



President's Corner

Entering a Golden Age of Chemical Engineering

As I begin 2013 as AIChE's president, I want to share my belief that we're entering a new Golden Age of Chemical Engineering. Why is this a time for chemical engineering to shine? Consider what is happening:

- manufacturing's shift to emphasize processes and properties
- the new abundance of hydrocarbon resources
- biology's turning into a molecular science
- computing's evolution into a cyberinfrastructure
- society's need for the breadth and problem-solving approaches of chemical engineering.

I've been probing these ideas in a blog on our ChEnected website (<http://chenected.aiche.org/series/we-are-che-entering-a-golden-age>) and have heard from members around the world that they see the same things.

What should we do to take advantage of this opportunity? I think a key aspect is to understand what binds us together as a profession.

What links us. I assert that, most basically, it is applying molecular sciences. That's not only chemistry in a traditional sense, but biology and materials, too. If you're doing chemical process control or patent law, for example, does that fit? Sure. Each engineering discipline derives from some domain of science, and applied molecular sciences is ours.

Of course, it's more than that, too. Chemical engineering is especially focused on a systems approach because our first tool of choice is often writing balances on a system in terms of amounts of material or money or flowrates or energy.

Chemical engineering is not defined narrowly by the industries we work in, which are remarkably

diverse. Oil, gas, and petrochemicals are key sectors for our profession, and the excitement about new opportunities there is high. At the same time, we have long records of achievement in pharma, polymers, food, nuclear power, environmental control, paper, and packaging. ChEs are also taking leading roles in new areas as diverse as tissue engineering, personalized medicine, nanotechnology, petascale computing, sustainability metrics, and microfluidics.

Chemical engineering is not only R&D and process engineering. We bring our skills to bear on management, finance, design, sales, technical service, testing, human resources, law, medicine, government, and space flight, as well.

To keep our profession strong, we must understand and embrace both our core expertise and our breadth, working with other disciplines to benefit society.

The year ahead. This should be a busy and upbeat year for the Institute. Our membership has stabilized and is beginning to increase again. Our classrooms are overflowing, and students are enthusiastic about the wide range of opportunities they have. AIChE is again on solid fiscal ground and is going to benefit financially from our upcoming headquarters move within New York.

Initiatives of our recent presidents are bearing fruit, too. Dale Keairns' leadership in creating the Center for Energy Initiatives has proven to be very timely. Scott Fogler's push to give members Web access to reference material and e-Learning has led to a range of webinars, ChemE-on-Demand resources, and improved short-course options. Maria Burka's emphasis on serving our increas-

ing international membership, now about 11%, shows up in places like the growing impact of our Virtual Local Section. We have new forward motion in our public and government relations through the new Public Affairs and Information Committee, another of her initiatives. Hank Kohlbrand and Dave Rosenthal have greatly strengthened our governance processes and revenue streams.

Our members and headquarters staffers have worked hard to bring about these and other advances. Our three new entities — the Pharmaceutical Discovery, Development and Manufacturing Forum, the Upstream Engineering and Flow Assurance Forum, and the International Society for Water Solutions — help create rich, relevant experiences and resources for our diverse membership.

June Wispelwey, our Executive Director, aptly summarizes AIChE's present strategic plan, developed by our members in 2008, as "AIChE GIVES":

- We're conscious of our Global nature and responsibilities.
- Industry is a core of the profession, and our Industry Technology Groups link them and our membership.
- We're committed to bringing Virtual resources to our members.
- Education is key to creating and maintaining our evolving expertise.
- Society depends on us to bring our talents to bear on its needs.

Those are great directions for us to drive AIChE and our profession.

Chemical engineers and AIChE are in the right place at the right time. Let's make the most of it!

Phil Westmoreland, 2013 President

Meet Some of AIChE's New Fellows

At the 2012 Annual Meeting in Pittsburgh, PA, AIChE leaders and Fellows gathered to recognize some of the recently elected AIChE Fellows. Fellow candidates are nominated by their peers, and must have significant chemical engineering practice (generally 25 years) and been a member of AIChE for at least 10 years, with at least three years as a senior member. Here are some of the Fellows elected in 2012. More will be introduced in future issues of *CEP*.



Roger T. Bonnecaze is Chair of the Chemical Engineering Dept. at the Univ. of Texas at Austin, where he has been on the faculty since 1993. Prior to earning his chemical engineering PhD at Cal Tech, he worked on environmental fluid mechanics and hydraulics projects for Hydro Research Science, and was later a British Petroleum Post-Doctoral Fellow at Cambridge Univ. His research interests include the rheology of complex fluids, biomechanics of cancer, and nanomanufacturing. He is founding director of the NSF Nanosystems Engineering Research Center on Nanomanufacturing Systems for Mobile Computing and Mobile Energy Technologies.



