



MeetingPreview

ENGINEER A SUSTAINABLE FUTURE AIChE ANNUAL MEETING, NOV. 3–8, SAN FRANCISCO

Sustainability, and the global challenges and opportunities it offers to chemical engineers, will be a uniting theme of discussion for the thousands of chemical engineering practitioners, researchers, and business leaders who will gather at AIChE's Annual Meeting, Nov. 3–8, at the Hilton San Francisco Union Square, in San Francisco, CA. The 2013 Annual Meeting will offer more than 750 sessions across nearly two dozen program tracks — presenting the latest research and technologies in the areas of alternative energy, fuels and petrochemicals, pharmaceuticals, biological engineering, separations, materials science, particle technology, nanotechnology, environmental engineering, and much more.

Headline events at this year's Annual Meeting include the Third Annual World Congress on Sustainable Engineering, and the Fourth International Congress on Energy. Among the meeting's 10 topical conferences are new ones devoted to advanced membrane separation for sustainability, advanced fossil energy utilization, and CO₂ capture. Also debuting in 2013 is new core programming organized by AIChE's recently established Pharmaceutical Discovery, Development, and Manufacturing Forum that emphasizes process scaleup for pharmaceutical, fine, and specialty chemicals; application of quality by design (QbD) principles; and innovations in drug delivery (sidebar).

On the global front, AIChE is



▲ San Francisco's Union Square, with its iconic surroundings, will be the scene of the 2013 Annual Meeting, Nov. 3–8. Photo: Natalia Bratslavsky.

developing joint programs with several international chemical engineering groups. These include sessions with Japan's Society of Chemical Engineers (SCEJ) devoted to bioseparations, bionanotechnology, and bio/nano/interfacial phenomena, as well as a joint session with the Chemical Industry and Engineering Society of China (CIESC) and a featured talk on China's progress in biomass technologies. AIChE's Particle Technology Forum and powder-technology researchers from Japan are also collaborating on a session. Other joint sessions include one with the Institution of Chemical Engineers (IChemE) entitled "Energy, Water, Food, Materials: An Interconnected Global Challenge," and a joint AIChE–Korean Institute of Chemical Engineers (KICoE) session.

These activities supplement returning topical conferences that address new developments in nanotechnology and nanomaterials (including environmental aspects and energy applications), innovations in

green process engineering, systems biology, and sensors, as well as the annual meeting of the American Electrophoresis Society.

Also in San Francisco, from Nov. 1–4, more than 1,000 of the next generation of chemical engineers will participate in AIChE's Annual Student Conference. The conference features career workshops, scholarly competitions, networking events, opportunities to meet representatives from industry, and a poster session (Nov. 4). Another highlight will be the 15th Annual Chem-E-

Car Competition (Sunday, Nov. 3).

With its emphasis on both technical innovation and the professional growth of chemical engineers, AIChE's Annual Meeting enjoys an international reputation as the premier forum for chemical engineers working in research and development. San Francisco has been a perennially popular Annual Meeting destination, and organizers expect more than 4,000 engineers and scientists to attend this year's meeting to gain insight into developments in the field's growth areas. Poster sessions, plenary sessions, and presentations by distinguished lecturers and many of chemical engineering's thought leaders round out the agenda. Numerous receptions, social events, and networking opportunities — both formal and informal — will permit attendees to make new professional connections and reconnect with colleagues and friends.

For information about conference registration and the complete schedule of events, visit www.aiche.org/annual.



Featured events

Annual Meeting Plenary: Chemical Engineering Expertise: In Academe and as Sought by Industry, Monday, Nov. 4, 11:00 am – 12:30 pm. The emergence of biology, life science, and nanotechnology in the chemical engineering realm has shifted the research focus of many academicians. This plenary session's speakers will examine the degree of this redistribution in faculty expertise, and consider how this compares to the likely needs of American industry for future chemical engineering talent. Plenary talks include:

- Evolving Distribution of Faculty Strengths in Chemical Engineering Departments, John C. Chen, Lehigh Univ.
- Chemical Engineering Skills for the Global Chemical Industry, Rui Cruz, Dow Chemical
- The Petroleum Industry's Need for Chemical Engineering Talent, Ashok Krishna, Chevron
- Chemical Engineering Skills Sought by the Pharmaceutical Industry, Steve Poehlein, Elixir Pharma Consulting (formerly of Merck).

