



Industrial & Engineering Chemistry

A Division of the American Chemical Society

Putting Science to Work

Summer 2003

New York, New York!
226th ACS National Meeting
I&EC Programming



Presidential Symposia cosponsored by I&EC

Green Chemistry: Multidisciplinary Science and Engineering Applied to Global Environmental Issues

Monday September 8, 2003, 3 to 5 PM
Followed by a reception from 5 to 7 PM

Dr. Elsa Reichmanis, President of the American Chemical Society
Dr. Dianne Dorland, President of the American Institute of Chemical Engineers
Dr. Richard E. Smalley, Rice University, 1996 Nobel Prize Winner
Dr. Berkeley W. Cue, Jr., Pfizer, Vice President Pharmaceutical Sciences
Congressman Sherwood L. Boehlert, Chair, House Science Committee



This distinguished panel hopes to stimulate ongoing discussion on the challenges of environmental improvement, global competitiveness and the role of multidisciplinary science in providing the "how" of sustainable development. These issues go right to the heart of the sustainability missions of the ACS and AIChE: bringing research and education to bear on global issues.

Issues of Homeland Security: What Can Chemists Do?

Thursday, September 11, 2003, 8:30 to 11:30 AM

Featuring speakers on the vulnerability of the chemical industry and other topics relevant to the chemical enterprise.

Other I&EC New York Symposia (Cosponsor)

- **Ionic Liquids: Progress and Prospects (PETR & ENVR)**
- **Emerging Technologies in Hazardous Waste Management**
- **Advances in Arsenic Research: Integration of Experimental and Observational Studies and Implications for Mitigation (GEOC)**
- **Polymer-Supported Reagents for Applications in Separations Science**
- **Microreaction Technology and Process Intensification (CATL)**
- **Chemical Ethics in Today's Society (Council on Undergraduate Research, YCC)**
- **Green Chemistry and Engineering for Greenhouse Gas Reduction (CEI)**
- **Green Chemistry in the Pharmaceutical Industry**
- **Green Chemistry for Water Resources Management (CEI)**
- **Global Environmental Impacts of Green Chemistry (CEI)**
- **Fuel Cell Systems and Fuel Processing for Fuel Cell Applications (FUEL)**
- **Six Sigma in Industry: Problem Solving Methodologies for Success (ANYL)**
- **CO₂ Sequestration: Advanced Technologies for Predicting and Monitoring Isolation Performance (GEOC)**



I&EC GREEN CHEMISTRY AND ENGINEERING SUBDIVISION CHAIR REPORT MIKE MATTHEWS

The New York meeting in Fall 2003 will feature the first-ever Presidential Event "Green Chemistry Applied to Global Environmental Issues." This event is cosponsored by ACS and by the American Institute of Chemical Engineers (AIChE) will kick off a number of sessions on Green Chemistry (see elsewhere in this newsletter). The Presidential Event speakers are world leaders of industry, academia, and government: **Dr. Elsa Reichmanis**, President of the American Chemical Society; **Dr. Dianne Dorland**, President of the American Institute of Chemical Engineers; **Dr. Richard E. Smalley**, Rice University, 1996 Nobel Prize Winner; **Dr. Berkeley W. Cui, Jr.**, Pfizer, Vice President Pharmaceutical Sciences; and **Congressman Sherwood L. Boehlert**, Chair, House Science Committee. We hope you will register and attend the New York meeting to interact with these distinguished guests, and to show your support for Green Chemistry.

The Green Chemistry and Engineering subdivision and its members continue to support a number of educa-

tional and outreach activities. Martin Abraham is preparing a report on "Green Engineering: Defining the Principles." This report will be based on the recent Engineering Foundation Conference held in May 2003 in Destin, Florida to establish principles and guidelines for Green Engineering principles. The Third Joe Breen Student Poster Session in Green Chemistry was held at the New Orleans Spring meeting. Mary Kirchoff and John Warner organize the Breen Poster session every year. Mike Matthews, GC&E Subdivision chair, published a chapter entitled "Green Chemistry and Green Chemical Technology." This chapter appears in the 2003 on-line edition of the *Kirk-Othmer Encyclopedia of Chemical Technology* (John Wiley & Sons).

As the green chemistry movement grows and evolves, our programming and outreach efforts likewise continue to grow. GC&E welcomes your participation in organizing sessions and in the governance of the subdivision. Please contact Mike Matthews (matthews@engr.sc.edu) or any of the officers if you would like to get involved.



