

# Institute News

## Meet Some of AIChE's New Fellows

**A** IChE Fellow candidates are nominated by their peers, and must have significant chemical engineering practice (generally 25 years) and have 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 2013. More will be introduced in future issues of *CEP*.



**Georges Belfort** is Institute Professor of Chemical and Biological Engineering at Rensselaer Polytechnic Institute (Troy, NY). He has made seminal contributions in chemical molecular engineering, bioseparations engineering and science, and synthetic membrane technology that

have been described in 200 journal papers and more than 20 books. He is a member of the National Academy of Engineering, a recipient of AIChE's Gerhold Award for Separations, and is on the Managing Board of AIChE's Society for Biological Engineering. He also serves on the scientific advisory boards at Intermolecular, Inc., and the Max Planck Institute. He is a co-founder of the North American Membrane Society.



**Manuk Colakyan** is Chief Science Officer at Renmatix (King of Prussia, PA). He has more than 25 years of industrial experience with companies that include Union Carbide, where he led the solids-processing and reaction-engineering groups, and Dow Chemical, where he was a resident Fellow

and technical leader. His areas of expertise include reaction engineering, catalysis, solids processing, process development and scale-up, fluidization, mathematical modeling, and computational fluid dynamics. He has led projects involving the commercialization of new catalysts, catalytic processes, and processes involving solids. He has served as program chair for AIChE's Particle Technology Forum.



**Charles Stuart Daw** is the UT-Battelle Corporate Fellow at Oak Ridge National Laboratory. He has made numerous technical contributions in the fields of coal conversion, fluidization, reaction engineering, combustion, and engineering applications of nonlinear dynamics. He

holds 15 patents and has published more than 200 papers. A 40-year member of AIChE, he is active in the Particle Technology Forum and is a director of the Knoxville-Oak Ridge Section. He is an adjunct faculty member at the Univ. of Tennessee, and has promoted interdisciplinary

collaboration among chemical engineers and mechanical engineers, combustion scientists, physicists, and automotive engineers.



**Isaac K. Gamwo, P.E.**, is a senior research engineer at the U.S. Dept. of Energy's National Energy Technology Laboratory (Pittsburgh, PA), where he formed the Extreme Drilling Modeling research group. He was previously on the

faculties of the Univ. of Akron and Tuskegee Univ. His research interests are in fossil engineering and include reactive multiphase fluid dynamics, chemical looping combustion processes, and reservoir modeling. He is the principal inventor of a novel process to predict optimum particle sizes using computational fluid dynamics. He is a leader of AIChE's Societal Impact Operating Council and the Separations Div.



**Karen K. Gleason** is the Alexander and I. Michael Kasser Professor of Chemical Engineering at the Massachusetts Institute of Technology. Her research focuses on the near-room-temperature synthesis of ultrathin, conformal organic films by chemical vapor deposition (CVD). She

has written more than 250 publications and holds 17 issued U.S. patents for CVD polymers and their applications in optoelectronic, sensing, microfluidic, energy storage, and biomedical devices, as well as for the surface modification of membranes. She is a co-founder of GVD Corp. (Greenville, SC), which has successfully scaled up and commercialized technology invented in her MIT lab.



**Sohail Murad** is Professor and Chemical Engineering Dept. Head at the Univ. of Illinois at Chicago, where he joined the faculty in 1979. His research focuses on alternative energy and its efficient utilization, computational molecular modeling of fluids on membrane surfaces

and pores, and on heat and mass flows in nanosystems. He has served as a Research Fellow at the U.S. Army's

Ballistics Research Laboratory, and has written more than 100 research publications. His service on editorial advisory boards includes the journals *Computer Applications in Engineering Education*, *Scientific Journals International*, and *Research Letters in Chemical Engineering*.



**Timothy R. Nolen** is Engineering Leader and Technology Fellow at Eastman Chemical Co. (Kingsport, TN), where his work focuses on process research and design as a process modeler, research engineer, and group leader. At Eastman, he has contributed to six new process technology

inventions and commercialization projects. He also leads Eastman's Technology Council and serves on the steering committee of the Eastman Chemical Center of Excellence at North Carolina State Univ. He is a longtime leader of AIChE's East Tennessee Section, and is a recipient of AIChE's Shining Star Award. He holds four U.S. patents.



**James A. Ritter** is the L. M. Weisiger Professor of Engineering and a Carolina Distinguished Professor at the Univ. of South Carolina. He has written more than 142 journal articles and holds two U.S. patents in the areas of cyclic adsorption processes for gas separation and purification,

hydrogen storage processes and materials, and magnetic field-enhanced processes for separations and targeted drug delivery. He has consulted for numerous organizations, and has served on the editorial boards of *Separation Science and Technology*, *Journal of the International Adsorption Society*, *Recent Patents in Chemical Engineering*, and *Industrial and Engineering Chemistry Research*.



