AIChE 2007 Spring National Meeting Keynote Address

Developing a Sustainable Energy Economy

In the U.S., developing a secure and reliable energy supply remains a challenge. At the AIChE Spring National Meeting (Houston, TX; Apr. 23–27), Dan Arvizu, director of the U.S. Dept. of Energy's National Renewable Energy Laboratory (NREL), addressed this subject in his presentation, "Thinking Differently: Developing a New Energy Economy." He pointed out the urgency in developing a plan for the future. "Today, we use 13.5 TW globally, of which only a small fraction is generated via renewable sources. Research indicates that by 2050, the demand for energy will reach 20 TW. Yet, today's optimistic forecast for renewable energy is only 1 TW by 2050," said Arvizu. "Advanced technologies must help fill this gap," he continued.

The problem is not as simple as resolving supply-and-demand issues. In fact, "today's energy market is anything but supply and demand," noted Arvizu. External factors, such as price volatility and environmental impact (*e.g.,* carbon emissions), must be accounted for. Furthermore, "there has been a decline in energy research-and-development investments over the past two decades, which mirrors the movement of global oil prices," said Arvizu.

The U.S. is taking action in addressing this critical issue. Today's domestic goals include the use of: biofuels to reduce gasoline usage by 20% in 10 years; wind power, which is expected to provide 20% of total energy by 2030; and solar energy, which is expected to be market-competitive by 2015 for photovoltaics and by 2020 for concentrating solar power (CSP) plants. But this may not be enough. What the U.S. will strive for is to reach its challenge goal of 25% of the nation's energy supply to come from renewable sources by 2025. This goal appears within grasp. Global markets are growing rapidly. While the U.S. has been slow to add renewables to its energy portfolio, other countries, such as Japan and Germany, have been strongly promoting their use. For instance, in Japan, the cost of solar PV cells has dramatically decreased due to the high volume of installations.

Success starts from the ground up. "There needs to be local support from the states," said Arvizu. Currently, there are 23 states, plus the District of Columbia, that have set renewable electricity standards. For example: in California, the goal is 20% by 2010; in New York, the goal is 24% by 2013; and in Colorado, the goal is 20% by 2020.

While technological challenges lay ahead, Arvizu predicts that they won't be the final obstacles in developing a new energy economy. "It's not a matter of supply or technology. It's a matter of how much Congress wants it. It's a matter of national will," he said. "The promise of renewable energy is profound and can be realized if we aggressively seek a global sustainable energy economy, accelerate investment in technology innovation, and acknowledge and mitigate the carbon challenge with necessary policies," concluded Arvizu.

Kurt Swogger Receives Management Division Award

Kurt W. Swogger, vice president of business development for the Performance Plastics and Chemicals business group of The Dow Chemical Co., was the recipient of the 2007 AIChE Management Division Award, which is sponsored by E.I. duPont de Nemours and Co. The award recognizes an outstanding individual whose management skills and practices have improved operations and delivered superior results within the chemical process industry.

"Throughout his career at Dow, Swogger has made substantial contributions to the company's commercial success, while readily sharing his experience and providing guidance and support to engineers in the field," says Frank van Lier, chair of the award selection committee. "Swogger's nomination came from his colleagues in acknowledgment of his personal passion and dedication, as well as his professional achievement."

Swogger's speed-based R&D philosophy has inspired a major technology renewal across Dow by linking technology innovation to both market needs and emerging opportunities. The approach integrates functional elements, such as talent alignment and motivation, resource allocation, predictive modeling, early customer involvement and a focus on performance. In practice, the speed-based R&D has dramatically accelerated product development and commercialization. "Kurt's leadership of Performance Plastics and Chemicals R&D at Dow has been a driving force behind the market success of many products and processes," said Dr. William F. Banholzer, Dow corporate vice president and chief technology officer.

The award was presented to Swogger on April 24 during the AIChE Management Conference in Houston, TX. For more information about the conference, visit www.aiche.org/management.

Creating Safer Processes in China — Launching the CCPS China Section

Developing safe industrial processes is as important in Europe, Asia, and the rest of the world, as it is in the U.S. The Center for Chemical Process Safety (CCPS; www.aiche.org/ ccps), founded by AIChE in the aftermath of the tragic events in Bhopal, India, nearly 23 years ago, has the ultimate goal of eliminating catastrophic process safety incidents around the world by:

- advancing state-of-the-art of process safety technology and management practices
- serving as a premier resource for process safety information
- fostering process safety learning in undergraduate engineering education
- promoting process safety as a key industry value.

