13AIChE®
Annual Meeting, San Francisco, CA

Record-breaking attendance and an expanding international reach were just two of the noteworthy aspects of AIChE's 2013 Annual Meeting, held Nov. 3–8 at the Hilton Union Square in San Francisco, CA. Organized around the theme "Global Challenges for Engineering a Sustainable Future," the meeting's highlights included the 3rd World Congress on Sustainable Engineering, the 4th International Congress on Energy (ICE 2013), and topical conferences devoted to advanced membrane separation for sustainability, advanced fossil energy utilization, and CO_2 capture, among others. In international collaborations, AIChE conducted joint sessions with Japan's Society of Chemical Engineers, the Korean Institute of Chemical Engineers, and IChemE. In keeping with the Institute's growing global presence, nearly one-quarter of meeting registrants came from outside the U.S. Also, AIChE continued its adoption of new media with expanded use of electronic poster presentations and the launch of a new Annual Meeting Program app that allowed attendees to review the entire program schedule and plan their time using mobile devices. For those who could not attend the meeting, AIChE's ChEnected blog (http://chenected.aiche.org) published news updates, photos, and videos from the meeting. Receptions, exhibits, and social events rounded out the activities.

▼ The Institute honored some of chemical engineering's most innovative and influential people at the Honors Ceremony on Nov. 3. Nicholas Peppas (left), Chair of the Awards Selection Committee, presented the Industrial Research and Development Award to Steven Lustig of DuPont.

Photo: Douglas Clark

▲ Georgia Tech's Ronald Rousseau (right) received the Board of Directors' Founders Award from AIChE president Phillip Westmoreland.

▲ On Nov. 6, President Westmoreland presented the inaugural AIChE Government and Industry Leaders (AGILE) Award to Rajeev Gautam, President and CEO of UOP, a Honeywell Company. Gautam's award lecture was entitled "Strategic Imperatives for the Hydrocarbon Industries."

▲ Cawas Cooper (left, Annual Meeting Program Co-Chair), Bryan Yeh (center, General Arrangements Chair), and Ranil Wickramasinghe (right, Program Chair) received the Institute's thanks at a gathering of AIChE's Board of Directors on Nov. 1.

Co-hosted by the AIChE student chapters at Stanford, San Jose State, and the Univ. of California at Berkeley and at Davis, the Annual Student Conference (Nov. 1–4) attracted a record 1,625 undergraduates. ChemE students took part in outreach activities, scholastic and intercollegiate competitions, networking events, and dozens of workshops — conducted by students and professionals alike. More than 270 students presented research papers at the undergraduate poster session on Nov. 4, setting a new participation benchmark.

Photo: John Vasko

▲ Graduating seniors kicked off the Student Conference at an evening mixer.

▲ A representative from Dow Chemical (left) discussed career opportunities with undergraduates at a recruitment fair on Nov. 3. More than 50 graduate schools and companies exhibited at the fair.

▶ The Student Conference Networking Brunch featured a keynote speech by Aamir Farid, Vice President of Manufacturing Americas at Shell. Farid encouraged the more than 1,000 students in attendance to pursue their passion when blazing a career path.

Photo: John Vasko

Thirty-two teams — the top qualifiers in Spring 2013 regional competitions — participated in AIChE's 15th Annual Chem-E-Car Competition. Students calibrate their chemically powered miniature vehicles to carry a variable load over a variable distance. Students must attend AIChE-sponsored safety sessions, and vehicles and their operators must pass safety inspections. The team from the Univ. of Tulsa won the competition with a car named "Oxidants Happen," which ran on an 8-cell magnesium and magnesium dioxide battery and used an iodine clock stopping mechanism. The car won by carrying its payload of 250 mL of water and stopping just 3 cm from the 17.5 m target distance.

▶ The Chem-E-Car team from the Univ. of Tulsa received its 1st Prize trophy from AIChE's 2014 President Otis Shelton.

▼ Competition official Dan Crowl (right) and the team from City Univ. of New York urge on CUNY's "Reaktor," which won 2nd Prize.

Photo: Douglas Clark

▲ Students from Cornell Univ. watch the scoreboard as they prepare their Chem-E-Car.

Photos by Margot Hartford, except where indicated.

