

Remembering Bhopal

Local section sponsors chemical process safety conference to commemorate Bhopal's 20th anniversary

December 3 marks the 20th anniversary of the Bhopal tragedy — the worst chemical plant accident in history. On the eve of its anniversary, the Philadelphia Chemical Engineering Community, including the Delaware Valley Section and Widener University Chemical Engineering Dept. will host an educational conference for chemical process safety aimed at students and professionals on Thursday, Dec. 2, 11:30 am–8:45pm at Widener University (Chester, PA; www.widener.edu).

"The idea grabbed us because it's important that the average everyday engineer understand what happened and how our industry has reacted," said Richard Kral, co-chair of the conference program and lead process engineer for Jacobs Engineering Group, Inc.

"Since Bhopal we've made institutional changes, developing Process Safety Management (PSM) and Responsible Care," continued Kral. AIChE's Center for Chemical Process Safety (CCPS) was also founded. "Responsibility for the public's safety includes being informed and everyone in our industry, including non-technical people in management, procurement, project management, sales etc., should have some understanding of this history."

Covering all angles

"We wanted our conference to inform and captivate our audience," added Kral. The conference is designed to leave the audience with a true understanding of "What happened?" and "What did the industry do?"

A broad range of speakers will provide a 360 degree perspective on chemical process safety. Widener provost and senior vice president, Dr. Jo Allen, and Pennsylvania state representatives, Thaddeus Kirkland and Thomas Gannon, will offer educational and community perspectives, while DuPont's vice president, engineering and EHS, James Porter, will provide a view from corporate management.

Also on the program is: Mike Hazzan of Accutech, who will begin the program by examining the event; Lou Henderson of PQ Corp., who

will discuss Process Safety Management (PSM), the chemical industry's response; EPA representative Al Baginski, who will talk about the potential today for a disaster; Greg Keeports from Rohm and Haas, who will discuss inherently safer design; and the ACC's Dorothy Kellogg, who will discuss Responsible

Care. Speaking from personal experience will be Sharmila Rao, a second year chemical engineering graduate student at Widener, who will offer her perspective of growing up in India and becoming a chemical engineer. Rao received her undergraduate degree from The University of Karnataka in India. Rounding out the conference will be a student poster competition and an original music composition contest.

All are welcome

Participants are encouraged to attend any or all parts of the conference, as their schedule allows. Get in a morning's work and get over to provost Allen's welcoming remarks at 1 pm or "flex-out" to catch Representative Kirkland in the late afternoon. If you just cannot get out of the office, come



for social hour and dinner to hear keynote speaker James Porter.

The conference price is only \$25 (\$15 students), which includes the program, complimentary lunch, afternoon coffee, cash bar social hour, and dinner.

"When Bhopal is back in the news in December and our family or friends ask, 'you're in the business, are we safe?'" says Kral, "we can be ambassadors for our industry and offer an informed and thoughtful response."

Reserve Today!

For more information and for booking reservations, visit the conference website <http://quantum.soe.widener.edu:281/ps1.htm> or email Kathleen Gannon at kathleen.k.gannon@widener.edu.

Presenting at Bhopal

Dennis C. Hendershot of Rohm & Haas and Scott A. Berger of AIChE's Center for Chemical Process Safety (CCPS) were invited by the Indian Institute of Technology in Kanpur, India to speak at a three-day conference commemorating the 20th anniversary of the Bhopal tragedy. The three-day conference includes a visit to Bhopal site, paper presentations, technical sessions and exhibitions. Hendershot (top photo) will participate as a member of the Conference Advisory Committee, and will present a paper, "Some Reactive Chemistry Incidents and How They Could Have Been Prevented," and conduct a course on inherent safer design. Berger (bottom photo) will represent CCPS, which was founded in 1985, shortly after the 1984 Bhopal incident, to develop technology and management practices that mitigate or eliminate chemical process accidents. CCPS will celebrate its 20th anniversary at its 20th International Conference, April 11–13, 2005, in Atlanta, GA. Visit www.aiche.org/ccps/icw for details. To register for the conference that commemorates the 20th anniversary of the Bhopal tragedy, go to www.iitk.ac.in/infocell/announce/bhopal/.