Today, nearly 100 corporate members participate in the organization, including many of the world's leading chemical, petroleum, pharmaceutical and related manufacturing companies.

With China's burgeoning process industry, CCPS has explored options on how to fulfill its mission to be an organization with international influence. Recently, AIChE (in particular, CCPS) signed an agreement with the China University of Petroleum (Huadong; in particular its Environment and Safety Technology Center [ESTC]) to establish the CCPS China Section (CCPS-CS). Companies that are members of CCPS-CS will also be full members of the CCPS global organization, but will benefit by having a local operation to serve their needs.

CCPS-CS activities will include:

- maintaining a significant training program, to provide chemical and petroleum engineers in China with the skills they need to operate a successful process safety program
- holding technical meetings to foster interchange of experiences and lessons learned
- supporting the Safety in Chemical Engineering Education (SACHE) curriculum program by creating SACHE lectures in Chinese
- tailoring CCPS Guidelines to Chinese language and style

Prof. Zhao Dongfeng will serve as the director of CCPS-CS, and work closely with CCPS' director Scott Berger and the CCPS staff to integrate CCPS-CS into the overall operations of CCPS. Oversight and support for CCPS-CS will be provided by Prof. Zha Ming, vice president and dean of China University of Petroleum and by Dr. John Sofranko, executive director of AIChE.

An agreement is struck to create the CCPS China Section. At the signing ceremony, CCPS director Scott Berger (front left) shakes hands with Prof. Zha Ming, vice president of China University of Petroleum (CUP; right front). Also attending the event were: (left to right in back): Prof. Wang Ruihe (vice president of CUP), Prof. Zhao Dongfeng (director of ESTC and director of CCPS-China Section) and Prof. Luan Fengchi (director of Foreign Affairs Department of CUP).

ProSim Joins DIPPR

Reliable and accurate physical property and thermodynamic data help companies avoid the potential of gross over-design or faulty design of process equipment. AIChE's Design Institute of Physical Properties (DIPPR; www.aiche.org/TechnicalSocieties/DIPPR) is an industry consortia that helps promote the development of databases that contain this critical design information.

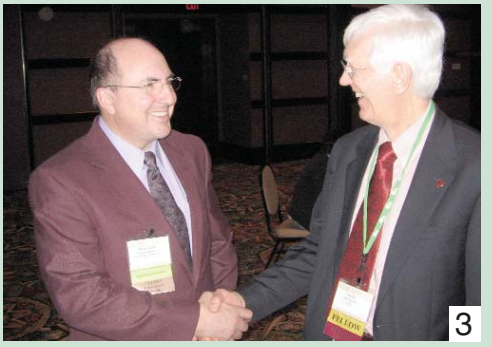
ProSim (www.prosim.net), the European software house headquartered in Toulouse, France, recently signed on to become a sponsor of DIPPR. The company provides state-of-the-art simulation and optimization software that enables the process industries to increase their efficiency and their return on investment. ProSim solutions are designed for applications in the chemical, refining, gas treatment and specialties chemical industries, as well as in the pharmaceutical, food processing and energy industries. Its activities also comprise engineering process consulting and custom software development.

Snapshots from the 2007 AIChE Spring National Meeting

1. Prospective employees meet potential employers at the AIChE Career Fair.

2, 3 and 4. Making connections and enjoying the food and refreshments at the Opening Welcome Reception.

5. Networking at the the 3rd Global Congress on Process Safety.



AIChE Goes Global — New Local Section Starts Up in India

On April 24, an inaugural ceremony was held at Pravara Engineering College in India, to launch the first Local India Section of the American Institute of Chemical Engineers (AIChE). Delegates from many colleges, as well as industries, came to learn more about the new local section. Altogether, about 120 delegates attended the meeting.

Prof. R. W. Gaikwad, head of the chemical engineering department, started off the meeting with a welcome speech. He was followed by Prof. Dhirendra, professor of chemical engineering and principal of the Engineering College. The standing-room only audience was then addressed by Dr. D. V. Gupta, Country Director, AIChE India Local Section, who elaborated on the goals and objectives of AIChE, its technical alliances, divisions and forums, as well as the numerous advantages of joining the Institute.

The presentation was met with a lot of enthusiasm from the delegates, and a lively discussion followed. A great deal of interest was shown by the student delegates about forming AIChE student chapters in various colleges. This will be followed up when the universities reopen for the fall semester.

Dr. D. V. Gupta delivers the AIChE address. Seated on the dais are Prof. Gaikwad, Dr. Dhirendra and Dr. Devre.

