

## AIChE Members Say "YES"

by John C. Chen, AIChE Secretary

Overwhelmingly the answer is YES. AIChE's YES (Your Engineering Society) Constitutional Amendment initiative, launched at a public forum at the Institute's Annual Meeting in Indianapolis last November, successfully concluded on January 15 when the Tellers' Committee met and verified the balloting results. All five amendments to AIChE's governing Constitution were approved by a clear majority, easily surpassing the minimum required 75% approval rate. The Tellers' Report is provided below.

All of the adopted amendments keep AIChE responsive to members and current with the times. The addition of an option for electronic balloting anticipates the time when New York State Law will enable us to complement paper ballots with the more efficient electronic ballots. Changing the title of Vice President to President-Elect is a much better reflection of that job function and will facilitate the effective interaction of the president-elect with AIChE's sister societies and potential sponsors.

The update of the Tellers' duties, essentially a "housekeeping" amendment, documents the procedure that has been in place for over 10 years. Moving the requirement for the Executive Director to be a Member or Fellow from the Constitution



to the Bylaws will provide the Board of Directors greater flexibility, while still retaining it's charge to hire the candidate

who best fits the Institute's goals, needs, and mission. It's a step other technical societies, including AIAA, ACS, APS, ASCE, and IEEE, have already adopted.

The adopted amendment that could have the greatest potential impact on the direction of the Institute is the change in membership grades. In response to the recommendations of an AIChE Task Force, the changes seek to make our Institute more inclusive. Recognizing the wider horizons of modern chemical engineering, we now welcome into membership the professionals who serve in such new fields as life sciences, information technology, and sustainability, as well as in the traditional chemical process fields.

I would like to take this opportunity to thank all those who took part in this election. My appreciation goes to the members of the Constitution and Bylaws Committee who, after a year of research, benchmarking, and discussion, developed and pro-

posed these amendments for Board review. This committee includes volunteer leaders Sandra Dudley, Kathy Fullerton, Jim Hill, and Otis Shelton. I would also like to thank the Institute staff members, particularly Fiona Brennan, who efficiently managed all the details of the lengthy amendment process.

Finally, a word of appreciation to the 8,392 members who took the time to consider the proposed amendments and to vote. And, of course, congratulations to Bryan Ball of Somerset, NJ, our lucky winner of a laptop computer in the raffle drawing for all who returned ballots on these amendments.

Those of you who would like to review the amended Constitution in its entirety are invited to visit <http://www.aiche.org/about/constitution.htm>. If you have any questions or comments on our new initiatives, you are welcome to contact me at [constitution@aiche.org](mailto:constitution@aiche.org).

### Seeking "Green" Students

The Green Chemistry and Engineering Conference Organizing Committee extends a special invitation to chemical engineering students to attend the **7th Annual Green Chemistry and Engineering Conference** from **June 23-26, 2003**, at the National Academies in Washington, DC. The conference will include paper and poster presentations on the development of less hazardous and more efficient chemical products and processes, and lectures and panel discussions on environmental sustainability, industrial safety, and national security, and how these concerns are driving the chemical industries towards greener solutions. Advanced registration is only \$135 for students, and scholarships to offset travel and registration costs are available from the National Science Foundation. Please contact Mary Kirchhoff at [m\\_kirchhoff@acs.org](mailto:m_kirchhoff@acs.org) for details on the scholarships. For more information, go to [http://es.epa.gov/ncer/events/calendar/2003/june23/7th\\_green\\_chem.pdf](http://es.epa.gov/ncer/events/calendar/2003/june23/7th_green_chem.pdf).

### Report of the Tellers

January 15, 2003

The Tellers have examined the votes for AIChE's Constitutional Amendments and declare the following to be the results of the balloting procedure.

Amendment	Yes Vote	Total Votes	Percent in Favor
1. Change Title of VP to President-Elect	7,828	8,352	93.7%
2. Move to Bylaws: Executive Director as Member	7,459	8,290	90.0%
3. Permit Electronic Balloting	8,069	8,361	96.5%
4. Modernize Description of Tellers' Duty	8,151	8,308	98.1%
5. Modify Membership Grades	7,531	8,292	90.8%

## Chemistry Made FUN: AIChE Helps Guide "Active Chemistry" Curricula

Currently, only 60% of American high school students take a chemistry course. While up from a 35% participation level in 1982—according to the U.S. Department of Education National Center for Education Statistics—it is far less than the 99% who take biology. But, as more states and districts mandate a full three years of science for all students, access to a chemistry curricula designed for everyone—not just those planning to attend college—becomes more and more critical.

