AIChE Gala will Showcase Excellence in Process Safety, Nov. 3

Chemical engineering's contributions to process safety, marked by the distinguished work of company leaders who have made process safety a hallmark of their organizations' practices, will be spotlighted at the Institute's 2015 Gala: Leading the Way to a Safer World. The fundraising event, to be held on Nov. 3 at Cipriani 25 Broadway in New York, NY, will honor company leaders who have driven the industry's process safety performance through their examples.

Funds raised during the Gala will underwrite AIChE's and the Center for Chemical Process Safety's (CCPS's) ongoing efforts to advance process safety excellence and expertise in companies worldwide, and to ensure that chemical engineering graduates are equipped with process safety knowledge when they enter the workforce. Accellerating undergraduate process safety education is one of AIChE's major global initiatives, and a core objective of the AIChE Foundation's Doing a World of Good campaign, which promotes chemical engineering's positive impact on society.

The 2015 Gala coincides with the 30th anniversary of CCPS, which has led the efforts to share process safety best practices at companies around the globe.

"The advancements in chemical process safety — made through CCPS and the work of countless chemical engineers working at CCPS member companies — are among our profession's most important legacies," says June Wispelwey, Executive Director of AIChE. "The Institute is delighted to host this year's gala, which highlights the exemplary work of our honorees, all of whom are setting standards of excellence for process safety culture in their organizations."

Honorees at the Gala will include Rex W. Tillerson, Chairman and Chief Executive Officer, Exxon Mobil Corp.; Andrew N. Liveris, Chairman and Chief Executive Officer, The Dow Chemical Co.; and Mark J. Costa, Chairman and Chief Executive Officer, Eastman Chemical Co.

The 2015 Gala dinner chairs will be Neil A. Chapman, President, ExxonMobil Chemical Co.; James (Jim) R. Fitterling, Vice Chairman of Business Operations, The Dow Chemical Co.; Mark K. Cox, Senior Vice President and Chief Manufacturing and Engineering Officer, Eastman Chemical Co.; John Y. Televantos, Partner at Arsenal Capital Partners; and S. Shariq Yosufzai, Vice President for Global Diversity, Ombuds, and University Affairs, Chevron.

Each fall, AIChE holds a gala that recognizes leaders from a variety of industries whose careers exemplify excellence in advancing chemical engineering. The gala strengthens AIChE's connection with industry leaders and builds support for important initiatives AIChE is undertaking on behalf of its members and the chemical engineering profession.

Last year's gala raised $330,000 to support the Institute's diversity and inclusiveness initiatives. Funds raised supported scholarships for students from underrepresented groups, K–12 and public outreach initiatives, programs for international student chapters, and AIChE's advocacy for recruiting and retaining women in the profession, and supporting their re-entry after family leave.

For more information about the 2015 AIChE Gala, visit www.aiche.org/gala.

3rd Middle East Process Engineering Conference, Sept. 14–17, in Bahrain

Delivering Process Efficiency through Innovation and Value Creation is the theme of the 3rd Middle East Process Engineering Conference and Exhibition (MEPEC 2015), to be held under the patronage of the Prime Minister of the Kingdom of Bahrain, H.R.H. Prince Khalifa bin Salman Al Khalifa, Sept. 14–17, 2015, at the Bahrain International Exhibition and Convention Centre.

The biennial MEPEC — launched in 2011 by AIChE's Saudi Arabia Section, and with AIChE as its main supporting organization — is the largest downstream engineering conference in the Arabian Gulf Region. MEPEC 2015 organizers are expecting an international audience of more than 1,800 engineers, researchers, and business and technology leaders, who will discuss solutions to the many challenges encountered by process engineers.

Experts will share innovative ideas to improve process efficiency in the oil and gas, petrochemicals, and hydrocarbon processing industries — at technical sessions, panel discussions, poster presentations, and social events. Additionally, MEPEC's exhibition will host more than 200 exhibiting companies, and will feature a new Innovation and Commercialization Zone, where companies, inventors, and researchers will present new products and novel processes.

The program will concentrate on the role of process engineering in three main topic areas: process synthesis, modeling, and optimization; process retrofitting, debottlenecking, and constraint management; and process and equipment design. Daily keynote sessions will feature talks by international industry leaders.

