanical Engineers
Ken Discenza	(CSPE) California Society of Professional Engineers
Kevin Anub	(ASCE YMF) E-Day at the Mall
Dr. Gerald C. Gerace	(IEEE) Institute of Electrical and Electronics Engineering and Process Engineering
Mark Halverson	(INCOSE) International Council on Systems Engineering
Cristina Nunez	(PECG) Professional Engineers in California Government
Cindy Hesse	(SDSA) San Diego Science Alliance
Marcie Morihoro	(SDSU) San Diego State University
Heather Caya	(SEAOSD) Structural Engineers Association of San Diego
William Fletcher	(SFPE) Society of Fire Protection Engineers
Victor Guzman	(SHPE) Society of Hispanic Professional Engineers
Alan Douglas	(SME) Society of Manufacturing Engineers
Debra Kimberling	(SWE) Society of Woman Engineers
Dr. Olivia Graeve	(UCSD) University of California San Diego
Mehdi Khalili	California WateReuse Association San Diego Chapter

ENGINEERING OUTREACH ADVOCACY COMMITTEE

An Invitation:



STEM Societies within San Diego County give out thousands of dollars in engineering scholarships annually. We put on professional programs for our members, educate the community about engineering and engage, foster and support students in exploring the rewarding careers of engineers. Yet we seldom have more applicants than the number of scholarships we give out. We need volunteers to staff our programs. We need access to the STEM community and visibility with educators and the general public.

To stem the gap and accelerate the success of already existing Societies student outreach and member programs, the San Diego County Engineering Council (SDCEC) is creating an “Engineering Outreach Advocacy” committee. The vision of this team is to create the infrastructure to support existing Societies initiatives, to improve cross Societies communication and to tap into the local community and education network.

You are cordially invited to join this new team, to benchmark STEM councils and to create the communication medium(s) and build the infrastructure necessary to improve our Societies’ public relation needs. With your help, we know that we can triple the number of youth applying for (existing) Society scholarships, supply our outreach volunteer needs, and improve the image of engineering throughout San Diego County.

Our first meeting will be April 2016. Please RSVP by contacting Debra. For more information, please contact:

Debra Kimberling, Fellow SWE
Advocacy Director, SWE San Diego
Vice-Chair SDCEC
Advocacy@SweSanDiego.org

AGENDA

5:00-7:00 pm **Tour of the museum**

6:00-7:00 pm **Reception in the lobby**

No-host reception:

Cash bar

\$2 Soda and Water

\$4 House Beer

\$5 Premium Beer and House Wines

\$7 Premium Wines and House Liquor

\$8 Premium Liquor

7:00-9:15 pm **Banquet**

Chris Root (AIAA), NEW SD 2016 General Chair, Banquet MC

8:00-8:30pm **Awards Presentations**

Dr. Gerald Gerace, IEEE, NEW SD 2016 Awards Chair

1) Outstanding Engineering Educator

2) Outstanding Engineer

3) Outstanding Engineering Projects

4) Dr. Thomas Avolt Kanneman Outstanding
Engineering Service Award

8:30-9:15pm **Keynote Speaker**

Introduction by Chris Root, NEW SD 2016 General, Banquet MC

Dr. Richard Hallion

“Technological Invention and Innovation: A Selective Review”

9:15 pm **Closing Comments**

KEYNOTE ADDRESS



*"Technological Invention and Innovation:
A Selective Review"*

KEYNOTE SPEAKER

Dr. Richard Hallion

Dr. Hallion received his BA and PH.D from the University of Maryland in the 1970s. In 1933, he graduated from Harvard University's National Security Studies Program for Senior Executives. Throughout his long and illustrious career, Dr. Hallion has held numerous positions including, among others:

- Curator of Science and Technology for the National Air and Space Museum
- NASA Contract Historian
- Air Force Historian at Edwards AFB; Wright Patterson AFB; Andrews AFB; and the Pentagon
- Special Advisor for Airspace Technology to the Air Force Chief Scientist
- Research Associate in Aeronautics, National Air and Space Museum, Smithsonian Institution

Dr. Hallion has published a diverse variety of books, articles, and essays related to his profession and his areas of expertise. In addition, he is a Fellow of AIAA, RAes, and the Royal Historical Society, as well as a member of various military, defense and historical societies.

Dr. Thomas Avolt Kanneman Outstanding Service Award (SDCEC)



Nancy Taylor,
**San Diego Science Alliance (SDSA),
Better Education for Women in Science
and Engineering (BEWiSE)**

Nancy Taylor was a recognized K-12 science and engineering education trailblazer. She served as a STEM advocate to all 43 San Diego County school districts inspiring over 20,000 teachers and the 500,000 K-12 students that they teach. By connecting in-the-classroom quality STEM instruction with outside, post-academic relevancy, Taylor built a large network of professional educators, education researchers and STEM professionals who continue to actively collaborate to improve STEM education and increase the education-industry pipeline of STEM professionals.

Taylor was principal investigator for NSF funded K-12 initiatives partnering with school districts and the San Diego State Research Foundation. CyberTEAM, a CyberInfrastructure implemented inquiry-based science, and PISCES impacted 200 K-6 science classrooms in 40 schools by pairing university science students with elementary teachers. "Exploring STEM Careers Initiative" impacted 100 teachers, 1400 students from 50 schools in 11 districts through out-of-school-time engineering/robotics challenges for middle to high school.