AIChE has taken a lead role in meeting that need through its work on *Active Chemistry*, a one-year, print-based secondary chemistry curriculum designed to help all students learn the chemistry needed to solve real-world problems. The initiative is one of the first projects of the newly established Center for Social Stewardship and Education, a branch of AIChE's Institute for Sustainability (see related story on page 92). AIChE 2003 President Dianne Dorland serves on the project advisory board.

Designed after the National Science Foundation-supported *Active Physics* curriculum, and following guidelines established by

the National Science Education Standards, *Active Chemistry* is currently in the hands of four writing teams, each consisting of three members. Teams are led by a university chemistry educator, who ensures that content reflects current research, is sensitive to equity, gender, and safety issues, and is educationally sound. The other two team members are a high school chemistry teacher, to ensure that the material is age- and developmentally-appropriate, and a chemical engineer—such as AIChE Fellow L-S Fan, principal author of a section on sustainability—to assure content accuracy and real-world connections.

"This project will create a comprehensive curriculum with an emphasis on active learning of chemical principles," said John Sofranko, AIChE's executive director. "Chemical engineering, in itself, is a discipline that is an implementation of active chemistry, and we are excited to contribute the expertise of our members to enhance the education of high school students in science, math, and technology. I am confident that our collaboration has the necessary resources, contacts, and expertise to develop and implement a very successful program."

The completed text will be 12 chapters long, each containing 4 modules. Eight to ten chapters can comfortably be completed within a school year, allowing for course flexibility. The project timeline calls for commercial release by Spring 2006, after three years of pilot and field testing, revisions, and teacher training.

It's About Time, publisher of *Active Physics*, has created five prototype chapters for *Active Chemistry*, and is currently pilot testing them around the country. Each chapter begins with a scenario and challenge. For example, in the chapter called "Movie Special Effects," students must design a film special effect, and then work with their teacher to determine how they will assess their projects. The four other prototype chapters being piloted cover: designing a sports beverage, developing a game that uses the periodic table, designing an economical and environmentally-safe road deicer, and performing and explaining a cool chemistry trick, involving production of gases, color, solutions, indicators, thermodynamics, equilibrium, or chemical reactions.

### 2003 Student Regional Conferences

AIChE 2003 Student Regional Conferences begin this month in Melbourne, Florida. Dates and host chapters appear below. For more information, go to <http://www.aiche.org/students/regionalconference/regionals03.htm#2002>.

**Mid-America:** April 4-6, 2003

University of Kansas, Lawrence

**Mid-Atlantic:** March 28-30, 2003,

Villanova University, Villanova, PA

**North Central:** April 3-5, 2003

Michigan Technological University, Houghton

**Northeast:** April 26, 2003

University of Maine, Orono

**Pacific Northwest:** April 25-27, 2003

University of British Columbia, Vancouver, BC, Canada

**Rocky Mountain:** April 4-6, 2003

University of Arizona, Tucson

**Southern:** March 6-8, 2003

Florida Institute of Technology, Melbourne

**Southwest:** April 4-6, 2003

Lamar University, Beaumont, TX

**Western:** March 28-29, 2003

University of California, Riverside

### "Model Behavior" Honored in Indy

The "Great Lake Regressors," a team of researchers from the University of Minnesota, University of Notre Dame, Wayne State University, and SUNY Buffalo, were cited for special recognition in the First Industrial Fluids

Properties Simulation Challenge, held during the 2002 Annual Meeting in Indianapolis. The "Regressors" were the only group able to attempt to predict both equilibrium and transport properties using the same approach, and were successful in predicting vapor liquid equilibria for mixed systems without fitting to experimental data for pure components.

Huai Sun from Aeon Technology in San Diego took the prize in the density prediction section, and Marcus Martin and Aidan Thompson from Sandia National Laboratory in viscosity prediction for n-nonane/isopropanol mixtures. Andreas Klamt from COSMOLogic GmbH was honored for the most accurate prediction of vapor liquid equilibria for mixtures of dimethyl ether/propylene, and of nitroethane/propylene glycol.



Klamt (L) receives VLE award from Chaka.

Sponsored by AIChE's Computational Molecular Science and Engineering Forum, the competition asked entrants to predict densities, viscosities, and vapor liquid equilibria for a specified set of industrially-relevant organic fluids and mixtures. For comparison,

these properties were also evaluated experimentally by teams at Dow Chemical and the National Institute of Standards and Technology (NIST).

The organizing committee—Raymond D. Mountain (chair), Anne Chaka, Russell Johnson, and Daniel Friend of NIST; Joseph Golab, BP Chemicals; Dave Frurip and Joey Storer of The Dow Chemical Company; Fiona Case of Colgate-Palmolive; and Martin Schiller of DuPont—felt that it was successful in assessing current capabilities and promoting the development of industrially-relevant simulation techniques. The second "Challenge," utilizing different properties and materials, will run 2003-2004, with results announced at the 2004 AIChE Annual Meeting in Austin, TX.