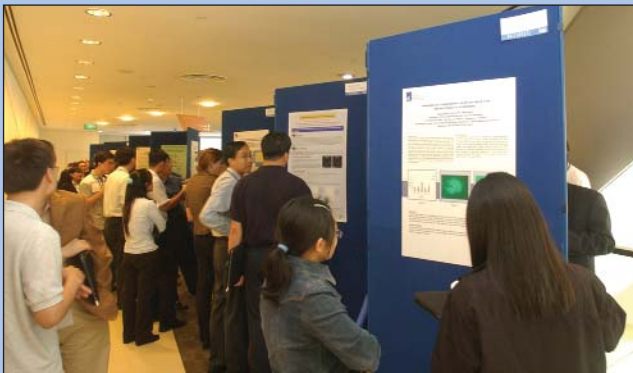


Society for Biological Engineering and Singapore Institute Hold Inaugural Conference

The Institute of Bioengineering and Nanotechnology, under the auspices of the Singapore Agency for Science, Technology and Research, and AIChE's Society for Biological Engineering (SBE) sponsored the First International Conference on Bioengineering and Nanotechnology at the Biopolis in Singapore from Sept. 26–29.

According to Jackie Ying, who heads the institute and chaired the conference, the event succeeded in covering the latest developments and fostering interdisciplinary collaboration among those working at the interface of bioengineering and nanotechnology.

More than 200 attendees from Asia, the Americas and Europe participated in a program that offered frequent question and answer opportunities with invited speakers and other plenary and poster presenters. Topics included: delivery of drugs; cell, tissue and implant engineering; quantum dots, nanoparticles and nonporous materials; bio-MEMS and microsystems; molecular diagnostics and biosensors; synthesis of pharmaceuticals; biomimetic and self-assembled materials; and biological and biomedical imaging.



The event drew an international array of exhibitors, as well.

Among the presentations on synthesis of pharmaceuticals, SBE Managing Board members Gregory Stephanopoulos of the Massachusetts Institute of Technology and James Swartz of Stanford University discussed significant challenges in metabolic engineering. They are, respectively, developing a functional protein chip and the economical production of mammalian proteins with cell extracts. Other speakers included Samuel Stupp of Northwestern University, who described experiments using neural progenitor cells to regenerate the central nervous systems, systems to differentiate stem cells, and the forma-

tion of inorganic crystals that have the potential to promote bone regeneration. Adam Heller of the University of Texas told the story of TheraSense, Inc., a venture he co-founded with his son, which, through miniaturization, is eliminating the pain experienced by diabetics in monitoring blood glucose (June 2004, p. 57). Nobuhiko Yui of the Japan Advanced Institute of Science and

Technology discussed the design of nano-scaled polymeric biomaterials for drug delivery and tissue engineering. From an industrial perspective, Frederick Lam of ChevronTexaco talked about how nanotechnology is being applied to create higher diamondoids from petroleum.

In summarizing his response to the meeting, Stephanopoulos characterized it as an excellent vehicle for showcasing what the new SBE can accomplish to meet the needs of engineers and scientists working in bioprocessing and biomedical and biomolecular applications. A second conference is tentatively planned for North America in 2006.

Mark Your Calendar: 2005 Spring National Meeting

The 2005 AIChE Spring Meeting and First Global Congress on Process Safety, April 10-14, Atlanta, GA will span the latest chemical engineering R&D and, for the first time, the 20th Annual CCPS Conference, 39th Annual Loss Prevention Symposium, and the Process Plant Safety Symposium. For more details and call for papers online submission process, visit www.aiche.org/spring/.

SBE Membership is Here!

AIChE invites you to join the newly formed Society for Biological Engineering.

Benefits include: an international professional network, discounts on the biological engineering conferences, subscription to the e-newsletter, and a voice in education, employment and technology advancement topics. Take advantage of the low introductory membership fees: \$10 for AIChE and ACS-BIOT members, \$75 for non-members, and \$5 for students. To join, visit <http://bio.aiche.org/aboutus/membership.asp>.

Financial Planning for Members

Tax season is just around the corner. Now is the time to take advantage of as many tax minimization strategies as possible. In October and November only, AIChE benefits partner Grogan Advisory Services will offer reduced prices for Estate and Life Plans. The Estate Plan is priced at \$699 and the Life Plan is priced at \$449 — a savings of \$200 for both plans.

While available to all members, consultants are in special need of financial planning to minimize taxes and maximize their goals. Financial planning will help you consider the benefits of: the new Individual 401k; maximizing your 401k or 403b contribution for the best impact on taxes and retirement goals; gifting as part of a tax management strategy; and protecting your assets from potential estate taxes. To take advantage of this offer, call Grogan Financial at 518-899-6090 or visit www.efs529.com/aichefinancial.

Annual Meeting CD-ROM on Sale Now

The Annual conference CD-ROM is back, featuring all papers submitted from topical conference and non-topical related sessions. Mac and Windows compatible, the CD is searchable using key words and phrases. The CD costs \$100. Order today by calling 1-800-242-4363 or go to www.aiche.org/resources/pdflibrary/conf/Annual04regform8.21.pdf.