I&EC TREASURER 2002 REPORT RON YATES

The I&EC Division ended Y2002 with an operating gain of \$31,611.94. This is in contrast with a Y2001 operating loss of \$12,749.48. This difference can be mainly attributed to the absence of unexpected past National Meeting expenses that occurred in Y2001, reduced spending by the sub-divisions at the National Meetings and savings incurred by moving Separates and the Division Newsletter to the Internet. The division investment accounts declined 18% as the bear market in stocks continued for a third consecutive year. Dues were also

raised from \$10 to \$13 in order to help bolster the Division's finances. The cash position of the Division, as represented by the checking account, ended the year on a positive note with a balance of \$34,289.80, which represents an increase of \$13,236.35 from year end Y2001. In addition, the checking account was set up to receive electronic payments (dues, allocation) from the ACS. Overall, the Division enters Y2003 in very good financial condition with sufficient funds to support the Division's activities.



I&EC 2003 ELECTION—INFO ON THE WEB

Yes, we are having an election, but to prevent any appearance of conflict of interest, all candidate statements and bios are listed on the I&EC web site and not in the newsletter. I encourage you to go there for all election information.

<http://membership.acs.org/i/iec/html/candidates2003.htm>

Nancy Jackson
I&EC Newsletter Editor



I&EC CHAIR REPORT SUMMER 2003

Hello again, to all of you I&EC'ers out there. Well, it's summer (although you can't tell that by the weather in Toledo), which means it's time to get ready for the Spring meeting. Your Division programming team has been working hard to put together an exciting program for the meeting. We've got another rendition of the Ionic Liquids symposium, a full week of Green Chemistry programming, and numerous other programming activities, as well. I appreciate all of the contributions that you've made to these symposia, and hope that you will be able to come to the meeting and listen to some of these wonderful technical presentations. Also, stop by the Division poster session on Tuesday evening, where we will once again have free food and an opportunity to win some prizes – just for coming and giving us your name. Bring a friend, and introduce him or her to the world of the I&EC Division.

As I reported last time, the Division determined to undergo strategic planning following the New Orleans meeting. Ten of us sat down together, rolled up our sleeves, and tried to determine what we could do to make the Division more effective for you, our members. We now have a slogan ... "Putting science to work" ... and with your help, will attempt to determine what that means for us in terms of programming and other activities. We will be trying some new things with programming beginning in 2004, becoming more active in regional meetings, and getting better integrated with industrial needs. Much of this will roll out over the next year or two, as our volunteer network grows and we begin to implement our plans. If you want to become involved at help to set direction for the Division, we're always looking for volunteers.

(This is also one of our commitments – no volunteer will be turned down.)

I should also report that we must have done something right last year, since we have been selected as a finalist for a ChemLuminary Award in the area of Divisional Programs. The awards will be announced on Tuesday evening in New York, and we'll be sure to let you know if we are selected as a winner.

I am also pleased to report that we should now be underway with our election. This is required by our by-laws, and we will be able to announce the winners of the election at the New York meeting. This is the first time since I have been involved with I&EC Division that I can recall in which we have followed our by-laws and conducted the election in a timely fashion. A great deal of thanks goes to Bill Crooks and Bob Stowe, who undertook to make this process work.

I had hoped to get a whole lot more done this year than I have accomplished, but the trials of my regular job have kept me quite busy, even throughout the summer. We have a full plate for us in the upcoming 6 months before I turn the division over to Bill Flank, and I hope to get a bit more finalized before the New York meeting. It's been a fun ride (mostly) and I'm looking forward to the remainder of the year with great anticipation. I appreciate all of your support and will hope to meet many of you in New York and at meetings in the future.

Enjoy the rest of the summer.

Martin Abraham
I&EC Division Chair



I&EC COUNCILOR'S REPORT SUMMER 2003 ROBERT A. STOWE

The 225th ACS Natl. Mtg. in New Orleans, with just under 8700 technical talks (a record number), attracted 11,705 regular registrations. Expo only attendees, guests, exhibitors, etc., brought the total to over 14,570. At the Expo, 290 companies flashed their wares in 504 booths. Activity was off at the new online, fully electronic and internet accessible Nat'l Employment Clearing House (NECH), launched in Boston by the Dept. of Career Services (DCS), reflecting to some degree, the deteriorating job market for chemists and chemical engineers. Registration, com-

pleted online prior to the meeting, provided for 96 (vs. 154) employers and 1,151 (vs. 1,242) job seekers to conduct 1,751 (vs. 4,688) interviews for 305 (vs. 521) jobs. There were 125 mock interviews done in New Orleans and 248 resumes reviewed. 64 resumes were brought back to headquarters for post-meeting review by the career consultants.