Approximately 120 delegates from near and far attend the inaugural AIChE Local India Section Meeting.

AIChE Members Elected to the National Academy of Engineering

Election to the National Academy of Engineering (NAE) is among the highest professional distinctions accorded an engineer. This year, the NAE has elected 64 new members and nine foreign associates, bringing the total U.S. membership to 2,217 and the number of foreign associates to 188. Newly elected AIChE members include:

Bruce C. Gates, distinguished professor of chemical engineering, University of California, Davis. For scholarship on catalysis, innovative research on hydroprocessing and supported molecular catalysts, and exemplary leadership in collaborative university/industry research.

Ann L. Lee, vice president, process development, Genentech Inc., South San Francisco, CA. For innovation and development of large-scale, cost-effective production of vaccines that have saved lives worldwide.

Gintaras (Rex) V. Reklaitis, Edward W. Comings professor of chemical engineering, Purdue University, West Lafayette, IN. For developing the theory and application of batch design, scheduling, and optimization tools, and for outstanding contributions to education.

Charles F. Zukoski, professor of chemical engineering and vice chancellor for research, University of Illinois, Urbana-Champaign. For research on the manipulation of particle interactions to alter their suspension properties, and for leadership in education.

Joseph (Yosi) Kost, professor, department of chemical engineering, Ben Gurion University of the Negev, Beer-Sheva, Israel. For discoveries that led to ultrasonic drug release and self-regulated drug delivery systems.

Are you in the news?

Tell *CEP* about your recent award or latest research. Or share information on innovative new programs you think members would like to hear about. Email us at cepedit@aiche.org.

OBITUARIES

Russell C Rogge, 89, Pensacola, FL

Risdon W Hankinson*, 69, Bartlesville, OK

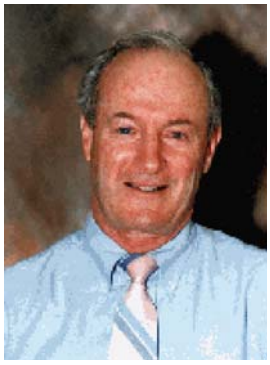
Jack C Stewart, 85, Sylvania, OH

Ronald W Missen, 79, Toronto, ON

Joseph Reynolds, 72, Bronx, NY

*Fellow

In Memoriam Joseph Reynolds



Joseph Reynolds received a BA degree in chemistry from Catholic University in 1957 and a PhD degree in chemical engineering from Rensselaer Polytechnic Institute in 1964. Since that time, he was a member of the chemical engineering faculty at Manhattan College, where held the rank of professor. He was chairman of the Chemical Engineering Dept. from 1976 to 1983.

Dr. Reynolds' research interests were in air pollution control and hazardous waste incineration. He co-authored several textbooks, including "Introduction To Hazardous Waste Incineration" 2nd edition (Wiley, 2000) and "Accident and Emergency Management" (Wiley, 1989), and developed computer software (which is available commercially and currently used in EPA's training program) to simulate hazardous waste incinerator performance. He served as a consultant for several private companies and as a consultant/expert witness for the U.S. Dept. of Justice and the U.S. Environmental Protection Agency. He was listed in "American Men and Women in Science," "Who's Who in Technology Today," "Who's Who Among America's Teachers," International "Who's Who in Engineering," "Who's Who in the East," and "Who's Who in Engineering."

He is survived by his wife, two daughters and grandson. His wife, Barbara, recently retired from Fordham Preparatory School in New York after 22 years of teaching (35 years total including high school teaching). Both daughters, earned bachelor's degrees in chemical engineering from Manhattan College. Megan has a masters in international management and works for Merck in New Jersey. Marybeth has a masters in public policy and works for CancerCare in New York City. His new grandson, Joseph, is 3 months old. Reynolds' favorite recreational activities were skiing and jogging.

Election News

2008 Election: President-Elect

H. Scott Fogler

Scott Fogler is the Ame and Catherine Vennema distinguished Professor of Chemical Engineering at the University of Michigan. He has served AIChE as Meeting Program Chair, Division 4 Chair, member of the Board of Directors and liaison to CAST, member of the Society for Biological Engineering (SBE), and a member of AIChE's CTOC. He is the recipient of the AIChE's Warren K. Lewis Award and is the author of the widely used textbook, "The Elements of Chemical Reaction Engineering."

Fogler's leadership positions include Department Chair and Associate Dean at the University of Michigan, ASEE Chemical Engineering Division Chair, and President of the CACHE Corp. He has been a consultant to many companies including DuPont, Schlumberger and a 26-year association with Chevron.