250 New England Chemical Engineers & Students Network at Guppy Night

Guppies and schools of fish swim with a shark, mackerel, haddock, and tortoise, while a benevolent kingfish encourages interaction among them all. No, this isn't the New England Aquarium or the latest animated movie to hit the box office. This is Guppy Night, hosted by the Boston Section of the AIChE, or as they prefer to be called, "The Ichthyologists of Boston."

Guppy Night, held on Oct. 1, brought together approximately 150 chemical engineering students from 12 New England universities and 100 chemical engineering professionals. Targeted networking, student awards, participation in a panel discussion titled, "Chemical Engineering as a Launch Platform for Diverse Careers," and dinner rounded out the evening's activities.

Meeting with the big fish

"Networking is a skill that everyone, especially chemical engineers, should learn and use to achieve career success," said Rob Reintjes, Ichthyologist "Kingfish" (Boston Section chair). Andy Irwin, Ichthyologist "Mackerel" (Boston Section vice chair and interim program chair) encouraged group networking before dinner. With designated areas for students from each university, the alumni were directed to connect with students from their own alma mater.

Chemical engineering students from the following universities attended the meeting: Brown University; University of Connecticut; Yale University; University of Rhode Island; Worcester Polytechnic Institute; University of Massachusetts at Amherst; University of Massachusetts at Lowell; Northeastern University; Tufts University; Massachusetts Institute of Technology; University of New Hampshire; and the University of Maine.

During dinner, assigned seating mixed up the crowd so professionals and students from different schools were interspersed. Reintjes circulated among the tables coaching the professionals and the students on ways to seek common ground during conversation.

Recommended topics gave the participants a chance to talk about themselves. Professionals outlined personal career paths, while students discussed activities outside university studies. This facilitated-networking technique made it easier for professionals and students to connect and revealed common interests among the participants.

Swimming into new territories

The "Diverse Careers" panel, comprised of two entrepreneurs, an attorney, a process development manager and a business manager, shared how panelists'

opportunities that are not widely known."

"The meeting was superb," said Christos Georgakis, professor and chair, Dept. of Chemical and Biological Engineering and director, Systems Research Institute for Chemical and Biological Processes, Tufts University. "The Boston Section assembled a very qualified, diverse and enthusiastic group of speakers that attracted a record number of attendees, both students and professionals. While my department had 16 undergraduate student participants, the second largest school participation, I feel sorry that not all of our undergraduates

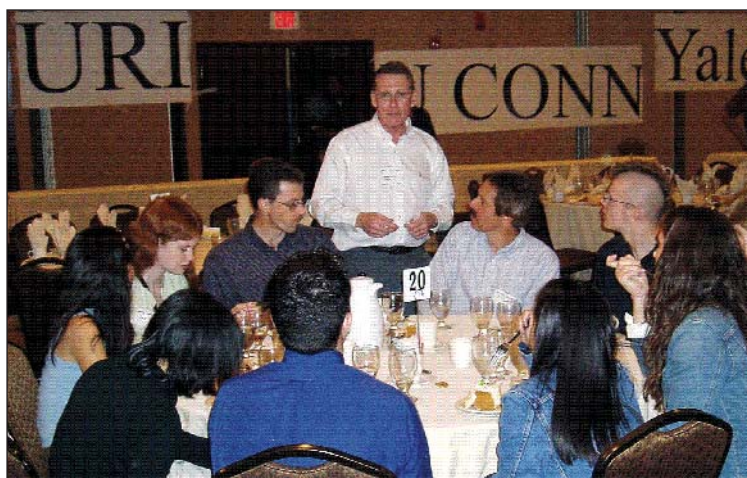
were not there as the information that the meeting provided for their career choices was so informative and helpful."

Irwin noted, "most importantly, those attending may have met their future employer or the person who will recommend them to a friend in the course of finding that dream job, or they might have just made some new friends. That is how we

measure our success."

Reintjes added, "Social networking as a basis for creating strong business connections is something the 14 founding fathers, including Arthur D. Little, recognized back in 1931 when the Ichthyologists were founded. Our section has had a rich heritage that has been building for over 70 years, but in recent years, meeting attendance had fallen off. We are now in the process of revitalizing the Ichthyologists. Last season, for example, we more than doubled the monthly meeting attendance. This year, we are in the process of tripling member volunteer participation, while increasing the level of networking available for our members."