Photo: Douglas Clark

◀ On Nov. 4, Jennifer Sinclair Curtis (left, Univ. of Florida) moderated a panel discussion at the Annual Meeting Plenary Session on "Chemical Engineering Expertise: In Academe and as Sought by Industry." Seated from left to right are the plenary speakers: Ashok Krishna (Chevron), who discussed the petroleum industry's need for chemical engineering talent; Steve Poehlein (formerly with Merck, now with Elixir Pharma Consulting), who talked about chemical engineering skills sought by the pharmaceutical industry; Rui Cruz (Dow), who surveyed chemical engineering skills for the global chemical industry; and John Chen (Lehigh Univ.), who organized the session and spoke about the evolving distribution of faculty strengths in university chemical engineering departments.

▲ Greg Stephanopoulos (left, MIT) presented the Society for Biological Engineering's (SBE) James E. Bailey Award to Kristi Anseth of the Univ. of Colorado, Boulder. In an accompanying lecture on Nov. 5, Anseth talked about "Engineering Cell Niches in a Couple of Clicks."

Photo: John Vasko

▲ Pablo Debenedetti of Princeton Univ. was AIChE's 65th Institute Lecturer. Debenedetti presented his lecture, "Theory and Computation in Modern Chemical Engineering: A Thermodynamicist's Perspective," on Nov. 6.

Photo: John Vasko

▲ Lisa P. Jackson (left), former Administrator of the U.S. Environmental Protection Agency and now environmental director for Apple, Inc., was one of the recipients of the Minority Affairs Committee's (MAC) Eminent Engineer Award. The award was presented by Thomas Mensah at a MAC Forum on Nov. 5.

▲ Guests at the 2013 Annual Meeting enjoyed two Professional Progress Award Lectures. On Nov. 5, Brian Korgel (left) of the Univ. of Texas at Austin, recipient of the 2012 Award, lectured on nanomaterials for lithium-ion batteries and photovoltaics in a talk entitled, "At least 1,000X Thinner than a Human Hair." On Nov. 7, Christopher Bowman (right) of the Univ. of Colorado, Boulder, who received the Professional Progress honor in 2011, delivered his lecture, "Clicking Polymers Together: Assembly of Complex, Controlled Structures from Efficient Chemistries."

AIChE Thanks the Meeting's Corporate Sponsors

Platinum

Chevron

Gold

DOW · EASTMAN · Genentech (A Member of the Roche Group) · Saudi Aramco · American Elements (World's Leading Manufacturer of Engineered and Advanced Material Products)

Program Book

CPFD Computational Particle Fluid Dynamics

Silver

CD-adapco · ProSim

Bronze

Journal of chemical & engineering data · MTR Membrane Technology & Research

Distillation Coffee Break

Tracerco (Providing Insight Online)

▶ On Nov. 4, the SBE presented its D. I. C. Wang Award to Eleftherios (Terry) Papoutsakis of the Univ. of Delaware, whose award lecture was entitled "Force to Death and New Life, Some with Programming Vitality."

Photo: John Vasko

◀ Carlos Apesteguía, of the National Univ. of Litoral (Argentina), delivered the James Y. Oldshue Lecture on the synthesis of fine chemicals by heterogeneous catalysis. The Inter-American Confederation for Chemical Engineers co-sponsored the event.

Photo: John Vasko

▶ AIChE Young Professionals enjoyed the camaraderie during their Annual Meeting experience.

Photos by Margot Hartford, except where indicated.

Institute News

President's Corner

To Shape the Future We Want

During my year as AIChE's president, I've witnessed — at home and around the world — a new Golden Age of Chemical Engineering. Chemical engineers are on the cutting edge of advancing the essentials of life — food, water, health — and enhancing the quality of life — energy, safety, and convenience. Taking the lead on these Grand Challenges is part of the mission that chemical engineers are here to fulfill.

This meaningful work is one of the reasons that the number of chemical engineering students has grown rapidly. AIChE's involvement in the global community is also a reason for the growth of our international membership. We now have 30 AIChE international student chapters, and among the nonstudents, one in eight AIChE members is from outside the U.S.

Ultimately, this future is for you to shape — the active members of AIChE.

You are shaping the future with your knowledge. We are seeing dramatic worldwide changes in the availability of oil and gas, in applying biology, in computing, and in making manufacturing more process-based. These changes fall squarely in the domain of chemical engineering, and they require a global breadth of knowledge and of people.