**Joseph E. L. Rogers** has extensive technology and management expertise in the petrochemical, catalyst, biotechnology, equipment, water treatment, and environmental industries. He has led organizations engaged in developing and commercializing new technologies

covering venture-capital-backed startups (recycling and water treatment) as well as established companies operating internationally (chemical process licensing, catalyst development, and biotechnology equipment manufacture). He is Operations Manager for AIChE's Design Institute for Physical Properties (DIPPR), and was instrumental in establishing the Sustainable Engineering Forum. He also

championed a government-industry initiative to promote energy efficiency in the chemical process industry sponsored by AIChE and DOE/ITP.



**Jerome S. Schultz** is Distinguished Professor of Bioengineering at the Univ. of California, Riverside, where he founded the Bioengineering Dept. He enjoys an international reputation for his research in the areas of biosensors and synthetic membranes. He previously chaired the

chemical engineering department at the Univ. of Michigan, and later established the Bioengineering Dept. and Center for Bioengineering and Biotechnology at the Univ. of Pittsburgh to offer programs in bioprocessing, biosensors, bioartificial organs, and gene therapy. He is a member of the National Academy of Engineering and served for more than 20 years as Editor-in-Chief of AIChE's *Biotechnology Progress* journal.



**Terry A. Todd** is a laboratory Fellow in the Fuel Cycle Science and Technology Div. at Idaho National Laboratory, where he directs research and development of advanced technologies for spent nuclear fuel recycling and other chemical separation applications. He is also the Technical

Director of the U.S. Dept. of Energy's Fuel Cycle Research and Development Separations and Waste Form program. He has published more than 175 journal articles, reports, and conference proceedings, and has been awarded 23 U.S. patents and six Russian patents. He serves on the editorial board for the journal *Solvent Extraction and Ion Exchange*.



**Joseph A. Yurko, P.E.**, is Senior Project Engineer and Subject Matter Expert at Boehringer Ingelheim's Ben Venue Laboratories (Bedford, OH), where he performs process engineering, procurement, construction, and commissioning of new installations, as well as system modifica-

tions in four factories with sterile-fill product lines. Products formulated at these facilities are parenterals or vials containing active pharmaceutical ingredients for sterile subcutaneous injection in humans. Previously, he spent 20 years at URS Corp. (Cleveland, OH), where he supervised process engineering on beverage, biotechnology, chemical, petroleum, pharmaceutical, and semiconductor projects. He is a leader of AIChE's Cleveland Section.

### WISE ChE Interns Investigate Public Policy

Three chemical engineering students devoted the summer to exploring the interface between engineering and public policy, after AIChE selected them as 2013 WISE (Washington Internships for Science and Engineering) interns.

Andrew Crothers (North Carolina State Univ.), Christina DeLago (Stevens Institute of Technology), and Nicholas Kusanto (Oregon State Univ.) spent two months in Washington, DC, broadening their perspectives on how engineers impact society. As part of the program, the students prepared and delivered papers on public policy topics based on what they learned in their intern roles.

Crother's paper, "Navigating Natural Gas Exports," dealt with the policies and implications of the recent natural gas boom on energy markets and U.S. energy producers. DeLago's paper, "Race to 2015: The Completion of the Millennium Development Water, Sanitation, and Hygiene Goal," discussed the United Nations' efforts to avert worldwide clean water crises. Kusanto's research, entitled "Sustainable Water Infrastructure: Water Management and Reuse," examined U.S. policies on sustainable water consumption.

The WISE interns, along with interns sponsored by ASME, IEEE, and other organizations, presented their work on July 31 on Capitol Hill. Their research papers are published online in the Sept. 2013 edition of the *WISE Journal of Engineering and Public Policy*, available at [www.wise-intern.org/journal](http://www.wise-intern.org/journal). The interns are also scheduled to present their papers at an undergraduate research forum on Nov. 4, 2013, at AIChE's Annual Meeting and Student Conference in San Francisco, CA.

Now in its thirtieth year, the WISE program selects undergraduate engineering students to conduct research on public policy issues in Washington, DC. The students learn

about the interactions between the engineering community and the government and see how engineers can contribute to decision-making on complex technological matters.

Because AIChE does not maintain a Washington, DC, office, the American Chemical Society provided office space and facilities for AIChE's interns.

