



54th Annual Convention Highlights

KEYNOTE SPEAKER

STEVEN CHU, Professor of Physics and Molecular & Cellular Physiology

Professor Chu has published ~260 papers in atomic physics, laser spectroscopy, polymer physics, biophysics, biology, and batteries, and holds 11 patents and 5 more pending. He was U.S. Secretary of Energy from January 2009 - April 2013. As the first scientist to hold a Cabinet position, he recruited outstanding scientists into the DOE, initiated ARPA-E (Advanced Research Projects Agency-Energy), the Energy Innovation Hubs, and was tasked by President Obama to assist BP in stopping the Deepwater Horizon oil leak. As director of the Lawrence Berkeley National Laboratory, Chu encouraged research in the conversion of solar energy into electricity and transportation biofuels. At Stanford, he was twice Chair of Physics, and helped launch Bio-X at Stanford University, a multi-disciplinary institute combining the physical and biological sciences with medicine and engineering, and the Kavli Institute for Particle Astrophysics and Cosmology. Previous to those positions, he was head of the Quantum Electronics Research Department at AT&T Bell Laboratories.



Dr. Chu has numerous awards including the 1997 Nobel Prize in Physics for his contributions to laser cooling and atom trapping. Other research highlights include the introduction of atomic fountain atomic clocks, atom interferometry based on optical pulses, the manipulation of biomolecules with optical tweezers, and the first single molecule FRET (fluorescence resonance energy transfer) experiments with biomolecules tethered to surfaces. He has 27 honorary degrees, and is a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts and Sciences, National Inventors Academy, the Academia Sinica, and a foreign member of the Royal Society, the Royal Academy of Engineering, the Chinese Academy of Sciences, and the Korean Academy of Science and Technology.

After completing his government service, Chu has returned to Stanford, where he is developing new optical imaging technologies with nanoparticle probes for applications in biology and biomedicine. He is also exploring new approaches to acoustic imaging, lithium ion batteries, PM_{2.5} air filtration and other applications of nanotechnology.



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AWARDEES

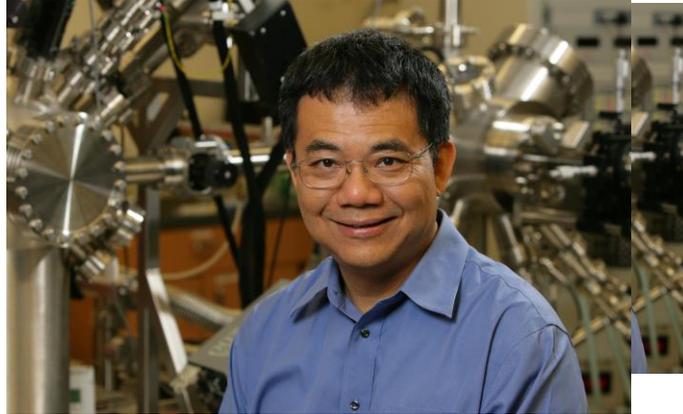
Dr. Henry Tzu-Yow Yang (楊祖佑) is an engineer and educator currently serving as the fifth chancellor of the University of California, Santa Barbara, a post he has held since 1994. Regarded as an expert in aerospace structures, structural dynamics, transonic aeroelasticity, wind and earthquake structural engineering, intelligent manufacturing systems, and finite elements. Dr. Yang was on the staff of Purdue University for 25 years before his assignment at UC Santa Barbara. He is an eight-time winner of the Elmer F. Bruhn Award, which honors outstanding teachers at the Purdue University School of Aeronautics and Astronautics. He was named as the university's Neil A. Armstrong Distinguished Professor of Aeronautics and Astronautics, a title bestowed on him from 1988 through 1994. He has authored or co-authored 170 articles for scientific journals, as well as a widely used textbook on finite element structural analysis. He has guided 54 Ph.D. and 20 M.S. recipients. Dr. Yang has served on scientific advisory boards for the Department of Defense, U.S. Air Force, U.S. Navy, NASA, and the National Academy of Engineering. He is a past chair of the Association of Pacific Rim Universities (2010–2014) and the Association of American Universities (2009–2010). Yang currently serves on the President's Committee for the National Medal of Science, being appointed originally by George W. Bush in 2009 and again by Barack Obama in 2011. He was named as chairman of the board for the Thirty Meter Telescope project in 2007 and still holds the position. He also currently serves on the board of directors of The Kavli Foundation. Yang holds honorary doctorates from Purdue University, Hong Kong University of Science and Technology, National Taiwan University, City University of Hong Kong, Chinese University of Hong Kong, West Virginia University, and Hong Kong Polytechnic University. He is the 1998 recipient of the Benjamin Garver Lamme Award from the American Society for Engineering Education and the 2008 recipient of the Structures, Structural Dynamics, & Materials Award from the American Institute of Aeronautics and Astronautics.