Chemical engineers are good at finding and refining energy sources. We develop and produce pharmaceuticals. We invent and manufacture new materials and find inventive uses for them. Some of us can be found in the "C-suite" as chief executive officers, chief technology officers, and chief financial officers. Others of us are astronauts, scientists, philanthropists, attorneys, and physicians. We're in sales and in consulting. We're even in government; Rep. Steve Daines of Montana is a chemical engineer who spent 13 years with Procter and Gamble, including six years in Asia. Also, China's President Jinping Xi and the Vice Premier, Ms. Yandong Liu, both have chemical engineering degrees from Tsinghua Univ.

Yet professionalism is more than skills. Shaping the future through our personal and professional endeavors demands more than skills and technical sophistication. It demands initiative. It demands follow-through. It demands clear thinking and clear speaking. It demands our passion, and it demands our respect for each other. In a broad sense, it demands ethical behavior.

At the record-setting AIChE Student Conference, held during the record-setting 2013 Annual Meeting in San Francisco, I was asked what traits are important in the workplace. I'd just written a letter of congratulations from AIChE to a new Eagle Scout who wants to be a chemical engineer, so I was very conscious of the promises that Boy Scouts make: to be trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent — of everything and everyone around them.

Other chemical engineering students have been Girl Scouts, promising to be honest and fair, friendly and helpful, considerate and caring, courageous and strong, and responsible for what they say and do, to respect themselves and others, to respect authority, to use resources wisely, and to make the world a better place.

These ethical values go on to become deeply meaningful and vitally important to us as professionals. The fabric of our work is held together by these principles. Our personal and corporate commitments to these values are crucial to chemical engineering, to the world's future, and to our lives.

Celebration and continuing onward. One ethical choice is to choose leaders based on their merits. My immediate successor is Otis Shelton, the first African-American to be elected AIChE President. Cheryl Teich, our 2014 President-Elect, is the third female elected to the AIChE presidency. Otis and Cheryl have been hard-working, loyal members of AIChE who will continue to serve you well. Their election is even greater cause for celebration because fifty years ago, they surely would not have been elected, regardless of their loyalty and qualifications.

We should be proud, as members of AIChE and the chemical engineering profession, but we can't rest on the advances we've achieved. Every person of every background and in every society has experienced unfairness and incivility. In AIChE's Code of Ethics, we vow that members will "never tolerate harassment" and will "conduct themselves in a fair, honorable, and respectful manner." Standing up to support each other is part of the way we "uphold and advance the integrity, honor, and dignity of the engineering profession," and of ourselves.

To shape the future we want, we need to use our skills and insights, both technical and ethical, and to embrace the breadth of our profession and the opportunities it presents.

Through AIChE, the Global Home of Chemical Engineers, you can shape our profession and the world.

— Phil Westmoreland, AIChE 2013 President

AIChE Foundation Honors Stuart Churchill as "A Man of, and for, Many Seasons"

Trustees of the AIChE Foundation and Institute leaders honored Stuart W. Churchill, Professor Emeritus of Chemical and Biomolecular Engineering at the Univ. of Pennsylvania, at a reception during AIChE's recent Annual Meeting in San Francisco. Peter Lederman, Chair of the AIChE Foundation, presided at the Nov. 2 event and praised Churchill's work as a mentor to AIChE members and the chemical engineering profession. As a memento of the gathering, the Foundation presented Churchill with a parchment scroll proclaiming him "A Man of, and for, Many Seasons" and listing some of his accomplishments in AIChE, teaching, and research.

Photo: Margot Hartford

▲ Stuart Churchill at an AIChE Foundation Reception, on Nov. 2, 2013, in San Francisco, CA.

Churchill, who served as AIChE's president in 1966, regaled the assembled AIChE colleagues and friends with reminiscences about his "career in AIChE," including his experiences collaborating on AIChE's Board of Directors with John J. McKetta, who preceded Churchill as president and who set a standard of dedication to AIChE participation and mentoring that Churchill came to mirror. (McKetta was not present at the reception, but he was at the Annual Meeting in spirit — as the narrator of a new AIChE Foundation film that premiered at the meeting; see the accompanying article below.)

Churchill recalled how, throughout his career, he impressed upon his peers and students the importance of attending AIChE meetings and being active in the Institute. "We have all benefitted from AIChE more than it has benefitted from us," said Churchill. "There is no organization like it."

Churchill worked at Shell Oil and Frontier Chemical before earning a PhD in chemical engineering at the Univ. of Michigan. He joined the chemical and metallurgical engineering faculty there in 1950, and held a variety of teaching and administrative roles before moving to the Univ. of Pennsylvania as the Carl V. S. Patterson Professor in 1967. He became Professor Emeritus in 1990.