Proven track record

Fogler will bring the same proactive energy to the Presidency of AIChE that he displayed as a member of the AIChE's Board of Directors. During his tenure on the Board he:

- Recognized that the future of AIChE is dependent on the interest of the future generations. Towards this end, he initiated the student chapter competition. This competition (now the ChemE Car Competition) has the highest attendance of any event at AIChE annual meetings.
- Initiated the effort to publish the AIChE Journal on line in an electronic format.

Current strengths of AIChE

- AIChE's finances are in reasonable shape and are improving.
- SBE is a hit and has 2,000 members.
- The Institute for Sustainability (IfS) is in good health.

Moving forward

Fogler interacted with local section chairs, division chairs and AIChE staff to discuss the challenges that AIChE will be called upon to address in the coming years, including:

- Reversing the decline in membership by developing and implementing a program between local sections and student chapters to bring graduating seniors into the organization.
- Revitalizing the lost-member program initiative that began last year.
- Assessing and ensuring the dollar value of a membership in AIChE by actively maintaining member services such as insurance of all kinds, disseminating technical information and help in job hunting.
- Guaranteeing that the annual and national meetings address the needs of practicing chemical engineers (*e.g.,* technical and non-technical tutorial sessions at meetings).
- Making resources available to meet the needs of the AIChE's local sections and divisions.

Fogler received his BS from the University of Illinois and his MS and PhD from the University of Colorado. He is happy to discuss with anyone the future of AIChE. Feel free to e-mail him at sfogler@umich.edu.

Rex Reklaitis

Rex Reklaitis is the Comings Professor of Chemical Engineering at Purdue University. He has served as the School Head for 16 years and director of NSF and industry supported centers. His research in process systems engineering has spanned applications in synthetic fuels, fine chemicals, foods and pharmaceuticals.

Reklaitis is a trustee and former president of CACHE Corp., was an Executive Committee member and International Committee chair of the Council for Chemical Research, and has been Editor of *Computers and Chemical Engineering* for 20+ years.

An AIChE Fellow, he has served on the Board of Directors, as the 2002 Annual Meeting Chair, Chair of the Publications Committee, as well as director, chair and programming coordinator of the CAST Division. He chairs the Executive Board of the National Programming Committee and is member of the Centennial Steering Committee. Recipient of several AIChE, ASEE and IIT awards, he has been elected to the National Academy of Engineering.

Statement

A revitalized AIChE with stable membership and finances in the black is poised to celebrate its 100th anniversary. I would be honored to serve as President at this historic juncture. The coming years will present substantial challenges and opportunities: the escalating globalization of manufacturing, engineering and R&D functions; the rapid increase in numbers of ChE professionals outside the U.S.; and the stresses of integrating our traditional technical core with the exciting interdisciplinary developments stretching the boundaries of our discipline.

As President I will work with you to:

- Increase the appeal and value of membership to ChE professionals at every career level — student, young professional, practicing engineer, teacher, researcher, technical manager and industry leader. We particularly must refocus on local sections and student chapters that are the bedrock of the Institute.
- Broaden our reach by building bridges with relevant established technical communities and helping technical groups in emerging fields find a welcoming home in AIChE.
- Strengthen the leadership position of AIChE in the global ChE profession by partnering with ChE professional organization in countries in which ChE activities in traditional CPI areas are rapidly growing.
- Increase AIChE investment in information technologies to make publications, training sessions, conferences and networking activities accessible globally and at low cost. Mobilize volunteer creativity to identify modes appealing to students and young professionals.
- Reenergize AIChE federal and public relations, highlighting the importance of U.S. leadership in core ChE technology areas that are the foundation for innovations in energy, sustainability and healthcare delivery.

Reklaitis received his BS ChE from IIT, Chicago, and PhD from Stanford. Your advice and comments are very welcome. Please send your email to rexreklaitis@gmail.com.

To enable members to make informed selections for the upcoming AIChE election, the candidates have provided overviews of their experience, as well as their plans for future programs and directions for the Institute. These messages are in each candidate's own words. Director candidate statements will appear in the July issue of *CEP*. Following publication in *CEP*, statements will be posted at http://www.aiche.org/election.

Voting dates and deadlines: Ballots will be mailed on August 20. Electronic proxy will also be available on this date. Directions on electronic proxy will be included with the ballot and emailed to members with email addresses on file. All ballots must be received by September 24. The Teller's Committee will meet to verify the results of the election on September 28. Election results will be announced in November at AIChE's Annual Meeting in Salt Lake City, UT, and in the December issue of *CEP*.