Applications for the 2014 WISE program are now being accepted. The deadline for applications is Dec. 31, 2013. For details, visit [www.aiche.org/ifs/community/overview/students/washington-internships-students-engineering-wise](http://www.aiche.org/ifs/community/overview/students/washington-internships-students-engineering-wise).

### DEBENEDETTI SELECTED AS 65TH INSTITUTE LECTURER

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., has been named AIChE's 65th Institute Lecturer. Debenedetti will present his lecture, "Theory and Computation in Modern Chemical Engineering: A Thermodynamicist's Perspective," on Wednesday, Nov. 6, 2013, at 11:15 am, during the 2013 AIChE Annual Meeting in San Francisco, CA.



Debenedetti's work has advanced the understanding of the relationship between the molecular structure and the physical properties of fluids and amorphous solids. His research into the properties of proteins in low-water environments has led to advances in the use of proteins in pharmaceutical applications, both through increasing proteins' stability as well as improving the delivery of small particles of proteins through the upper respiratory tract.

Debenedetti is the recipient of numerous awards and recognitions. Recent honors include the John M. Prausnitz Award in Applied Chemical Thermodynamics and the American Chemical Society's Joel Henry Hildebrand Award in the Theoretical and Experimental Chemistry of Liquids. He received the Distinguished Teacher Award from Princeton's School of Engineering, and the President's Award for Distinguished Teaching — Princeton's highest distinction for teaching. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences, and a Fellow of the American Association for the Advancement of Science. He is also a Fellow of AIChE, and has received the Institute's Professional Progress and William H. Walker awards.



▲ Rose Wesson (left) of AIChE's Board of Directors and the National Science Foundation leads AIChE's WISE effort. She helped to mentor this year's AIChE WISE interns: Andrew Crothers, North Carolina State Univ. (center, back); Nicholas Kusanto, Oregon State Univ. (right); and Christina DeLago, Stevens Institute of Technology (center, front). Photo by Erica Wissolik.



## AIChE Foundation Sets Policy for Endowments and Bequests

To accommodate the wishes of donors who want to see their long-term financial support of AIChE used for specific projects and philanthropic endeavors, the Institute's Board of Directors has approved a new AIChE Foundation policy pertaining to endowments and bequests. The policy formalizes several categories of support under the endowment designation — one of several types of contributions that AIChE accepts from benefactors.

Endowment gifts will now be assigned to one of two categories:

- *permanently restricted funds* — donations of at least \$2,000 will be reserved for long-term Institute needs, as recommended by the AIChE Foundation's Board of Trustees and approved by the Board of Directors

- *permanently restricted donor-designated funds* — gifts of \$50,000 or more can be dedicated by the donor to be used exclusively to support programs of the donor's choice.

Thus, the new policy helps to identify a donor's intentions when he or she makes a bequest or planned gift to AIChE.

Previously, all gifts to the Foundation were assigned to a general fund to sustain critical programs that support the Institute's ability to serve members and the profession at large.

Key objectives supported by Foundation funding include:

- *developing future leaders* — through projects such as the Leadership Challenge, which cultivates young professionals as future leaders

of the Institute and the profession

- *support for Grand Challenges* — through the Center for Energy Initiatives, International Society for Water Solutions, and the BioCatalyst Fund

- *outreach to underrepresented communities* — such as international students and science, engineering, technology, and math (STEM) programs

- *support for virtual-technology advancement* — including AIChE's Global Training Center, eLearning Center, and ChEnected.org

- *improving undergraduate curricula.*

Donations of any amount can be made to the AIChE Foundation. Information about the Foundation and its activities is available at [www.aiche.org/community/giving](http://www.aiche.org/community/giving).

## LEGACY SOCIETY HONORS JOHN TAO

The AIChE Foundation's Legacy Society recognizes the foresight and generosity of people who have given special gifts, endowments, and other forms of long-term financial support to the Institute.

One recent Legacy Society inductee is John C. Tao, President of O-Innovation Advisors LLC (Allentown, PA). Tao, an AIChE Fellow and a recent Institute director, has named AIChE as a beneficiary of his charitable trust. This gift will provide funding for programs that will help AIChE to support the educational and professional enrichment of chemical engineers for years to come.

Tao, a former vice president of open innovation at Weyerhaeuser, says that soon after he retired from industry and established his consulting practice, he realized that his chemical engineering training — “the unique combination of technical know-how and management experience” — was his most valuable asset. As a consultant, he was reminded of the immense impact AIChE has had on his career, and he decided it was “time to give back.”

By naming AIChE as a beneficiary of the trust he and his wife, Rose, established, Tao hopes that the gift can leave a lasting legacy for the Institute. He adds, “I would like to see more young professionals stay involved with the Institute as they move up the management ladder in their careers.”