The Fourth International Congress on Energy (ICE 2013). Presented by AIChE's Center for Energy Initiatives, ICE brings together scientists and engineers working in areas ranging from bioenergy to carbon capture to separation science for a comprehensive review of research and development in sustainable energy supplies. Organized into more than 60 technical sessions, ICE 2013

will deliver the latest information on such subjects as:

- biorefinery technologies for forest-based lignocellulosic biomass
- nuclear and solar energy
- hydrogen production and storage
- alternative energy and enabling technologies

- biofuels
- fossil fuels and carbon capture, control, and sequestration.

The Third World Congress on Sustainable Engineering.

Co-organized by AIChE's Environmental Div. and the Sustainable Engineering Forum, this congress

PHARMACEUTICAL DISCOVERY, DEVELOPMENT, AND MANUFACTURING FORUM EXPANDS ITS PROGRAMMING

Inaugurated in 2012, AIChE's Pharmaceutical Discovery, Development, and Manufacturing (PD2M) Forum was formed by the same community that launched the Comprehensive Quality by Design (QbD) Topical Conference in 2009. The creation of the PD2M Forum reflects the strong involvement of chemical engineers in the modernization of the pharmaceutical industry.

With the success of AIChE's recent QbD programming, the leaders of PD2M have expanded the group's offerings into a Pharmaceutical Discovery, Development, and Manufacturing Forum core program, set to debut at the 2013 Annual Meeting. The PD2M program kicks off with a plenary session on Monday, Nov. 4, 8:30 am – 11:00 am, featuring perspectives from prominent practitioners:

- Towards Personalized Therapy: Biomolecular Complexities Beyond Gene Expression, Doraiswami Ramkrishna, Purdue Univ.
- A Perspective On the Use of Mechanistic Models Alongside Statistical Design of Experiments to Define a Design Space in Drug Substance, Jean W. Tom, Bristol-Myers Squibb
- The Impact of Modeling in Drug Product and Process Development, Jon Hilden, Eli Lilly and Co.
- Applications of Single-Use Technologies in Large-Molecule Development and Manufacture and the Consequences of Large-Molecule QbD, Gregory Frank, Amgen.

In all, the PD2M core program will incorporate more than 30 sessions and nearly 150 speakers, and will cover topics ranging from the technical aspects of the application of chemical engineering principles to pharmaceuticals, to the regulatory environment that impacts the way pharmaceutical companies operate. The program will be rounded out by a poster session with more than 40 presentations from industry and academia.

Salvador Garcia-Munoz, PD2M's Programming Director, says that a unique feature of the PD2M Forum and its activities has been the "overwhelming, passionate participation from industry and the practical nature of the programming." These qualities, he notes, have stimulated a great deal of discussion and debate, which he expects to continue in the new, expanded program. "This is undoubtedly one of the reasons the program is attractive to participants, who seek to advance applied research that will make a difference in the way medicines are discovered, developed, and manufactured," says Garcia-Munoz.

He adds that, in addition to witnessing changes in industrial practice and new collaborations in the field as a consequence of QbD programming, "perhaps most rewarding has been seeing the enthusiasm of students and young engineers involved at AIChE's QbD events."

The PD2M program is among the Annual Meeting components that will be recorded (audio synchronized with slides) and made available to registrants. To learn how to purchase the PD2M recording package, visit www.aiche.org/conferences/aiche-annual-meeting/2013/registration-info.

is designed to give chemical engineers a voice in shaping sustainable development. The program covers a spectrum of sustainable engineering topics, from the fundamentals of sustainability to manufacturing and industrial sustainability. Attendees will learn about innovations in process intensification devices and methods, investigate innovative process designs for sustainability, discuss current environmental, health, and safety issues in sustainable engineering, and more.

