



THE AMERICAN CHEMICAL SOCIETY DIVISION OF

Industrial & Engineering Chemistry

Summer-Fall 2005 Newsletter—*Putting Science to Work*

I&EC Is Finalist for ChemLuminary Award



The I&EC Division has been selected as a finalist for the following ChemLuminary Award(s):

- Committee on Divisional Activities --
Division Recognition

Recipients will be announced and the presentation of awards will be at the 230th ACS National Meeting in Washington, DC on **Tuesday, August 30 at the Washington DC Grand Hyatt Hotel in the Independence Ballroom**. The presentations will include 36 awards given by 12 committees of the Society.

Prior to the ceremony there will be a one-hour poster session in the Independence Ballroom B-E. The I&EC Division has been invited to present a poster of the 2004 activities that led to its selection as a finalist.

I&EC Member Rogers Presented with 2005 Green Chemistry Challenge Award



Professor Robin D. Rogers, University of Alabama, and I&EC member, was presented with a 2005 Green Chemistry Challenge Award by the U.S. Environmental Protection Agency and its program partners at a formal ceremony on 20th June, 2005, at the National

Academy of Sciences for using ionic liquids to

dissolve and process cellulose to replace synthetic polymers. A major roadblock in the conversion of cellulose into advanced materials at high volumes has been the lack of an inexpensive, recyclable solvent to dissolve cellulose directly and allow modification of its properties. Ionic liquids (ILs) are nonvolatile solvents that enable the direct co-dissolution or suspension of cellulose and active ingredients. Once in solution, these materials can easily be reconstituted in water in a variety of forms, yielding advanced composites that integrate particulates, complexants, colorimetric or biological receptors, etc. Modifying the properties of cellulose into new biorenewable or biocompatible materials will lessen our current dependence on diminishing petroleum feedstocks to make polymers and composites. Dissolving and processing cellulose directly with ILs uses the full complexity of nature's polymer effectively. This leads to the commensurate reduction or elimination of environmentally undesirable solvents, feedstocks, and processes; it also allows us to reexamine and improve current processing strategies.

The research of Professor Rogers and his group has achieved: (1) efficient, direct dissolution of cellulose; (2) introduction of functional additives; (3) simple product generation; and (4) recovery and recycling of the IL. Combining fundamental knowledge of ILs as solvents, a novel technology for processing cellulose, and green chemistry principles to guide process development and commercialization, Professor Rogers envisions that this platform strategy can lead to a variety of commercially viable, advanced materials that can reduce our dependence on synthetic polymers. He is currently doing market research and business planning to commercialize this technology by agreements with existing chemical companies or by creating small businesses.

Other Green Chemistry Challenge Awards presented include Archer Daniels Midland Company and Novozymes North America, Inc. for developing healthier fats and oils by green chemistry, using enzymatic interesterification for

production of no-*trans* fats and oils. Faced with mandatory labeling of *trans* fats on nutritional fact panels by January 1, 2006, the food and ingredient industry has been investigating ways



to reduce *trans* fatty acids in foods. The most effective way to reduce *trans* fatty acids is by replacing partially hydrogenated oils, the most common source of *trans* fatty acids in U.S. diet, with interesterified oils. Enzymatic interesterification processes have many benefits over chemical methods, but the high cost of the enzymatic process and poor enzyme stability had prevented its adoption in the bulk fat industry. Extensive research and development work by both Novozymes and Archer Daniels Midland Company (ADM) has led to the commercialization of an enzymatic interesterification process. Novozymes successfully developed a cost-effective immobilized enzyme, and ADM developed a process to stabilize the immobilized enzyme enough for successful commercial production. The interesterified oil provides food companies with broad options for zero-and reduced-*trans* fat food products. Since the first commercial production in 2002, ADM has produced more than 15 million pounds of interesterified oils. ADM is currently expanding its enzyme process. The impact of this enzymatic technology is huge. For example, margarines and shortenings currently consume 10 billion pounds of hydrogenated soybean oil each year. Compared to partial hydrogenation, the ADM/Novozymes process has the potential to save 400 million pounds of soy bean oil, eliminate 20 million pounds of sodium methoxide, 116 million pounds of soaps, 50 million pounds of bleaching clay, and 60 million gallons of water each year.