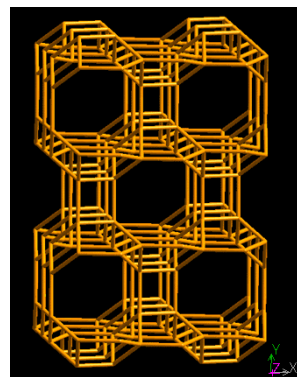
In its meeting on Wednesday AM, the Council solemnly

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IZMM3

3rd International Zeolite Membrane Meeting
Breckenridge, CO
July 25-28, 2004

The Conference will focus on nanoporous membrane synthesis, characterizations, and various applications. See Web Site: www.izmm.org for details on registration and abstract submission. Conference Chair: Prof. Richard D. Noble, University of Colorado, Boulder, CO 80309-0424. nobler@colorado.edu.



HIGHLIGHTING SUCCESSFUL INDUSTRIAL SCIENTISTS AND CORPORATE R&D INNOVATIONS AT ACS REGIONAL MEETINGS



ACS regional meetings provide an unparalleled opportunity to obtain top-notch technical programming that is customized to reflect scientific challenges and business opportunities in your region. Each meeting's geographical focus allows attending chemists to fully explore the achievements of scientists who work in your region and to network with locally based industrial and academic colleagues.

One unique program that delivers on these technical, celebratory, and networking desires is the Society's Regional Industrial Innovation Awards Program. Sponsored by Industry Member Programs, this 2003 program honors individuals and teams for their creative chemical innovations that have resulted in a commercial product or process in all nine ACS regions. This program allows the Society to recognize scientific researchers for their creative contributions to society and their corporate leadership for its advancement of a healthy regional economy.

Fourteen honorees from six companies have just been announced for the spring regional meetings, and these recipients testify to the valuable role that locally based chemists and chemical engineers play in improving our lives. Recipients and their companies are: Dr. Andrew Ouderkirk of 3M Co. (St. Paul, MN); Dr. Charles Blaisdell, Dr. Larry Haight, Dr. George Heinsohn, Dr. Malli Rao, Mr. Tereance Rensi, and Mr. John Carberry of DuPont and Co. (Wilmington, DE); Dr. Richard P. Haugland of Molecular Probes, Inc. (Eugene, OR); Dr. Dean Matson of Pacific Northwest National Laboratory (Richland, WA); Dr. William C. Pfefferle of Precision Combustion, Inc. (New Haven, CT); Drs. Steven Brickner, Michael Barbachyn, Douglas Hutchinson, and Mr. Peter Manninen (Pfizer Inc/ Groton, CT).

These industrial scientists will be honored at an awards event and symposium during their respective Great Lakes, Northeast, Middle Atlantic, and Northwest regional meeting. Chemists and students can peer into contemporary industrial research and development as practiced in their region by attending the special symposium that features 20-minute presentations by each individual or team on their winning innovation and offers tabletop displays showcasing their commercial work.

These focused, industrial events present significant networking opportunities for ACS members, industrial researchers, corporate leaders, and students. By bringing together chemists employed in each ACS region and scientific leadership from local companies, the Regional Industrial Innovation Awards symposium and ceremony facilitates one-to-one contacts among participants.

Nominations are still being accepted until June 30, 2003, for the fall Regional Industrial Innovation Awards programs in the Southwest, Western, Midwest, Central, and Southeast regions. Consider nominating an industrial researcher at your corporation or at other companies located within an ACS local section for the fall 2003 or spring 2004 program, and help to shine a wider spotlight on successful industrial R&D in your region. Information about this program can be found at <http://chemistry.org/industry/regionalawards> or through Vanessa Johnson-Evans at 1-800-227-5558, ext. 4373, or cheminnovations@acs.org. Details about the nine ACS regional meetings in 2003 can be found on the Office of Regional Meetings website.