The conference will feature a new student component — ChemME — to engage the region's young chemical engineers. AIChE student members will also participate in the Middle East's 1st Regional Chem-E-Car Competition.

Another highlight is a session on diversity in industry, entitled "The Changing Image of the Industry: The Leading Women," which will be moderated by AIChE Executive Director June Wispelwey. Also, the AIChE Academy will host several educational workshops on Sept. 14.

For complete program and registration information, visit www.mepec.org.

Body of Knowledge Will Guide ChE Training, Skills Development

A new set of metrics produced by AIChE will help to chart the changing skill-development and educational needs of chemical engineers, across industries and career stages.

The new *Body of Knowledge for Chemical Engineers* (BOK), developed under the direction of AIChE's Career and Education Operating Council (CEOC), encompasses the range of knowledge, skills, and abilities required of chemical engineering professionals. The BOK is aimed at providers of chemical engineering professional training — in particular, the continuing education programs offered through the AIChE Academy, including instructor-led training courses, eLearning, and webinars. Engineers may also use the BOK as a reference for their own career skills development.

The BOK is designed to help educators and industries better prepare the chemical engineering workforce of the future in both traditional and evolving fields. Stakeholders in industry have underscored the importance of equipping engineers with the skills and professional attributes they'll need to be effective in their varied and changing roles.

The resource employs a series of knowledge, skills, and abilities (KSA) matrices, which are cross-referenced with metrics in key developmental domains (affective, cognitive, and psychomotor), and relates these variables to the attributes associated with effective performance in various fields of chemical engineering practice. Numeric rankings are applied to the various categories, denoting the recommended skill level and aptitudes needed for a spectrum of professional roles in the given field.

The BOK's metrics then assess the competencies to be expected of chemical engineers at four discrete career stages. Stage 1 corresponds to the minimal experience of a recent graduate, characterized by possessing a collection of knowledge and skills with the ability to apply them under supervision. Stage 2 includes experienced engineers who are capable of applying knowledge and skills with some degree of independence, and corresponds to "minimal competence" as defined by most professional licensure jurisdictions. Stage 3 is characterized by mature technical competence, with the engineer often assuming supervisory and administrative roles. Stage 4 includes mature engineers who have achieved technical expertise or mastery in some subset of the KSA listings.

The BOK matrices provide a cross-demographic view that can be filtered to determine which knowledge and skills need to be developed in a chemical engineer's professional career, and which industry and job roles may benefit from additional education and training in those areas. The metrics show that skill and knowledge requirements differ significantly by industry and career path, as well as by level of experience.

In addition to its use by educators and industries, the BOK may prove useful to organizations such as the National Council of Examiners for Engineering and Surveying (NCEES). Individual engineers may use the BOK for self-assessment and personal skills-development planning, such as in preparing for Professional Engineering (P.E.) licensure.

The *Body of Knowledge for Chemical Engineers* is being used by AIChE's Education Committee to guide its development of courses offered through the AIChE Academy. The resource will be available online at www.aiche.org/academy.

Commercializing Industrial Biotechnology Workshop will Promote Engineering and Business Opportunities, Sept. 28–29, in San Diego, CA

AIChE's Society for Biological Engineering (SBE) is organizing a new workshop where engineers, scientists, and other stakeholders in business and industry will discuss the latest wave of opportunities that have emerged from the biotechnology revolution. The workshop, Technology Challenges and Opportunities in Commercializing Industrial Biotechnology, will convene at the Bahia Hotel in San Diego, CA, Sept. 28–29, and will highlight commercial opportunities and technical challenges in the developing field of industrial biotechnology.

At the two-day event, technology experts and business leaders in the chemicals, biotechnology, and energy arenas will gather with researchers and representatives from government and investment companies to discuss the techniques, economics, engineering design, and international perspectives involved in industrial biotechnology. The event — co-chaired by Jeff Lievense, Executive Vice President for Process Technology at Genomatica, a San Diego-based biotech company, and Brian Davison, Chief Scientist for Systems Biology and Biotechnology at Oak Ridge National Laboratory — will integrate technical information with economic analyses, providing insight into industrial biotechnology as a means of manufacturing and effectively marketing fuels, chemicals, and a range of new products.