Merck & Co. has received an award for an efficient synthesis of Aprepitant, the active ingredient in Emend®, a new therapy for chemotherapy-induced emesis. Merck used many principles of green chemistry during its discovery, development, and implementation of a new manufacturing process for aprepitant, a breakthrough new medication for the treatment of chemotherapy-induced nausea and vomiting. Aprepitant is a challenging synthetic target: it has two heterocyclic rings and three stereogenic centers,

one of which is part of a sensitive acetal moiety. Merck had already improved its initial synthesis for aprepitant significantly to reach a first-generation process. To achieve more than incremental progress towards green principles, however, Merck researchers set out to discover a completely new synthetic route. Its innovative and convergent synthesis assembles aprepitant in three highly atom-economical steps from four fragments of comparable size and complexity. This synthesis uses a practical crystallization-induced asymmetric transformation during which a stereogenic center that is an integral part of aprepitant is used to set new stereocenters with high selectivity. Merck has reduced the total amount of raw materials required, the amount of water used, and the amount of waste produced by nearly 80% each. Altogether, Merck has eliminated over 340,000 liters of waste per 1,000 kg of aprepitant produced. Merck has also eliminated several severe operational hazards associated with their first-generation process. The reductions in raw materials and waste streams for the new synthesis have drastically reduced the cost of production of aprepitant. Merck implemented the new synthesis during its first year of production of Emend®; as a result, Merck will realize the benefits of developing this green chemistry route for virtually the entire lifetime of this product.

BASF Corporation developed an



ultraviolet-cured coating technology for the automotive refinish industry. Various regulations require the reduction of solvent levels in coatings in an effort to reduce the volatile organic compounds (VOCs) that lead to smog creation. One obstacle to meeting these regulations is creating resins at lower viscosities without sacrificing the performance of the coatings. In automotive refinish repair, the coating used to repair a vehicle must perform at the same level as the original equipment manufacturer's (OEM) standard and cure at much lower temperatures. BASF's development of acrylate-based UV undercoats for the refinish industry reduces the VOCs tremendously compared to conventional two-component materials. BASF's UV primer contains low VOCs (1.7 lb/gal) compared to the VOCs in conventional primers (3.5 to 4.8 lb/gal). The performance of these UV coatings is equal to OEM quality. Further, an amazing attribute of UV coatings is that no high-temperature ovens

are needed. UV light initiates the chemical crosslinking of the coating and, in the case of the products offered by BASF, a short exposure to sunlight can serve as the initiator. Using this technology, an automotive repair facility can reduce VOCs, reduce energy consumption, and still achieve the excellent film properties and durability previously accomplished by the OEM coating. BASF is currently offering its UV primers in its R-M® line as Flash Fill™ VP126 and in its Glasurit® line as 151-70.



ADM also developed Archer RC™, a nonvolatile, reactive coalescent for the reduction of VOC in latex paints. Faced with lower limits on

volatile organic compound (VOC) levels in latex paints ADM saw a need to develop a suitable technology to reduce VOC levels without compromising product quality. Historically, a major source of VOC emissions in latex paints has been the coalescent or film-forming aid. The coalescent softens or plasticizes the latex particles, allowing them to flow together and form a continuous film.

Traditional coalescents like Texanol® (2,2,4-trimethyl-1,3-pentanediol monoisobutyrate, Eastman Chemical Company, Kingsport, TN) count as VOCs in waterborne coatings when tested by EPA Method 24. An estimated 120 million pounds of volatile coalescing solvents are lost to the atmosphere in the U.S. each year. Recently, propylene glycol monoesters of unsaturated fatty acids have shown promise as coalescing agents in latex paints. Propylene glycol esters of unsaturated fatty acids derived from vegetable oils are nonvolatile when tested by EPA Method 24 and exhibit outstanding performance as coalescing aids in latex paints. Archer RC™, reactive coalescent, is comprised of propylene glycol monoesters of sunflower oil fatty acids (approximately 66% linoleic acid). Instead of evaporating into air, the unsaturated fatty acid component of Archer RC™ oxidizes and even crosslinks into the coating. ADM brought this technology into commerce in 2004. Not only is this technology based on sustainable agricultural raw materials, but it also employs the inherent



properties of nature's resources to meet the challenges of today's environmental concerns.