Anaheim, CA
227th ACS National Meeting
March 28-April 1, 2004

I&EC Call for Papers
OASys—Online Abstract Submittal System

Advanced Technologies for Decontaminating & Managing Radioactive Wastes

Organizer: Daniel W. Tedder, School of Chemical Engineering, Georgia Institute of Technology, Atlanta, GA
30332-0100

General Posters

Organizer: Amudhu Gopalan, Department of Chemistry and Biochemistry, New Mexico State University, Box 3C,
Las Cruces, NM 88003

Joe Breen Student Poster Session in Green Chemistry (sponsored by Green Chemistry & Engineering
Subdivision)

Organizers: Mary Kirchoff, USEPA, 401 M Street, Washington, DC 20460; John C. Warner, Department of Chemis-
try, University of Massachusetts Boston, 100 Morrissey Blvd, Boston, MA 02062-3393

Molecular Hosts for Anion Binding (sponsored by Separation Science & Technology Subdivision)

Organizers: Benjamin P. Hay, W. R. Wiley Environmental Molecular Sciences Laboratory, Pacific Northwest Na-
tional Laboratory, PO BOX 999, Richland, WA 99352; Kristin Bowman-James, Department of Chemistry, Uni-
versity of Kansas, 1251 Wescoe Hall Drive, Lawrence, KS 66045

Recent Advances in Green Chemistry and Engineering (sponsored by Green Chemistry & Engineering
subdivision)

Separations for the Nuclear Fuel Cycle in the 21st Century (sponsored by Separation Science and Tech-
nology Subdivision) *See page 6 of this Newsletter for more info.*

Organizers: Gregg J. Lumetta, Radiochemical Processing Group, Pacific Northwest National Laboratory, P.O. Box
999, MSIN P7-22, Richland, WA 99352; Kenneth L. Nash, Chemistry Division, Argonne National Laboratory,
9700 S. Cass Avenue, Argonne, IL 60439; Sue B. Clark, Department of Chemistry, Washington State Univer-
sity, P.O. Box 644630, Pullman, WA 99364-4630; Judah I. Friese, Radiochemical Processing Group, Pacific
Northwest National Laboratory, P.O. Box 999, MSIN P7-22, Richland, WA 99352

Supercritical Fluids (sponsored by Novel Chemistry with Industrial Applications Subdivision)

Organizer: Christopher B. Roberts, Department of Chemical Engineering, Auburn University, 230 Ross Hall, Au-
burn, AL 36849-5127

Techniques and Experiences in Scaling Up Chemical Separation Processes (sponsored by Separation
Science & Technology Subdivision)

Organizers: Stuart T. Arm, Radiochemical Science and Engineering Group, Environmental Technology Division,
Battelle Pacific Northwest Division, Pacific Northwest National Laboratory, PO Box 999, Richland, WA 99352;
Harish Santhanam, Pharmacia, Inc.





Call For Papers
Separations for the Nuclear Fuel Cycle in the 21st Century
227th National Meeting of the American Chemical Society
Anaheim, CA
March 28-April 1, 2004

The focus of this symposium is on assessing the current state-of-the art in nuclear separations science and technology, and on identifying directions research and development should take to enable nuclear separations to meet 21st Century demands for waste minimization, environment protection, safety and security. Future options must respond to considerations like environmental sustainability and nuclear non-proliferation while at the same time improving separation efficiency. Analysis of the entire fuel cycle from uranium mining and plutonium production to fuel fabrication, actinide recycle/transmutation and waste disposal is needed.

Papers related to all aspects of nuclear fuel cycle but particularly separations are solicited in this call. Potential topical subjects include new methodologies in uranium mining and processing, recycling of uranium and plutonium from irradiated fuel, recovery of useful isotopes from irradiated fuel, and partitioning and transmutation of long-lived isotopes in high-level waste.

I&EC COUNCILOR'S REPORT, CONTINUED FROM PAGE 3

and efficiently ticked off its routine items, anticipating a difficult vote on an important petition later in the session. Amongst these, the dues for 2004 were set at the fully escalated rate of \$120. Council also selected William F. Carroll, Jr. and Michael E. Strem as candidates for the Fall election, an election for the 3-year Presidential succession beginning in 2004 by the membership. Kathleen Taylor, past-Chair of I&EC, lost in this election, along with David F. Eaton. Strem is a past District I Board Director and a member of I&EC. Two seats on the Board as Director-at-Large (for 2004-2006) will be filled by a vote of the voting members of the Council from among 4 candidates. These are Dennis Chamot (incumbent), associate executive director of the Nat'l Res. Council, Washington, D.C., James P. Schoffner (incumbent), adjunct Prof. of Science (retired), Columbia College, Chicago, IL, Nancy B. Jackson, Technical Mgr., Sandia Nat'l Labs., Albuquerque, NM, and Peter C. Jurs, Prof. Of Chemistry, Penn. State Univ., Pittsburgh, PA. Schoffner is a member of I&EC, while Nancy is also running for a second term as I&EC Councilor, having recently completed the I&EC Chairs succession and a stint as Secretary. This election will be