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Professor Yang YANG (楊陽) Professor Yang Yang holds a BS in Physics from the National Cheng-Kung University in Taiwan in 1982, and he received his M.S. and Ph.D. in Physics and Applied Physics from the University of Massachusetts, Lowell in 1988 and 1992, respectively. Before he joined UCLA in 1997, he was the research staff of UNIAX Corporation (now DuPont Display) in Santa Barbara from 1992 to 1996.



Professor Yang is the Carol and Lawrence E. Tannas Jr. Chair Professor of Materials Science and Engineering at UCLA. He is a materials physicist with expertise in the fields of organic electronics, organic/inorganic interface engineering, and the development and fabrication of related devices, such as photovoltaic cells, LEDs, and memory devices. His notable contributions to the field of organic photovoltaics (OPV) are enhanced understanding of polymer morphology and its influence on device performance; the invention of the inverted organic solar cell; the inverted tandem solar cell; and transparent OPV devices. Since 2007, he has taken the lead in the creation of several world record cells in OPV, with a recent efficiency of 10.6% - 11.6% PCE via tandem structure.

In addition to organic solar cells, his group is also heavily involved in the development of liquid-processable CIGS/CZTS photovoltaics. His group has achieved approximately 11.2% PCE using a CISS absorber layer deposited from a solution-phase precursor system. Recently, his group has entered the field of perovskite solar cell, and he demonstrated 19.3% power conversion efficiency by interface engineering and improved crystal growth process. Professor Yang has as published more than 290 peer-reviewed papers (including book chapters); ~60 patents (filed or issued), and given 150 invited talks. His H-Index is 115 as of January 2016.

Some of his recent honors and awards are:

- 'World's most influential scientific minds" by Thomson Reuters, 2016. (Only 19 scientists worldwide selected.)
- Second highest cited papers in Chemistry between 2005 - 2015, selected by the American Chemical Society (ACS).
- Highly Cited Researcher in Materials Science and Chemistry Categories (2016, 2015, 2014) published by Thomson Reuters.
- Fellows of American Physical Society (2015); Materials Research Society (2015); Royal Society of Chemistry (2015); SPIE (2014) and the E-M Academy (2014).
- The Carol and Lawrence E. Tannas Jr. Endowed Chair in Engineering, 2011.



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Bill Chiu, Director of Engineering Southern California Edison - Transmission & Distribution

Bill Chiu is the Director of Engineering at Southern California Edison (SCE), with responsibility for all engineering disciplines involved in electric grid infrastructure and technical requirements for SCE's power delivery transmission, substations, and distribution system, including the interconnections of renewable resources.

Through his leadership, together with his dynamic team, their accomplishments have broken new ground, establishing new industry standards that have led the way for others to follow, including: partnering in a federal demonstration project for the largest battery storage system in North America, designing and engineering a 500-kilovolt underground transmission line in Chino Hills—the first project of its kind in the Western Hemisphere, and developing SCE's grid modernization to pave the way for a two-way flow of power to and from customers.



Bill is an active member of the Institute of Electrical and Electronics Engineers (IEEE) and recently served as the Chairman of the IEEE/PES Transformers Committee from 2012 to 2013. In that capacity, he was responsible for leading one of the largest IEEE standards development organization that sponsored more than 90 industry standards that are used world-wide in the power industry. In 2014, Bill received the IEEE USA Regional Leadership Award for his personal contributions to the power industry.