## "With Mallets Aforethought": ChemE of Note Strikes Chord for Artful Science Education

In January, denizens of New York's Greenwich Village learned a lesson in hip (and physics) when Iowa State chemical engineering professor and musician Kenneth Jolls brought his jazz combo to the Cornelia Street Café for "Good Vibrations." A performance/lecture, the program featured the music of the vibraphone and the engineering behind it.

The show was part of the series, "Entertaining Science," curated by Cornell University Nobel Laureate chemist and poet Roald Hoffmann. The series showcases the relationship between art and science, an idea perfectly in tune with Ken Jolls's approach to teaching.

As a young thermodynamics professor, Jolls found himself trying to teach an "impossibly difficult" subject using equations, rules and formulas that did not help students get the whole picture. He needed a new way to help students look at things — literally. Jolls has since become a pioneer in computer visualization and simulation graphics, helping students to understand hard physical science in ways that engage the senses.

"We don't encourage students to become visual thinkers," says Jolls. "They too often lead with their left brains and



look for rules and numbers—when more subjective, right-brain approaches can yield deeper understanding."

Jolls demonstrated this approach at the "Good Vibrations" gig, where he combined science with music. Woven into the program of jazz standards was a discussion of how the vibraphone works. Vibrating bars, resonance tubes, and mallets made the cultures of art and science harmonize seamlessly.

But, according to Jolls, these two cultures remain at odds in the classroom, where right-brain teaching methods take a back seat to traditional science teaching,

which emphasizes mathematics. Says Jolls, "The scientist wants an equation and the artist wants a picture of the way a function behaves. Mastery of a subject like thermo lies somewhere in between."

He added, "We need to remove the dogma that equates art-based learning with fun, but not with serious pursuits."

### Obituaries

**Don E. Carter, 76**

Creve Coeur, MO

**Robert Deatz, 85**

Louisville, KY

**Vladimir Haensel, 88**

Amherst, MA

**Earnest E. Ludwig\*, 82**

Newton, PA

**Bert Van Riel, 76**

Hacienda Heights, CA

**Henry Weiland, 91**

Birmingham, AL

\* Fellow Grade

## AIChE Members Singled out for Top Professional Awards

**Editor's note: 2002 and the early months of 2003 have seen AIChE members take a number of major awards. Here's a quick round-up.**

**Harold Sorgenti** will receive the 7th Annual Petrochemical Heritage Award of the Chemical Heritage Foundation and Founders Club at the 28th National Petrochemical Refiners Association's International Petrochemical Conference, to be held later this month in San Antonio, TX. Sorgenti spent 32 years with Atlantic Richfield/ARCO Chemical Company, serving as president and CEO. He also holds ten patents that led to the commercialization of four new chemical processes.

**Carlo Fiorentini**, founder and president of Cannon Group, a Milan, Italy-based firm supplying equipment and engineering solutions to industrial end-users on a world-wide basis, was

named the fifth member of the Polyurethane Hall of Fame late last year. He holds more than 60 patents in polyurethane technology.

**Tech C. Ho**, of ExxonMobil's Strategic Research Laboratories in Annandale, NJ, and **Kenneth L. Riley**, of ExxonMobil's Process Research Laboratories in Baton Rouge, LA, were honored as Thomas Alva Edison Patent Award/Inventors of the Year by New Jersey State's Research and Development Council. The award recognizes their contributions to the discovery and commercialization of a new generation of hydrosulfurization catalysts for manufacturing clean, high-quality transportation fuels.

**Arthur M. Dowell III**, senior technical Fellow, risk analysis, of Rohm & Haas Co., Deer Park, TX; **Elisabeth M. Drake**, emeritus staff at MIT's Laboratory for Energy and the Environment, Cambridge, MA; and **William H. Johnson, Jr.**, engineering

Fellow, E.I. DuPont, Deepwater, NJ, are joint recipients of the Albert F. Sperry Founder Award for outstanding contributions to the development of the "Layer of Protection Analysis (LOPA)," a hazards and risk analysis tool to improve safety. The award, given by ISA—The Instrumentation, Systems, and Automation Society, recognizes outstanding technical, educational, or philosophical contribution to the science and technology of instrumentation.

**John C. Chen**, AIChE Secretary and the Carl R. Anderson Professor of Chemical Engineering at Lehigh University, received the Max Jakob Memorial Award, the top international prize for achievements in heat transfer. Chen received the award in August 2002 at the 12th International Heat Transfer Conference in Grenoble, France. Chen became only the fourth chemical engineer in 40 years to win the award.