Through bequest provisions, life-income gifts, or other deferred giving arrangements that name AIChE a beneficiary of an estate plan, Legacy Society members achieve their own financial goals while providing enduring support for the Institute. Learn more about the Legacy Society at [www.legacy.vg/aiche/giving/2.html](http://www.legacy.vg/aiche/giving/2.html).



## AIChE Election Ballots Due Sept. 16

The July issue of *CEP* featured position statements of president-elect, treasurer, and director candidates for the 2014 AIChE Board. This information is available on the web at [www.aiche.org/election](http://www.aiche.org/election). Paper ballots were mailed on July 29 to all Fellows, Senior Members, and Members. Members may cast only one vote, and may choose to vote either by paper ballot or by electronic proxy.\*

To use the electronic submission option, visit <http://aiche.societyelection.com>. Your AIChE membership number will serve as your personal identification number. The same rigorous standards guarding your privacy will be applied to both paper ballots and electronic proxies. All paper ballots and electronic proxies must be received by Sept. 16, 2013.

Election results will be announced at AIChE's Annual Meeting in San Francisco, CA, and in the November issue of *CEP*. If you have questions, contact [election@aiche.org](mailto:election@aiche.org).

*\*Electronic Proxy Ballot: Under New York law, a member can vote a proxy by electronic means. A proxy is a limited power of attorney affirmatively given to another person or persons to act in his or her stead. You will authorize President Westmoreland and Secretary Seymour to vote on your behalf for the indicated candidates.*

### AIChE Gala will Spotlight Engineering Ethics, Nov. 21 in New York City

The issue of ethics as a critical catalyst for engineering excellence will be the focus when leaders from AIChE and from companies in the chemical process and related industries join together at the Institute's 2013 Gala, to be held Thursday, Nov. 21, at The Plaza Hotel in New York, NY. This year's fundraising event will build awareness for the essential position of ethics in engineering education and real-world practice. Funds raised through the Gala will underwrite the continued expansion of ethical awareness and training in chemical engineering undergraduate education and lifelong learning.

Among the event's highlights, the Gala will honor David M. Cote, Chairman and CEO of Honeywell; David T. Seaton, Chairman and CEO of Fluor; and Stephen F. Angel, Chairman, President, and CEO of Praxair. These corporate leaders will be recognized for exemplifying a personal commitment to ethics in their companies and business practices.

The Gala will be chaired by Raj L. Gupta, Chairman of Avantor Performance Materials and Senior Advisor

at New Mountain Capital. He will be assisted by Gala Co-Chairs S. Shariq Yosufzai, Vice President for Global Diversity, Ombuds, and University Affairs at Chevron; and John Televantos, Partner at Arsenal Capital Partners.

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 fundraising Gala, held Nov. 28, 2012, in New York City, was attended by more than 250 people and 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.

For more information about the 2013 AIChE Gala, visit [www.aiche.org/gala](http://www.aiche.org/gala).

### Society for Water Solutions Takes Up Clean Water Challenge

AIChE's International Society for Water Solutions (ISWS; [www.aiche.org/isws](http://www.aiche.org/isws)) is collaborating with the Peking Univ. Water Center (PUWC) and New York Institute of Technology (NYIT) on a joint U.S.-China EcoPartnership to promote innovative models for collaboration on clean water and environmental sustainability.

Led by PUWC and NYIT, the program, "EcoPartnership on Groundwater Monitoring, Protection, and Training," will address severe groundwater shortages and contamination at select sites in China, as well as strengthen collaborations between the two universities as part of a team that also includes Wuhan Univ. (China), the ISWS, and HDR|HydroQual, a U.S.-based industrial partner.

Three innovative technologies are being developed as part of the EcoPartnership for the effective detection, protection, and monitoring of groundwater resources:

- an integrated web-based groundwater tool that will combine data from various water table sources for use by local communities in arid regions of China to identify locations where groundwater is most abundant, developed by NYIT in collaboration with Wuhan Univ.
- a remote telemetry framework to collect and analyze

groundwater data from existing or newly developed wells, by HDR|HydroQual

- a groundwater-transport simulation system, by Peking Univ.'s Center for Water Research.

AIChE and the International Society for Water Solutions will offer expertise on cutting-edge water technologies. Danny Reible, chair of the ISWS, says that "AIChE's role in disseminating educational resources to solve these issues will help to ensure the use of best practices and innovative technologies in addressing the water availability problems that all countries are facing."