Elaine M. Bower joined the Dept. of Engineering Professional Development at the Univ. of Wisconsin-Madison in 1988, where she develops engineering education short courses for practicing professionals in the areas of chemical and process engineering and laser material processing. Her research interests and consulting activities involve forensic science applications for ultra-trace chemical detection and the development of unique biosensors. She is a past director of AIChE (1993–1995) and a longtime leader of the Wisconsin Section. She earned a BS in chemical engineering and biomedical engineering from Carnegie Mellon Univ. and an MS in chemical engineering from Cornell Univ.



Nareshkumar B. Handagama, P.E., is a thermal systems expert at Alstom Power (Knoxville, TN) and has more than 25 years of chemical engineering experience in teaching, R&D, and the process industry. At the Tennessee Board of Regents, he has taught courses in chemical technology and chemical engineering science. As an expert in power generation, carbon capture technologies, and plant integration, he has supervised graduate students researching environmental impacts related to fossil fuel power generation, particularly in the domain of water and air quality. He earned his chemical engineering PhD from the Univ. of Tennessee, Knoxville.



Douglass Kalika is Professor and Chair of the Dept. of Chemical and Materials Engineering at the Univ. of Kentucky, Lexington, where he joined the faculty in 1990. His research focuses on polymer processing and rheology, and the investigation of structure and dynamics in polymers and blends, composites, and membranes. Before being appointed department chair in 2009, he served as Senior Associate Dean and Acting Dean of the Graduate School. He is a longtime leader of AIChE's Materials Engineering and Sciences Div. He earned his BS in chemical engineering at MIT, and his chemical engineering PhD at the Univ. of California, Berkeley.



Sigurd Skogestad is a professor at the Norwegian Univ. of Science and Technology, Trondheim, where he was head of the Chemical Engineering Dept. from 1999 to 2009. He is co-author of the book "Multivariable Feedback Control" (Wiley). His research includes the use of feedback as a tool for system control (including self-optimizing control), limitations on performance in linear systems, control structure design and plantwide control, interactions between process design and control, and distillation column design, control, and dynamics. He is a past editor of *Automatica*. He earned his PhD in chemical engineering at Cal Tech.



John Peter Sulkowski, P.E., is a senior process engineer for Rhodia (Charleston, SC). His more than 30 years of experience in the chemical and the engineering and construction industries encompass process design, process development, and management, with projects including new construction and modification of facilities in the refining, organic and inorganic chemical, pharmaceutical, and beverage industries. He is a founding member of AIChE's Lowcountry Section, and a registered P.E. in South Carolina. He earned his BS at the Univ. of Kansas and MS at the Univ. of Texas, both in chemical engineering.

AIChE Gala Salutes Industry Leaders, Raises Funds for Sustainability Initiatives

More than 260 guests gathered at New York City's Plaza Hotel for AIChE's Annual Gala on Wednesday evening, Nov. 28. Celebrating 50 Years of Engineering for a Sustainable Future, the event raised \$400,000 for the Institute's sustainability initiatives, including programs aimed at developing sustainable technology practices and usable tools that promise to benefit the environmental performance of all companies.

This year's gala honored three leaders from the energy, chemical, and financial industries: John Watson, Chairman and CEO of Chevron Corp.; Ellen Kullman, Chair and CEO of DuPont; and John Televantos, partner with Arsenal Capital. The honorees represent companies whose chemical engineers and investment partners have a history of innovation and excellence in environmental achievement, and that have successfully moved from reducing emissions and remediating legacy issues to focusing on clean processes, green engineering, and sustainability.

Stephen Angel, Chairman, President, and CEO of Praxair, served as the gala's chair and host. The gala's co-chairs were: Monty Alger (Air Products), Riley Bechtel (Bechtel Group), Tom Connelly (DuPont), Emil Jacobs

(ExxonMobil), Andreas Kramvis (Honeywell Performance Materials and Technologies), Marv Schlanger (Lyondell-Basell), and Shariq Yousufzai (Chevron).

AIChE Executive Director June Wispelwey expressed gratitude to the honorees, the gala chairs, and the many supporters for participating in the event, and for their contributions toward securing a sustainable future.



▲ At the 2012 AIChE Gala, industry leaders were recognized for their commitments to sustainability. Shown from left: John Televantos (Arsenal Capital), Ellen Kullman (DuPont), Stephen Angel (Praxair, and gala host); June Wispelwey (AIChE Executive Director), and John Watson (Chevron).

Chen Receives the First Boiling and Condensing Heat Transfer Award

John C. Chen, the Carl R. Anderson Professor Emeritus of Chemical Engineering at Lehigh Univ. and a past president of AIChE, has received the inaugural World Scientific Award in Boiling and Condensing Heat Transfer. A team of international experts in the field selected Chen to receive the honor, which was presented in June 2012 at the 8th International Conference on Boiling and Condensing Heat Transfer in Lausanne, Switzerland.