Prior to joining SCE in 1998, Bill served various management and engineering roles at Austin Energy, Los Angeles Department of Water & Power, and Bechtel Power Corporation. With over 26 years of experience in the utility industry, Bill has had responsibilities across various functional areas that included business strategy, regulatory policy, customer service, distribution construction and maintenance, engineering, and bulk power infrastructure projects.

Bill is a registered professional engineer in the state of California and Texas. He currently serves on the Industry Advisory Board for the USC Viterbi School of Engineering and the California State University at Los Angeles School of Engineering, Computer Science, and Technology. Bill has a Bachelor of Science degree in Electrical Engineering from Cal Poly Pomona, a Master of Science in Electrical Engineering from USC Viterbi School of Engineering, and an MBA degree from the USC Marshall School of Business.



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Dr. C.Y. Chang is a Principal Engineering Fellow at Raytheon Space and Airborne Systems (SAS) located in El Segundo, California. He received his B.S. degree in Electrical Engineering from National Taiwan University in 1982 and M.S. degree and Ph.D. degree in Electrical Engineering from University of California at Los Angeles in 1983 and 1986, respectively. He has 30 years of experience in developing spaceborne and airborne radar systems for earth science, surveillance and reconnaissance applications, specializing in advanced radar system design and signal processing.

From 1986 to 1997, Dr. C.Y. Chang worked at the NASA Jet Propulsion Laboratory (JPL) in Pasadena, California on spaceborne imaging radar programs: Shuttle Imaging Radar-C (SIR-C) and Shuttle Radar Topography Mapper (SRTM). SIR-C was the third in a series of remote sensing imaging radar systems flown on Space Shuttle for earth science applications. SIR-C represented the first multi-frequency band (L-band and C-band) multi-polarization (HH, VV, and cross-polarization) imaging radar system ever flown in space. It was flown together with the X-SAR imaging radar developed by Germany and Italy on-board Space Shuttle Endeavour twice in 1994. Dr. Chang led the Ground Data Processing System (GDPS) which digitally processed all the radar data into image products. SIR-C radar image products have been used to support a variety of earth science research studies from geology, oceanography to interferometry. He received a NASA Exceptional Service Award for his contribution to SIR-C. It was an extremely exciting experience and gratifying accomplishment for a young engineer. The SIR-C follow-on system, known as Shuttle Radar Topography Mapper (SRTM), became the first spaceborne single-pass interferometric radar system with dual antenna arrays, which produces the worldwide Digital Terrain Elevation Data (DTED) available today.



Dr. C.Y. Chang joined Raytheon Space and Airborne Systems (SAS) in 1997. Raytheon Company is a leading aerospace company specializing in defense, civil government and cybersecurity solutions throughout the world. The Space and Airborne Systems (SAS) business unit builds radars and other sensors for aircraft and spacecraft. The SAS business unit also provides communications, electronic warfare and high-energy laser solutions. The El Segundo site is best famed for developing high performance airborne radars. Since Dr. Chang joined the Raytheon SAS, he has worked on a variety of advanced long range airborne surveillance and reconnaissance radar programs with increasing responsibilities. Aircraft includes piloted aircraft and remotely piloted aircraft. He is responsible for technology and product roadmap development. He has presented Raytheon's technologies and product offerings to numerous customers. He is recognized for advancing radar technologies, capturing new programs, and turning around challenging programs.

Teaching is another experience Dr. C.Y. Chang enjoys very much outside his day job. He previously taught a technical short course on imaging radar. Currently, he teaches three radar courses at Raytheon as part of company's advanced technical education program. Dr. Chang resides in Redondo Beach, he enjoys hiking, running, and traveling to canyon country and tropical islands.



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CESASC 2016 Technical Symposium Luncheon Speaker

Alex Hall

Professor

Department of Atmospheric and Oceanic Sciences

Research interests: climate modeling, global climate change, regional climate



Alex Hall's research is focused on reducing uncertainties associated with global climate change and involves a global perspective on earth's climate. The overarching goal of his global climate research is to determine what controls the climate's sensitivity to external forcing. His work also focuses on developing regional earth system models and studying the climate from a regional perspective to lay the groundwork for an understanding of climate change at scales most relevant to people and ecosystems.