Next month, in the Dec. issue of *Extra*, The Ichthyologists will share with other local sections the methods they found effective in doubling meeting attendance, as well as their plans to triple member volunteer participation.



chemical engineering degrees helped prepare them for a wide variety of exciting careers. (See www.aiche-boston.org for bios of panel members, as well as a brief history of the Ichthyologists and a listing of the "Offishers" who worked as a team to make this meeting a success).

The Local Section's focus on connecting people continued even after the meeting. Business cards collected at the meeting were scanned into a database and later emailed to all attendees. This allowed people to leverage the networking connections they made by reaching out to more attendees at a later time.

AIChE Local Sections Committee Vice Chair Steve Horstkamp, who attended the meeting, said "The students and professionals are excited about this meeting format. There are numerous opportunities outside traditional chemical engineering roles that students may not yet know about. This meeting provides the students formal and informal presentations about career

Honoring the Achievements of Innovators

Bigger isn't always better. In the semiconductor world, it's the exact opposite — the smaller the better. Scientists and engineers work fervently to push the envelope when it comes to miniaturizing electronics. The result, smaller cell phones, more-compact computers and numerous other shrinking creations.

Highlighting the first annual Innovation Day at the Chemical Heritage Foundation were two award ceremonies. One that honored a lifetime of achievement — the Perkin Medal, and the other the achievement of a lifetime — the newly established Gordon E. Moore award. The awards, given by the Society of Chemical Industry (SCI) America Section, were presented to two great innovators in the semiconductor industry.

The prestigious Perkin Medal was bestowed upon Gordon E. Moore for his many contributions to chemistry and chemical engineering. Moore, one of the fathers of the semiconductor industry, is probably best known for his prediction that the number of transistors on chips would double every two years. Today, the



From left to right: Raj Gupta, chairman of SCI America Section, George Barclay, recipient of the Gordon E. Moore Award, and Gordon E. Moore, recipient of the Perkin Medal. Photo courtesy of Douglas A. Lockard Photography.

number transistors on chips ranges in the hundreds of millions. The next generation is expected to have 1.7 billion transistors on a single chip.

The premiere Gordon E. Moore award went to George Barclay, R&D manager for materials innovation at Rohm & Haas. He was honored for his work in developing terpolymers, which are used to make deep-ultraviolet photoresists. These materials make up more than 40% of the \$300+ million deep-UV photoresist market. "The principal driver for the development of terpolymer technology was surprisingly — Moore's Law," said Barclay in his acceptance speech. "That is, de-

veloping photoresist systems to meet the requirement of imaging smaller and smaller features throughout the semiconductor device, from the critical polysilicon gate layer to the various metal interconnects," he continued. "At present we are imaging sub-100 nm features using 248 lithography. To put this in perspective, 100 nm is roughly a 1/10 of the size of a human chromosome."

Members Win Awards for Contributions to Drying Research and Polymer Extrusion

Emeritus member George D. Saravacos is the 2004 recipient of the Excellence in Drying Research Award, presented at the biennial International Drying Symposium IDS 2004 in Sao Paulo, Brazil, on August 24. Sponsored by Procter and Gamble, the award recognizes Saravacos' outstanding career in drying technology, and includes a \$2,000 award.

Saravacos is emeritus professor, School of Chemical Engineering, National Technical

University (NTUA), Athens, Greece and Rutgers University, New Jersey. He has published four food engineering books and over 120 papers in technical journals and international conferences. His research contributions include: mechanism of food dehydration, transport properties of foods, design of food processes and processing equipment.

Earlier this year, John Vlachopoulos, professor of chemical engineering at McMaster University in Hamilton, Ontario,

Canada, received the Distinguished Achievement Award of the Extrusion Division of the Society of Plastics Engineers (SPE). A plaque and an honorarium were given to Vlachopoulos in recognition of his contributions to polymer extrusion technology and to the plastics industry.

Vlachopoulos is also the director of the Centre for Advanced Polymer Processing and Design (CAPPA-D) at McMaster and is the president of Polydynamics, Inc.

OBITUARIES

Houston R. Baker, 96, Ann Arbor, MI

William J. Baral*, 84, Long Beach, CA

Joseph W. Bozzelli, 62, Newark, NJ

Hermينو Brau, 82, San Juan, PR

Ju C. Chu*, 85, Irvine, CA

Allison S. Hope, 42, Mesa, AZ

John Palm*, 77, Tulsa, OK

James C. Newbold, 29, Midland, MI

Verne H. Schnebel, 92, Oak Park, IL

Herbert L. Watts, 75, Houston, TX

Clair C. Wilson, 86, Tulsa, OK

* Fellow member

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