A Fellow of AIChE, Churchill received the Institute's Founders Award and is a Member of the National Academy of Engineering, which recognized him with its Founders Award. He remains an active researcher, with more than 300 published papers. He presented his latest paper — "Equivalents: A New Concept for the Prediction of Transport" — at the Annual Meeting.

AIChE Foundation Heralds ChE's "Promise" in New Film

The Promise — a new short film about the legacy and future promise of chemical engineering — premiered at AIChE's 2013 Annual Meeting in San Francisco. The film, produced by the AIChE Foundation, reflects on the heritage of chemical engineering, the founding of AIChE, and the promise that the profession has always held for shaping the modern world. The Foundation will use the film as it seeks to raise awareness and financial support for the many Grand Challenges that chemical engineers and the Institute are undertaking to fulfill those promises for the future.

In his narration of *The Promise*, John. J. McKetta, Professor Emeritus at the Univ. of Texas at Austin and an AIChE Foundation Trustee, notes that "We live in a world that would be virtually unrecognizable without the contributions made by chemical engineers." As chemical engineers use their abilities to address the many challenges that remain, McKetta poses the questions "Have we looked far enough ahead? Have we planned accordingly?"

The film seeks to instill a sense of pride in the legacy of chemical engineering, as well as a sense of responsibility for the trust placed upon chemical engineers as they shape society. AIChE's mission, concludes McKetta, "is not only to protect our legacy, but to keep the promise."

View *The Promise* at www.aiche.org/giving.

▲ A still from *The Promise*, a short film produced by the AIChE Foundation and aimed at generating support for chemical engineering's endeavors to solve society's Grand Challenges.

Divisions and Forums Present Awards

Each year, AIChE's technical divisions and forums present awards that recognize contributions across a spectrum of chemical engineering specializations (www.aiche.org/awards/division-and-forum). These honors are presented at events held during AIChE's Spring and Annual meetings.

The following awards were presented during the 2013 Annual Meeting in San Francisco, CA (Nov. 3–8). Other divisions and forums will present their awards at the 2014 Spring Meeting and Global Congress on Process Safety in New Orleans, LA (Mar. 30–Apr. 3).

CATALYSIS AND REACTION ENGINEERING DIV.

Division Practice Award
Aleksey Yezerets, Cummins Inc.

COMPUTATIONAL MOLECULAR SCIENCE AND ENGINEERING FORUM (COMSEF)

CoMSEF Impact Award
Jeffrey Errington, Univ. of Buffalo

CoMSEF Young Investigator Award
Arthi Jayaraman, Univ. of Colorado

COMPUTING AND SYSTEMS TECHNOLOGY (CAST) DIV.

Computing in Chemical Engineering Award
Sponsor: Dow Chemical Co.
Jay H. Lee, Korea Advanced Institute of Science and Technology

Computing Practice Award
Sponsors: Aspen Technology; ExxonMobil Chemical Co.
Thomas Badgwell, ExxonMobil

David Himmelblau Award for Innovations in Computer-Based Chemical Engineering Education
Sponsor: Chemstations, Inc.
Jason Keith, Mississippi State Univ.

Outstanding Young Researcher Award
Sponsor: Air Products
Christos Maravelias, Univ. of Wisconsin-Madison

W. David Smith, Jr. Graduate Publication Award
Sponsor: Process Systems Enterprise, Inc.
Zukui Li, Univ. of Alberta

CAST Directors' Student Presentation Award
Cara Touretsky, Univ. of Texas at Austin
CAST Directors' Poster Award
Curtisha D. Travis, Univ. of Maryland, College Park

EDUCATION DIV.

Award for Excellence in Engineering Education Research
Ronald L. Miller, Univ. of California, Santa Barbara

ENVIRONMENTAL DIV.

Lawrence K. Cecil Award in Environmental Chemical Engineering
Heriberto Cabezas, U.S. Environmental Protection Agency

FOOD, PHARMACEUTICAL AND BIOENGINEERING DIV.