Project sites identified by the EcoPartners include a location in Gansu province near the Gobi desert, and another site in a more-developed urban area in Beijing, which is experiencing severe water shortages due to the rapid increase in water demand and a prolonged drought that started in the late 1990s.

AIChE signed a letter of intent to work with Peking Univ. Water Center and New York Institute of Technology at a July 11 signing ceremony held at the U.S. Dept. of State in Washington, DC. The EcoPartnership project will run from September 2013 through August 2015.

## AIChE Journal Launches Founders Tribute Series

The late Neal R. Amundson — one of chemical engineering's most influential figures — has been selected by the editors of *AIChE Journal* as the inaugural subject of the publication's Founders Tribute Series. The Amundson tribute — consisting of a career retrospective and new research by some of Amundson's former colleagues, students, and other academic offspring, appears in the Sept. 2013 issue of the *Journal* (see related article on pp. 14–15). More Founders Tribute honorees will appear in future issues of *AIChE Journal*.

According to Mike Harold, Editor-in-Chief of *AIChE Journal*, AIChE's Board of Directors recently granted permission for the *Journal* to publish articles and issues that honor distinguished chemical engineers for their contributions to the profession. "We selected Professor Amundson, 'The Chief,' as the inaugural subject of a Founders Tribute to acknowledge the indelible mark he made on the field of chemical engineering," says Harold.

In a retrospective article about Amundson and his legacy, Doraiswamy Ramkrishna of Purdue Univ. writes that Amundson was "responsible for an academic movement that raised the intellectual level of the chemical engineering profession" and "fostered a culture of strongly scientific thinking with a mathematical edifice." He adds, "The growth of chemical engineering science owes most significantly to Amundson's extraordinary role as an educator, department head, and leader, and to the lasting impact of his contributions to chemical engineering research and practice."

A Minnesota native, Amundson (1916–2011) was educated at the Univ. of Minnesota, earning a BSChE (1937), MSChE (1941), and PhD in mathematics (1945). He went on to chair Minnesota's chemical engineering department for 25 years. In the 1970s, he joined the Univ. of Houston and helped to raise its chemical engineering department's stature.

His research contributions spanned a wide range of topics, including modeling and analysis of chemical reactors, separation systems, polymerization, and coal combustion.

In addition to his pioneering impact on chemical engineering education and teaching, Amundson became an intellectual leader of the chemical engineering community. He chaired the National Research Council committee that wrote the 1988 report *Frontiers in Chemical Engineering*, which articulated the state of the chemical engineering profession in transition.

More Founders Tribute honorees are being selected by the *Journal*'s editorial board. "We look forward to helping to honor the greats of our profession in the Founders Tribute series, which will appear annually in the *AIChE Journal*," says Harold.

The *Journal*'s Amundson tribute issue is available for free at [www.aiche.org/publications/journals/aiche-journal](http://www.aiche.org/publications/journals/aiche-journal).



### Walter Walawender, AIChE Fellow

**W**alter P. Walawender, Jr., an AIChE Fellow and Professor of Chemical Engineering at Kanas State Univ. (KSU), died on July 7, 2013, in Manhattan, KS. He was 71.

Upon earning his PhD in chemical engineering at Syracuse Univ., Walawender joined the KSU faculty in 1969, and in 1981 was appointed to Professor, a position he held until his retirement in 2011. He served for more than 25 years as KSU's AIChE Student Chapter advisor, winning AIChE's Outstanding Advisor Award and leading KSU to more than 20 Outstanding Chapter Awards. He also chaired AIChE's Student Chapters Committee and was the longtime Scholarship Subcommittee chair. As a treasurer of Omega Chi Epsilon, the chemical engineering honor society, he arranged funding for AIChE's National Student Design Competition and other student awards.

Walawender loved the connections he had with KSU, as a teacher, an AIChE mentor, and a Wildcat fan. He also enjoyed cycling, fishing, and pets. He is survived by his wife of 48 years, Paula, five children, and eight grandchildren.

### In Memoriam

**Theodore D. Baba\***, 89, Hillsdale, NJ

**F. F. Birch**, 86, Houston, TX

**William H. Burke**, 93, Houston, TX

**Melvin E. Clark**, 96, Boulder, CO

**Robert K. Finn**, 92, Ithaca, NY

**John Nasser**, 87, New Canaan, CT

**Vasanta Lakshmi Pallem**, 34, Manhattan, KS

**Robert W. Roberts\***, 89, Akron, OH

**Robert N. Secord**, 91, Middletown Springs, VT

**Alexander E. Velikoff**, 55, Findlay, OH

**Robert B. Walker**, 86, Des Moines, IA

\*AIChE Fellow