Not-to-be-missed presentations

As part of AIChE's awards program, several leading engineers and scientists will discuss new developments in their fields of specialization—including some information before it is published in the engineering literature.

The 65th Institute Lecture, Wednesday, Nov. 6, 11:15 am – 12:15 pm. Pablo G. Debenedetti, the Class of 1950 Professor in Engineering and Applied Science, Professor of Chemical and Biological Engineering, and Vice Dean of the School of Engineering and Applied Science at Princeton Univ., will deliver this year's Institute Lecture, "Theory and Computation in Modern Chemical Engineering. A Thermodynamicist's Perspective."



▲ Debenedetti

The D. I. C. Wang Award for Excellence in Biochemical Engineering Lecture, Monday, Nov. 4, 6:00 pm – 7:00 pm. Established in 2012 by AIChE's Society for Biological Engineering (SBE), this award recognizes distinguished contributions to biochemical engineering. This year's recipient will be announced in the September issue of *CEP*.

James Y. Oldshue Lecture, Tuesday, Nov. 5, 8:30 am – 11:00 am. Held in alternating years at the AIChE Annual Meeting and at the Inter-American Confederation of

Chemical Engineering's (IACChE) Inter-American Congress, this lecture honors an important leader and supporter of both organizations. The 2013 Oldshue Lecture will be presented by Carlos R. Apesteguía of the National Univ. of Litoral (Argentina), whose talk is entitled "Synthesis of Fine Chemicals by Heterogeneous Catalysis: A Critical Approach of the Role of Solvent for Hydrogenation Reactions."



▲ Apesteguía

2013 Professional Progress Award Lecture, Tuesday, Nov. 5, 11:15 am – 12:15 pm. This presentation will be given by the Institute's 2012 Professional Progress Award recipient, Brian A. Korgel, Professor of Chemical Engineering and Director of the Industry/University Cooperative Research Center for Next Generation Photovoltaics at the Univ. of Texas at Austin. Korgel's discussion of nanomaterials is entitled "At Least 1,000× Thinner than a Human Hair."



▲ Korgel

This year's Annual Meeting will feature a bonus *Professional Progress Award Lecture* on Thursday, Nov. 7, 11:15 am – 12:15 pm. The Institute's 2011 Professional Progress Award recipient—Christopher Bowman, the Patten Professor and Chair of the Dept. of Chemical and Biological Engineering, and Clinical Professor of Restorative Dentistry, at the Univ. of Colorado at Boulder—was originally scheduled to speak at the 2012 Annual Meeting, but Hurricane



▲ Bowman

Sandy disrupted his travel plans. His lecture, "Clicking Polymers Together: Assembly of Complex, Controlled Polymer Structures from Efficient Chemistries," has been rescheduled as part of this year's meeting.


James E. Bailey Award Lecture, Tuesday, Nov. 5, 6:00 pm – 7:00 pm. The SBE's Bailey Award recognizes outstanding contributions in the field of biological engineering. This year's award recipient will be announced in the September issue of *CEP*.

The inaugural presentation of *AIChE's Government and Industry Leaders (AGILE) Award and Lecture* will take place on Wednesday, Nov. 6, 6:00 pm – 7:00 pm. This honor recognizes a person from industry or government whose contributions, innovations, and creativity have had a unique impact on the marketplace and global community. The first AGILE Award will be presented to Rajeev Gautam, President and Chief Executive Officer of UOP, a Honeywell Company, who will lecture about strategic imperatives for the hydrocarbon industries.



▲ Gautam

Honoring the profession's best

On Sunday evening, Nov. 3, prior to the Annual Meeting's Welcome Reception, AIChE will recognize some of chemical engineering's foremost practitioners, researchers, industry leaders, and educators at the Honors Ceremony. Many of AIChE's technical divisions and forums will present their annual awards at special sessions and dinners throughout the week, and newly elected AIChE Fellows will be recognized at the Fellows Breakfast on Tuesday, Nov. 5. 

Program and registration information is available at www.aiche.org/annual. Registration fees are discounted through Sept. 22.