"This workshop offers a deep dive into the science and engineering of commercializing industrial biotechnology," says workshop co-chair Lievense. "Attendees will learn about technology best practices, feedstock choices, and real economics, and hear first-hand case studies that show how bioprocesses work, predictably and at scale — all presented by people who have done the work successfully."

Setting the stage for the discussions to follow, on Sept. 28, will be keynote speeches presented by Doug Cameron, Co-President and Director of First Green Partners,

Article continues on next page

Your AIChE Membership

Technical Communities

AIChE members represent a variety of specializations, and apply an array of skills to make the world and their workplaces safer and more efficient. To help members achieve such goals, AIChE offers discounted membership in several of its technological communities, which provide venues to share expertise and acquire knowledge on important chemical engineering topics. The Design Institute for Emergency Relief Systems (DIERS) and the Center for Energy Initiatives (CEI) are just two examples.

DIERS is the ideal community for engineers involved in designing emergency relief systems. Formed in 1976 as a consortium of 29 companies, DIERS continues its work to develop methods for handling runaway reactions. DIERS members share their expertise, exchange technical information, and gain practical experience. Members have the opportunity to meet twice a year, at the DIERS Spring and Fall meetings. The Fall 2015 meeting will be in Houston, TX, Oct. 5–7. Information on the conference and how to join DIERS for just $25 ($75 for non-AIChE members) can be found at www.aiche.org/diers.

For engineers interested in the design and development of energy solutions, there is CEI. Membership in CEI is free to members of those AIChE technical divisions and forums engaged in energy topics.

"A central theme of CEI's initiatives is its focus on understanding complex processes and systems," says Dale L. Keairns, CEI's Chair. "Our objectives include developing methods to analyze energy-water-food nexus issues and identifying technology gaps to guide how best to respond to change."

In addition to the information and resources offered on the CEI website (www.aiche.org/cei), members can benefit from workshops throughout the year and meet in-person at the Carbon Management Technology Conference 2015 (CMTC 2015), Nov. 17–19, in Sugar Land, TX. This event is hosted by AIChE in collaboration with other engineering societies.

AIChE recently launched a new technological community: the Center for Innovation and Entrepreneuring Excellence (CIEE). This group supports the professional development of chemical engineers and other engineers and scientists working in scientific, applied, and professional entrepreneurship, innovation, and other creative endeavors. Learn more at www.aiche.org/ciee, and join CIEE for only $20 ($300 for non-AIChE members).

For more information about all of AIChE's Industry Technology Groups, visit www.aiche.org/technicalsocieties.

Industry Technology Groups

- Center for Chemical Process Safety (CCPS)
- Center for Energy Initiatives (CEI)
- Center for Innovation and Entrepreneuring Excellence (CIEE)
- Design Institute for Emergency Relief Systems (DIERS)
- Design Institute for Physical Properties (DIPPR)
- Institute for Sustainability (IfS)
- International Metabolic Engineering Society (IMES)
- International Society for Water Solutions (ISWS)
- Safety and Chemical Engineering Education (SAChE)
- Society for Biological Engineering (SBE)

Commercializing Industrial Biotechnology Workshop (continued from p. 74)

a Minneapolis, MN-based company that leverages advances in science and technology applied to agriculture, and Geoff Duyk, Partner and Managing Director of TPG Biotech, a developer of alternative and renewable technologies.

Industrial biotechnology involves working with living cells to optimize existing biochemical pathways that can be used to manufacture a variety of products, and is one of the most promising approaches to pollution prevention, resource conservation, and energy production. The emergence of industrial biotechnology as a growth area stems from a series of related developments in cell-based biology, including genomics, proteomics, and bioinformatics.

Developed to its full potential, industrial biotechnology and its products may have enormous impact on world health and energy production, offering businesses ways to improve efficiency and reduce costs while protecting the environment. Also, the new products generated by applications of biotechnology on the industrial scale may open doors to unprecedented commercial opportunities.

The launch of the Technology Challenges and Opportunities in Commercializing Industrial Biotechnology workshop is timely, Lievense notes, because the practice of industrial biotechnology is relatively new, and its benefits are still not yet fully understood by industry, policymakers, investors, and consumers. The workshop will increase collaborations among those very thought-leaders and participants, including investors — a necessary step for the continued growth and success of industrial biotechnology.

Complete program and registration information is available at www.aiche.org/cib.