Her decades-long leadership includes classroom teaching in the San Diego and Ramona Unified School Districts, elementary school principal, San Diego County Office of Education (SDCOE) Science Coordinator/Curriculum Specialist, Executive Director of the SDSA, and STEM Task Force at the California Department of Education. She was an Athena Pinnacle Award winner and was honored as California's "Leading Women in STEM" for her achievements in advocating for stronger public-private partnerships and investment in STEM. Her legacy will live on through community programs like BEWiSE she co-founded to engage middle to high school girls with women in STEM through overnights, workshops and academies. Nancy is survived by her husband Warren and daughter Ashley.

Outstanding Engineering Project Award (SDCEC)

COLD SPRAY TECHNOLOGY NAVAIR North Island



Figure 1. Fretting Damage on Hydraulic Pad Surface



Figure 2. Cold Spray Repaired Hydraulic Pac Surface

In the past year, a small team of engineers at Naval Air Systems Command (NAVAIR) North Island, has made tremendous strides in repairing high-value, previously unrepairable, and long lead-time, non-structural aircraft components for the U.S. Navy, using Cold Spray technology.

The Cold Spray process restores critical dimensions to worn components. It uses a hand-held or robotic gun to apply a metal coating to worn metallic surfaces. Compressed helium gas propels a fine metal powder through a nozzle and then impacts onto the surface to be restored. Cold Spray is similar to metal spray or thermal spray, but operates at higher velocity and pressure, and lower temperature. This avoids damaging the component or changing the properties of the metal powders and base material.

After several successful demonstrations, which have saved the Navy \$3.3 million, NAVAIR North Island is now repairing components on the production line, while other Navy depots are looking at applying this technique at their facilities.

National Engineers Week 2016 SAN DIEGO AWARDS

The SDCEC NEW 2016 Awards are:

OUTSTANDING ENGINEERING EDUCATOR AWARD: The award recognizes an engineering educator from the San Diego area who has made outstanding contributions to the field of engineering education that serves the engineering profession and the general public. (SDCEC)

Olivia A. Graeve, PhD
UCSD

OUTSTANDING ENGINEER: The award recognizes an engineer from the San Diego area who has made outstanding contributions to the field of engineering which serve the engineering profession and the general public. (SDCEC)

Sean Alexander, BS
NAVAIR

OUTSTANDING ENGINEERING PROJECT AWARD: The award recognizes an outstanding engineering project in the SD area that benefits the public. (SDCEC)

PROJECT COLD SPRAY
NAVAIR North Island

DR. THOMAS AVOLT KANNEMAN OUTSTANDING ENGINEERING SERVICE AWARD: The award recognizes individuals who have given outstanding professional and/or public service in or for engineering that directly enhances the engineering profession. (SDCEC)

Nancy Taylor,
SDSA, BEWiSE

Outstanding Engineering Educator Award (SDCEC)



Olivia A. Graeve, Ph.D.
University of California, San Diego (UCSD)

Prof. Graeve has for many years (close to 20 years) sustained outstanding efforts towards the recruitment and retention of Hispanic students in undergraduate and graduate engineering programs, mostly through her activities with the Society of Hispanic Professional Engineers (SHPE) and the Mexican Materials Research Society. In addition, she is almost exclusively responsible for bringing together large groups of Hispanic faculty at the SHPE annual meetings. These efforts have resulted in the establishment of a Hispanic engineering faculty cohort that is enthusiastic and committed to Hispanic engineering education.

In addition, Prof. Graeve has helped bridge collaborations in the Americas, especially among women researchers. Her activities with SHPE at the regional and national level have the potential to become the single most important, large-scale, program to increase the number of Hispanic engineering faculty in the United States, as it consists of a multi-tiered approach starting with undergraduates and moving all the way up to current faculty members. Regionally, Prof. Graeve has promoted engineering among Hispanics and women by participating in the organization of several high-impact conferences, including the SHPE Regional Leadership Development Conference and the SHPE National Institute for Leadership Advancement, both of which were held at UC San Diego in 2014.

Outstanding Engineer (SDCEC)



Sean Alexander, BS
NAVAIR

Sean Alexander is an aerospace engineer with the U.S. Navy F-18 program at the North Island Naval Air Station. In late 2010, the first EA-18G Growler, electronic warfare versions of the F-18F Super Hornet, were deploying to Iraq. They began to experience repeated cabin pressurization issues with their aircraft. Sean went to Iraq, and upon returning to North Island, pushed through resistance and requirement creep, and constructed a test stand that simulated the system and diagnosed the problem. This proved to be more effective and less expensive than the more conventional option of flight testing. Sean has exhibited quiet and patient determination that is rooted in a solid confidence the results will do the talking. Sean's work on this test stand represents the highest levels of commitment and dedication and the project stands as some of the finest work accomplished within NAVAIR.

Sean's work on this project has truly been herculean. Sean has exemplified many of the top traits NAVAIR looks for in its engineers – creativity, ingenuity, resourcefulness, flexibility, determination and resilience. He has faced an endless string of barriers and has steadfastly knocked each one down to get the job done. He has faced repeated pushback, resistance and creep in requirements, and he's done so with a quiet and patient determination that is rooted in a solid confidence that the results will do the talking. Sean sustained a level of effort and workload that is hard to believe possible for anyone. And through it all, Sean maintained a positive and confident spirit which he has also passed on to the two other engineers working with him on the project. Sean's work on this lab represents the highest levels of commitment and dedication and the project stands as some of the finest work accomplished within NAVAIR.