2008 Election: Treasurer

Andre Da Costa

Developing and deploying strategies that will lead to the fulfillment of our vision of providing value as the Global Leader, the Lifetime Center for professional growth and the Foremost Catalyst in the application of chemical engineering expertise to serve society remain the primary focus as AIChE approaches its centennial in an era of globalization and increasing diversity. AIChE continues to turn challenges into opportunities — the 2002/2003 risk of insolvency-led to greater involvement of members in its management, the restructured AIChE stabilized finances and membership. To fulfill this vision, AIChE needs to achieve sustainable growth and maintain financial health by doubling its net assets and improving on the current value proposition.

If elected Treasurer, I will continue working with other volunteers to:

- Enhance services to revitalize local sections and divisions.
- Develop programs to attract and retain graduates, engineers and international members in traditional and emerging areas.
- Engage industry and government executives to support AIChE programs and foster employee participation.
- Promote AIChE visibility globally through strategic collaboration and representation on current issues impacting society.
- Further identify lower cost options for headquarters.
- Maintain fiscal stewardship of AIChE and implement financial strategies that will shape AIChE into its second centennial.

Along with my sound understanding of the AIChE financial system through my membership on the BOD Finance Committee for the second year, I have the leadership skills, energy, and experience to help AIChE achieve these vital goals.

AIChE involvement

- National Director, 2004–2007
- Meeting Program Co-Chair, 2006 Annual Meeting — largest meeting in AIChE history
- Director/Vice-Chair/Chair, Separations Division, 2002–2007
- Member, Career and Education Operating Council, 2004–2006
- Vice-Chair, General Arrangements, 2003 Annual Meeting
- Chair, Key Industry and Government Leaders BOD Task Force, 2004–2005
- Chair, Energy Programming BOD Task Force, 2007
- Director/Vice-Chair/Chair, NorCal — 3rd largest section, 1999–2003
- NorCal Professional Progress Award, 2006
- BOD Gary Leach Award, 2004

Professional background and education

I am a project leader with Chevron. At MTR, I was PI of research projects on membrane separation. I am co-inventor of 13 patents and have published and presented over 20 papers. I reviewed papers for the *Journal of Membrane Science* and research proposals for NSF. I practiced chemical engineering in Africa, Australia and Europe. I received an MSc from Mendeleev University of Chemical Technology of Russia (1986) and a PhD from the University of NSW, Australia (1993).

Fred Krambeck

As an AIChE Director during 2000–2002, Krambeck played a key role in identifying, early on, the impending financial decline of AIChE and alerting the Board of Directors to the need for drastic action. Actions initiated during this period formed a basis for the dramatic financial turnaround of the 2003–2005 period that restored the organization to solvency. Based on this experience, Krambeck believes that the primary responsibility of the AIChE Treasurer is to insure that financial reporting from AIChE management to the Board clearly communicates the financial condition of the organization and the potential financial impacts of operating decisions. More informative reporting to members would also be desirable. Krambeck's current experience as a member of the Audit Committee has also contributed to his ability to serve that vital function.

The Treasurer also serves on the Executive Committee of the Board of Directors, where he is involved in all the actions and initiatives undertaken by the Board. Krambeck would like this opportunity to help move the AIChE forward in providing services to our members as their career interests evolve. AIChE initiatives in biotechnology and sustainability should continue to be emphasized as chemical engineers become increasingly involved in these activities. Chemical engineers are uniquely qualified to make key contributions to technology developments that can maintain economic growth, while decreasing greenhouse gas emissions. Partnerships with technical societies specializing in biotechnology and sustainability areas can provide additional value to AIChE members. We need to explore this and many other opportunities to increase that value.

Work experience and education

Krambeck is the President and Principal Consultant of ReacTech, Inc., and Research Professor at Johns Hopkins University. He retired from ExxonMobil in 2001 with 34 years of experience, serving in various technical and management positions in fuels and petrochemicals manufacturing R&D. He has over 60 patents and publications and is a member of the National Academy of Engineering. He received his BS and PhD degrees in chemical engineering at City University of New York.

An AIChE Fellow, Krambeck has participated extensively in AIChE. In addition to serving as an AIChE Director from 2000–2002, he helped to organize the Catalysis and Chemical Reaction Engineering Division. He served as Director and as Chairman of that Division. He has served on the Editorial Advisory Boards of the *AIChE Journal* and *Industrial and Engineering Chemistry Research*.

Other activities include serving on various National Research Council panels, including Committees on Demilitarization of Chemical Weapons and Management of Greenhouse Gases.