Chen was cited for his lifetime contributions to the understanding of boiling and condensing phenomena, and for his ability to translate that understanding into engineering practice. He is well known for his 1966 article, "Correlation for Boiling Heat Transfer to Saturated Fluids in Convective Flow," in which he proposed a model for predicting the rate of phase-change heat transfer for flowing fluids undergoing evaporation. The model and derivatives of it are used across industry to design nuclear reactors, steam generators, distillation column heat exchangers, liquefaction systems for natural gas, and other applications.

Chen joined the Lehigh Univ. faculty as a professor of both mechanical and chemical engineering in 1970, after a decade working as a researcher at Brookhaven National Laboratory. At Lehigh, he chaired the engineering department from 1983 to 1989, and was dean of the P. C. Rossin College of Engineering and Applied Science from 1999 to 2001.

A Fellow of AIChE, Chen served as Institute president in 2006. He is also a Fellow of the American Society of Mechanical Engineers (ASME), a member of the American Chemical Society, and a board member of the Chemical Heritage Foundation. Among many international honors, Chen received the 2001 Max Jakob Memorial Award, the top international prize for achievements in heat transfer.



UT Renames ChE Department for McKetta

The Chemical Engineering Dept. at the Univ. of Texas at Austin's (UT) Cockrell School of Engineering has been renamed for former dean of the College of Engineering and chemical engineering Professor Emeritus John J. McKetta, Jr. A naming ceremony celebrating McKetta's career was held at the university on Nov. 8, 2012. The naming is part of a \$25-million Challenge for McKetta fundraising campaign to support UT students, faculty, facilities, and programming.

The naming of the John J. McKetta, Jr., Dept. of Chemical Engineering reflects the high esteem in which generations of UT students and colleagues hold McKetta. "There is no human being on earth that could evoke the type of loyalty and commitment that John has cultivated in his 65-plus years at the university," said Roger T. Bonnecaze, chair of the UT chemical engineering department. "He is a one-of-a-kind character [whose] infectious warmth has generated a unique sense of community within the department, creating a chemical engineering family."

McKetta, an authority on thermodynamic properties of hydrocarbons who also served as energy advisor to five U.S. presidents, joined the UT faculty in 1946. As dean, he worked to get faculty members promoted for teaching rather than on the basis of their research, and started the Teaching Effectiveness Committee to develop improved teaching techniques.

Although McKetta retired in 1995, today, at age 97, he remains involved in UT life. He phones former students on their birthdays after they turn 65 (averaging three calls per

day), and continues to host an annual student picnic, a tradition he and his late wife Helen "Pinky" McKetta started in 1953.

"I'm so proud to have my name associated with this department and university," McKetta said. "The department has grown and excelled tremendously over the years, thanks to world-class faculty and dedicated staff, but none of this would have been possible without the students. They're the reason we're here."



▲ John McKetta (front center), wearing UT Austin's trademark burnt orange colors, celebrates the renaming of the chemical engineering department, surrounded by some of UT's current generation of chemical engineering students.

INSTITUTE AND BOARD AWARD NOMINATIONS DUE FEBRUARY 15

Nominations are being accepted for AIChE's 2013 Institute and Board of Directors' Awards. These honors, to be presented at the November 2013 AIChE Annual Meeting in San Francisco, CA, recognize outstanding achievements in the chemical engineering profession, and include a series of recently created awards that celebrate significant contributions in industrial practice. Among the honors for achievements in industry is the Industrial Progress Award, which was presented for the first time in 2012.

Details about all of the awards, including eligibility criteria and the nomination process, can be found at www.aiche.org/community/awards/institute-awards. Nomination forms, supporting letters, and supplemental materials should be compiled and saved as a single electronic document (PDF format is preferred) and submitted to AIChE on a CD. Nominations for Institute and Board awards must be postmarked by Feb. 15, 2013. Questions about the nomination process may be addressed to awards@aiiche.org.

In Memoriam

Robert T. Braun, 87, Dayton, OH
 Paul D'Haene, 62, Crofton, British Columbia
 Max Halebsky, 88, Capistrano Beach, CA
 Francis X. McGarvey, 90, Cherry Hill, NJ
 Charles E. Meeks, 90, Ridgetown, Ontario
 Brian J. Morrow, 82, Barnet, VT
 Edward M. Muller, 76, Westport, CT
 Thomas J. Rebarchak, 83, Wilmette, IL
 Hassan F. Saad, 74, Birmingham, AL
 George F. Schlaudecker, 94, Sylvania, OH
 Robert L. Tilton, 93, Wexford, PA
 Jack Yee, 63, Stoughton, MA

AIChE Meetings Calendar

For information and registration details, visit www.aiche.org/conferences or call Customer Service at 1-800-242-4363 or 1-203-702-7660 (outside the U.S.)