Metabolix, Inc. developed ecofriendly, sustainable polyhydroxyalkanoate (PHA) plastics Using biocatalysis. Metabolix's advanced biocatalysis technology produces polyhydroxybutyrate



(PHB) copolymers by microbial fermentation of renewable feedstocks (corn dextrose, cane sugar, cellulose hydrolysate, and vegetable oils). Metabolix uses biotechnology to allow the proportionate, concerted expression of entire assemblies of chromosomally integrated genes encoding complex reaction pathways that are not native to the host organism. These biocatalytic microbes then produce an entire range of natural, ecofriendly PHB copolymers reliably, with precision, at low cost, and on a large scale. Metabolix's PHB copolymers are an extensive family of semicrystalline polymers with an extremely broad range of properties from rigid to elastic. Unlike current alternatives, they have excellent shelf life, resist even hot water, and yet biodegrade in both aerobic and anaerobic environments including soil, river and ocean water, septic systems, anaerobic digesters, and compost. Their moisture barrier properties are far higher than those of other biodegradable materials; their oxygen barrier properties are far higher than those of polyolefins. Metabolix has developed and demonstrated PHA formulations suitable for processing on existing polymer processing equipment in key end-use applications including injection molding, thermoforming, extrusion melt film casting and paper coating, and blown film. Over the last five years, Metabolix has taken its PHB plastics from academic interest to commercial reality, creating key partnerships for successful commercialization. In November 2004, Metabolix formed an alliance with ADM to produce PHAs commercially in a 50,000 ton-per-year plant in the U.S. Midwest.



Election Statements from I&EC Candidates

Chair-Elect for 2006 :

Michael A. Matthews, Ph.D.



Background

Mike Matthews obtained his Ph.D. in Chemical Engineering from Texas A&M University in 1986. He was on the faculty at the University of Wyoming until 1993, and has been at the University of South Carolina since January 1994, having served as interim chair of the department for two years. He is also a member of AIChE, the Electrochemical Society, and the American Society for Engineering Education. In addition to core teaching, he has developed courses in Environmentally Conscious Manufacturing and in Research Methods for Undergraduates. His research program encompasses clean solvent research (supercritical carbon dioxide and ionic liquids), as well as chemical hydrides for hydrogen production. He has received funding from NSF, DoD, DOE, EPA, and NIH. He is also Principal Investigator on an NSF grant exploring how the conduct of independent research projects, in an environment of mentoring in professional communications, affects the cognitive

development of undergraduate engineering students. He has chaired the Green Chemistry and Engineering subdivision of I&EC (2000-2004) and is active in service to AIChE, EPA, DOE, NIH, and other organizations.

Statement

I welcome the opportunity to be considered for chair-elect of the I&EC Division of the American Chemical Society. My experience with the Green Chemistry and Engineering subdivision left me deeply impressed with the dedication of the many ACS volunteers, and energized by the many opportunities for making an impact in chemical and engineering research, education, and engagement. I&EC by nature is the ACS division best suited for advancing the chemical enterprise because we seek the strategic interchange of fundamental chemical discovery with engineering ingenuity; when properly guided by industrial experience and vision, great things should result. As chair-elect, and succeeding to chair of the subdivision, I see the following issues as most vital: 1) maintaining or improving the quality and relevance of technical programming, primarily through the subdivisions; 2) engaging industry; 3) engaging local sections; 4) continuing to promote cooperation and exchange with other professional societies, particularly AIChE; and 5) increasing the vitality and visibility of I&EC within and outside of ACS. I&EC has been fortunate to have very effective leadership in the past, and I look forward to the opportunity to take on these challenges and to continue advancing the Division.

Treasurer

Rebecca M. Chamberlin, Los Alamos National Laboratory

Employment: Deputy Group Leader, Manufacturing Systems and Methods Division, Los Alamos National Laboratory (2004-present). Past positions at LANL (1993-2004) include planning, integration, and technology management for nuclear weapon manufacturing; development of new separation and processing methods for weapon materials and nuclear wastes; radiochemical analysis of nuclear test debris; inorganic synthesis and reaction mechanisms. *Education and certifications:* B.A. in chemistry, Pomona College (1987); Ph.D. in inorganic chemistry, Cornell University (1993); Project Management Professional certification

(2004). *Significant awards* : National Science Foundation Graduate Fellow (1988); LANL Director's Postdoctoral Fellow (1993); DOE Defense Programs Award of Excellence (1999). *I&EC Division Activities* : Program Chair (2004-present), Program Secretary (2001-2003), Secretary, Separation Science & Technology Subdivision (1999-2001), Symposium Organizer (2004, 2000), Division member since 1994.

Councilors (vote for 2):
Melanie Lesko--Councilor Candidate



I have been an active division member since 1979 and I&EC councilor since 1993. I have served I&EC by participating in division programming, attending many of its meetings and functions and representing its interests at Society meetings. I am currently serving on the ACS Meetings and Expositions Committee. I have also served on the Women Chemists Committee (1993-2002), Constitution and Bylaws (1997-1998) and Divisional Activities Committee (1999-2004). I attended other Society committee meetings as liaison, and I served on the canvassing committee for nominations for the ACS Industrial Chemistry Award (2002-2004).