**AICHE LAUNCHES SUSTAINABILITY INSTITUTE**

by Peter B. Lederman, Ph.D., P.E., AIChE Director

Over the last decade or so, industry's environmental philosophy has changed significantly, from "end-of-pipe" post-production clean-up to prevention and reduction. This "sea change" in corporate thinking has evolved into what is now called "sustainability." While definitions of the term vary from group to group, the need for a central, reliable information source for up-to-date knowledge of the concepts and technologies is clearly a critical need.

Chemical engineers are uniquely positioned to develop tomorrow's sustainable processes because of our process synthesis skills. Thus, AIChE is the logical place to identify and resolve the requisite technical, educational, and social challenges. AIChE is proud to formally announce the formation of the Institute for Sustainability (IfS) at its 2003 Spring National Meeting in New Orleans, and to extend an invitation for members to join.

This is the first major program to emerge from AIChE's long-range planning Project GENESIS. IfS grew out of conversations between AIChE leaders and Charles O. Holliday, Jr., CEO of DuPont, and William S. Stavropoulos, CEO of Dow. Both companies have long been committed to the concept of sustainability, and the two executives felt that AIChE could play a significant role in defining and disseminating sustainability's basic principles and methods.

The model that emerged from these conversations was an action-oriented institution, as opposed to a "think tank" or advisory group, incorporating three distinct centers. Each center will address a different audience.

The first, geared to the needs of companies, will conduct collaborative research initiatives to develop, evaluate, and commercialize new technologies within a framework that embodies sustainability concepts. These programs will include the viewpoints of disparate stakeholders, and leverage the resources of industry, academia, and government.

The second center will focus on educating and supporting practicing chemical engineers through the development of tools and best practices to reduce the environmental footprint of manufacturing facilities. Deliverables from this group could include certification programs for cleaner



production and sustainability, and benchmarking services to provide industry with a measure of how they stand relative to peers in the adoption of sustainable practices. A new Sustainable

Engineering Forum

will be launched under the auspices of this center to develop and sponsor meeting programs and continuing education courses. It will also advocate for incorporating sustainability principles into every technical discipline in which chemical engineers work.

The last group, tentatively called the Center for Social Stewardship and Education (CSSE), focuses its concerns outward. One goal will be to encourage the adoption of sustainable practices in the undergraduate curriculum through government, industry, and academic (and possible NGO) partnerships. Another area will include outreach programs to explain the value of the profession to society. One of the first "deliverables" of this program is a new high school level curriculum called

*Active Chemistry* that features three chapters on sustainability authored by AIChE Fellow and Ohio State University Chemical Engineering Department Chair L-S Fan. (See related article on pg. 74)

Since its endorsement by AIChE's Board of Directors last winter, IfS has taken a number of important first steps. It was represented at the World Summit on Sustainable Development (Earth Summit 2002) in Johannesburg, South Africa, held through the auspices of the World Federation of Engineering Organizations. It cosponsored a pre-summit conference where a formal "Declaration by the U.S. Engineering Community to the World Summit on Sustainable Development" was developed and endorsed. And, it sponsored (with DECHEMA, the German chemical engineering professional society) a workshop on "sustainable manufacturing."

But the Institute is still very much in its formative stages. In order to make it most effective, IfS and AIChE needs participation and support from the broadest possible spectrum of its members. If you'd like to help shape the IfS, we encourage you to join now. We hope you'll take the time to learn how you can contribute to and participate in this very exciting new initiative.

**Vitter Leads CIS Speaker Slate for N.O. Meeting**

Topping the list of speakers at AIChE's Spring Meeting, which starts later this month, is Representative David Vitter (R-First District, LA), who will make a keynote presentation at the Critical Issues Session on "Terrorism: Industry and the Public Respond." Vitter, whose district includes suburban New



Orleans, has played an active role in several important national issues, including the missile defense system. Also speaking at the session on Sunday, March 30, from 2:30-5:30 p.m., will be Will Hatcher, supervisory special agent, Federal Bureau of Investigation; Henry Siegelson, clinical assistant professor of emergency medicine, Emory University; Paul Orum, director of the Working Group on Community Right to

Know; and Dennis Hendershot, senior risk assessment fellow, Rohm & Haas.

The second CIS session on Tuesday, April 1, from 1:15-3:15 p.m., will focus on maintaining a sustainable water supply. Panelists include: Mary Jo

Baedecker, chief scientist for hydrology, U.S. Geological Survey; Karl Fennessey, global water technology leader, Dow Chemical Company; Manian Ramesh, division vice president, R&D, Ondeo Nalco; and Gary Wolff, principal economist and engineer, Pacific Institute for Studies in Development, Environment, and Security. For complete details visit: [www.aiche.org/criticalissues/](http://www.aiche.org/criticalissues/).