Food, Pharmaceutical and Bioengineering Div. Award
Jay Keasling, Univ. of California, Berkeley

MATERIALS ENGINEERING AND SCIENCES DIV. (MESD)

Charles M. A. Stine Award
Sponsor: DuPont
Paula T. Hammond, Massachusetts Institute of Technology

Owens Corning Early Career Award
Sponsor: Owens Corning
Ali Khademhosseini, Massachusetts Institute of Technology

NANOSCALE SCIENCE AND ENGINEERING FORUM (NSEF)

Nanoscale Science and Engineering Forum Award
Nicholas Peppas, Univ. of Texas at Austin

Young Investigator Award
Daeyeon Lee, Univ. of Pennsylvania

NORTH AMERICAN MIXING FORUM (NAMF)

Award for Excellence and Sustained Contributions to Mixing Research and Practice
Sponsor: Dow Chemical Co.
Gary K. Patterson, Missouri Univ. of Science and Technology

NUCLEAR ENGINEERING DIV.

Robert E. Wilson Award
Sponsor: Fluor Foundation
Robert T. Jubin, Oak Ridge National Laboratory

PARTICLE TECHNOLOGY FORUM (PTF)

George Klinzing Best PhD Award
Jai Wei Chew, MEMC Electronic Materials

Award for Lifetime Achievement
Sponsor: DuPont
Dimitri Gidaspow, Illinois Institute of Technology

Particulate Solid Research Inc. Lectureship Award
Sponsor: Particulate Solid Research, Inc.
Franco Berruti, Univ. of Western Ontario

Shell Global Solutions Thomas Baron Award in Fluid Particle Systems
Sponsor: Shell Global Solutions
Norman Wagner, Univ. of Delaware

Divisions and Forums Present Awards

PARTICLE TECHNOLOGY FORUM (PTF) (CONTINUED)

Dow Chemical Fluidization Processing Recognition Award
Sponsor: Dow Chemical
Rathna Davuluri, ExxonMobil

Particle Technology Forum Service Award
Manuk Colakyan, Renmatix

PROCESS DEVELOPMENT DIV.

Process Development Div. Student Paper Award
Meedesh Singh, Purdue Univ.

SEPARATIONS DIV.

Clarence G. Gerhold Award
Sponsor: UOP
Benny D. Freeman, Univ. of Texas at Austin

FRI/John G. Kunesh Award
Sponsor: Fractionation Research, Inc.
Moises A. Carreon, Univ. of Louisville

Division Service Awards
C. Judson King, Univ. of California, Berkeley
Jimmy L. Humphrey, J. L. Humphrey and Associates

Graduate Awards
Sponsors: Chevron; Merck Millipore
Kumar Varoon Agrawal, Univ. of Minnesota
Michael J. Mitchell, Cornell Univ.
Andrew S. Paluch, Univ. of Notre Dame
Michael C. Stern, Massachusetts Institute of Technology
Joshua A. Thompson, Georgia Institute of Technology
Xiaochuan Yang, Massachusetts Institute of Technology

Dibakar Bhattacharyya Graduate Student Research Award
Rong Yang, Massachusetts Institute of Technology

SUSTAINABLE ENGINEERING FORUM

Research Excellence in Sustainable Engineering Award
Thomas Edgar, Univ. of Texas at Austin

Sustainability Education Award
Jeffrey Seay, Univ. of Kentucky

Sustainability Engineering Forum Student Paper Award
Sponsor: GlaxoSmithKline
Griffin W. Roberts, Univ. of Kansas

2014 AIChE Election Results

AIChE's Tellers Committee has examined the votes for candidates for Officers and Directors of the Institute, and have declared the following to be the results of the 2014 election. The newly elected AIChE officers were formally announced at the Institute's annual business meeting, held on Nov. 4, 2013, at the AIChE Annual Meeting in San Francisco, CA.

President (by automatic succession)
Otis Shelton, *Praxair*

President-Elect
Cheryl I. Teich, *The Dow Chemical Co.*

Treasurer (2014–2016)
E. Dennis Griffith, *Grandherne / Kellogg, Brown & Root*

Directors (2014–2016)
Daniel P. Lambert, *Savannah River National Laboratory*
Joseph D. Smith, *Missouri Univ. of Science and Technology*
Diane K. Spencer, *Lawrence Livermore National Laboratory*
Levi T. Thompson, Jr., *Univ. of Michigan*


Shelton


Teich


Griffith


Lambert


Smith


Spencer


Thompson

In Memoriam

Edward L. Borie*, 86, Baton Rouge, LA

Llewellyn F. Brennecke*, 90, Sugar Land, TX

Krishnan A. Nair, 64, Secunderabad, India

Saul Ricklin, 93, Bristol, RI

Herbert Thompson, 83, Zephyrhills, FL

*AIChE Fellow