JAN. 13–16, 2013	SBE's 4th International Conference on Biomolecular Engineering Hyatt Pier 66 • Fort Lauderdale, FL
JAN. 31 – FEB. 1, 2013	2013 Midwest Regional Conference Illinois Institute of Technology • Chicago, IL
FEB. 24–26, 2013	SBE's 3rd International Conference on Accelerating Biopharmaceutical Development Marriott Resort • Coronado Island, CA
FEB. 26–27, 2013	Quality by Design in Biologics (A conference organized by the Society for Biological Engineering) Marriott Resort • Coronado Island, CA
MAR. 29–30, 2013	2013 Center for Chemical Process Safety (CCPS) South Asia Conference (AchemAsia) Mumbai, India
APR. 28 – MAY 2, 2013	AIChE Spring Meeting and 9th Global Congress on Process Safety Grand Hyatt San Antonio • San Antonio, TX
MAY 6–9, 2013	Offshore Technology Conference (OTC) Reliant Park • Houston, TX
JUNE 4–6, 2013	7th Process Development Symposium Chicago, IL
AUG. 25–29, 2013	58th Annual Safety in Ammonia Plants and Related Facilities Symposium Marriott Frankfurt Hotel • Frankfurt, Germany
NOV. 3–8, 2013	2013 AIChE Annual Meeting San Francisco Hilton • San Francisco, CA

Webinars

Register and view live and archived webinars at www.aiche.org/resources/webinars.

JAN. 30, 2013 2:00–3:00 PM ET	Solutions for a Sustainable Tomorrow Presenter: James B. Porter, Jr.
FEB. 6, 2013 2:00–3:00 PM ET	Strategies for Addressing ABET Safety Curriculum Requirements Presenters: Tom Spicer, Kim Ogden
FEB. 20, 2013 2:00–3:00 PM ET	Leadership is Everyone's Responsibility Presenter: Greg Shaffer
MAR. 6, 2013 2:00–3:00 PM ET	New Materials for Membrane Separations Presenters: Richard Noble

AIChE Education Calendar

Instructor-Led Training

For more information, and to register for AIChE Instructor-Led Training courses, visit www.aiche.org/education.

FEB. 25–27, 2013 NEW ORLEANS, LA	Essentials of ChE for Non-Chemical Engineers Course # CH710 • Instructor: Jack Hipple
MAR. 4–6, 2013 LAS VEGAS, NV	CCPS's The OSHA Regulatory Approach to Process Safety Management Course # CH501 • Instructor: Adrian Sepeda
MAR. 4–6, 2013 NEW ORLEANS, LA	CCPS's HAZOP Studies and Other PHA Techniques for Process Safety and Risk Management Course # CH157 • Instructor: Robert Johnson
MAR. 7–8, 2013 NEW ORLEANS, LA	CCPS's Advanced Concepts for Process Hazard Analysis Course # CH754 • Instructor: Robert Johnson
MAR. 11–12, 2013 HOUSTON, TX	Heat Exchanger Design and Operations Course # CH294 • Instructor: Thomas G. Lestina
MAR. 11–13, 2013 LAS VEGAS, NV	CCPS's Emergency Relief Systems Design using DIERS Technology Course # CH173 • Instructors: Two of the following: Robert D'Alessandro, John Hauser, James Huff, Arthur Shaw
APR. 9–10, 2013 SAN FRANCISCO, CA	Flow of Solids in Bins, Hoppers, Chutes, and Feeders Course # CH032 • Instructors: Eric Maynard, Herman Purutyan
APR. 11, 2013 SAN FRANCISCO, CA	Pneumatic Conveying of Bulk Solids Course # CH033 • Instructors: Eric Maynard, Herman Purutyan
APR. 15–16, 2013 LAS VEGAS, NV	CCPS's Fundamentals of Process Safety Course # CH500 • Instructor: Brian Kelly
APR. 15–17, 2013 LAS VEGAS, NV	Distillation in Practice Course # CH004 • Instructor: John Farone
APR. 15–17, 2013 LAS VEGAS, NV	Essentials of ChE for Non-Chemical Engineers Course # CH710 • Instructor: Jack Hipple

Web Forum

For information about Web Forums and AIChE Education, visit www.aiche.org/education.

JAN 23, 2013 2:00–3:30 PM ET	AIChE/A&WMA Web Forum: Emissions of Mercury and Other Air Toxics — Compliance Strategies for Coal Combustion Presented by Nick Hutson (EPA), Bob Fraser (ERM); Moderator: Connie Senior (ADA Environmental Solutions)
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