We also seek papers on the subject of the impact of separations on nuclear waste repositories.

For more information, contact one of the symposium organizers listed below.

Gregg Lumetta, Pacific Northwest National Laboratory, PO Box 999, MSIN P7-22, Richland, WA 99352; e-mail: gregg.lumetta@pnl.gov

Ken Nash, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL 60439; e-mail: knash@anl.gov

Sue Clark, Washington State University, Department of Chemistry, PO Box 644630, Pullman, WA 99164-4630; e-mail: s_clark@wsu.edu

Judah I. Friese, Pacific Northwest National Laboratory, PO Box 999, MSIN P8-50, Richland, WA 99352; e-mail: Judah.Friese@pnl.gov

conducted by mailed ballots to the voting Councilors before October.

Council finally got to the big vote on the petition to amend the Constitution in order to change the allocation method and allow for increased funding of Divisions and Local Sections, a kettle that has been simmering for several years. Although I supported the petition and the minimal proposed dues surcharge required to pay for the increase, I was surprised that the petition passed easily with only an uncontested voice vote. The petition was subsequently presented to the full ACS membership, requiring a 2/3rds majority of the votes cast. (Do you remember voting?) The GOOD NEWS is that the counting is finished and the petition passed easily, 20,430 FOR and 3,197 AGAINST. How is that for an election turnout of the world's largest scientific society of 161,144 members?

I am very happy to report that the affairs and governance of the I&EC division seem to me to be well on the

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I&EC COUNCILOR'S REPORT, CONTINUED FROM PAGE 6

ment and have reached a point where the calendar items should become easier and less surprising. Significantly, we reinstated the Division Luncheon at the New Orleans meeting and hosted two recipients of National ACS Awards. These were Ralph T. Yang, Univ. of Michigan, recipient of the ACS Award in Separations Science and Technology, sponsored by IBC Advanced Technologies, Inc., and Leo E. Manzer, recipient of the E. V. Murphree Award in Industrial and Engineering Chemistry, sponsored by ExxonMobil Research and Engineering Co. and ExxonMobil Chemical Co. The luncheon was collegial, well attended and enjoyed by both Awardees. Tuesday night, a combined Poster Session and reception was held. I was not able to attend because of a conflicting event but heard several good remarks about it. On Thursday, key people stayed an extra day to attend a strategic planning retreat, led by a professional facilitator and subsidized in a major way by ACS. Hopefully this event will succeed in setting the framework for the continued improvement of the Division. Since the N.O. Mtg., we have preserved the legality of the election slate in the wake of a resignation from the original slate presented to the Exec. Cmte., and Secretary Bill Crooks has preparations under control for a timely ballot mailing.

Our Executive Committee Meeting was visited by a contingent of oversight people from various Committees of the Council. The gist of their communication to us was that they

were impressed with the serious effort already evidenced and were lifting the surveillance we had been under. They congratulated us and offered their good will and assistance in making further progress. Also, we have been informed recently that the Division has been nominated and is a finalist in a ChemLuminary Award, this one selected and sponsored by the Divisional Activities Committee, entitled "Division Recognition".

We are still working on what to do about the hard copy of the Newsletter and the changes to the Bylaws. If you have ideas, let me know. I believe you all should realize that there is a large contingent of volunteers doing the work of the Division, which combined with the superior programming of the Program Cmte. and the various sub-divisions and the accomplishments on behalf of I&EC of our 3 lady Councilors, deserves your recognition and compliments.

Well, HELLO out there. Please provide some feedback. Times they are a changing and we all need to be aware of the directions and make sure we agree with them. I welcome questions, comments and any type of feedback. Phone #: 231-526-5078; E-mail: rstow@northlink.net; Snail-mail: 5680 Chippewa Dr., Box 173, Cross Village, MI 49723; Fax by appt.