As an active I&EC member and councilor of long standing I believe my value to the division is to provide visibility, guidance and counsel. I interact regularly with ACS staff and with lots of councilors from other divisions and therefore I am able to pass along to the officers of I&EC information about general trends and directions the Society is taking, and to present and promote I&EC views in a number of Society venues.

ACS staff foresees changing the Society to make it more attractive to active participation from industrial chemists, and to people who are chemists but who are not working in "traditional" chemistry areas. Thanks in part to your councilors, the staff have made certain to include I&EC people in the brainstorming

activities for how the Society might proceed to reinvent itself. I&EC focus on applications is and can continue to be a natural rallying place for these underserved chemists. It is important to closely monitor this process to maintain the division identity and health, but also find ways to ultimately help our profession prosper, and this is exactly what I will continue to do as your councilor.

If you choose to honor me with re-election, I promise to stay active, both in the division and in the Society. I often solicit your input, but rarely hear from the silent majority. I assume that means you trust my judgment on issues relevant to the division. I always try to make my choices and votes reflect the best interests of chemical engineers and industrial chemists and/or I&EC division. Thank you for your support.

Ken Nash--Councilor Candidate



Background

Ken Nash is Professor of Chemistry at Washington State University in Pullman, Washington. After spending the nearly 25 years in government service as a contractor for the Department of Energy at Argonne National Laboratory, as an actual federal employee in the Department of Interior's U.S. Geological Survey and a one year stint as an industrial chemist with Dow (long ago), he joined the Faculty in the Chemistry Department at WSU in the summer of 2003. His background and interests are in radiochemistry and nuclear chemistry, with primary emphasis these days on chemical separations and actinide science. His research is focused on contemporary issues in radioactive waste management and in helping to shape the future of the nuclear fuel cycle in the U.S. Both fundamental science and applications of actinides, lanthanides, important fission products and other metal ions that contribute to greater understanding of these species are the primary emphasis for his research group. The jump from the national labs to the halls of academia was

made to help revive opportunities for graduate study in nuclear and radiochemistry, a topical area that has been in steady decline for the past two decades, yet increasingly important in modern society.

Statement

My personal involvement with the affairs of the I&EC Division began in perhaps 1991, when I first “volunteered” to get involved in the activities of the Separation Science and Technology Subdivision of I&EC upon the strong “urging” of my friends and colleagues, Spiro Alexandratos and Ralph Gatrone. Working within the moderately comfortable confines of the small and cordial Subdivision structure, my enthusiasm for the activities of both the Subdivision and the Division steadily grew. I played an active role in the growth and development of the SS&T Subdivision, progressing through the officer sequence, preparing the Subdivision newsletter, but ultimately finding the most joy in being involved in programming for the National meetings. I continue to be involved in the activities of the SS&T Subdivision as a member of the Executive Committee. This passion for programming led ultimately to my being invited to take on the role of Division Program Chair, having responsibility for the putting together the I&EC technical program for two national meetings every year between 2001 and 2003. Passing that responsibility along to our current Program Chair, Becky Chamberlin, after the summer 2003 meeting, I was freed of Divisional obligations just in time to be asked to finish the term of Kathleen Schulz as one of your four Division Councilors. There is a somewhat daunting aspect to this assignment, in that Councilors obviously play a very important role in the overall governance and ultimately the health of the society. As it turns out, I commenced my assignment as Councilor just as I was making the leap from the DOE into academia. Needless to say, these past two years have been exciting. -----

=====

Novel Chemistry with Industrial Applications (NCIA) Subdivision

By Joseph R. Zoeller

The mission of the Novel Chemistry with Industrial Applications subdivision is to:

“Provide a forum for the dissemination of novel and interdisciplinary chemistry directed toward industrial applications in traditional and non-traditional chemistry related industries.”

While the subdivision shares the traditional role of the I&EC to publicize chemistry and engineering leading to cheaper, cleaner, and less energy intensive production methods with the rest of I&EC, the subdivision is unique in that it also seeks to promote the discussion of:



- a) Chemistry in industries not traditionally considered a purely chemical enterprise, such as electronics, transportation, security, communications, defense, nutrition, and diagnostics.
- b) Chemistry imbedded in multidisciplinary research efforts and industries, such as biotechnology, nanotechnology, electronics, and diagnostic devices.

Chemistry in these arenas is rapidly evolving, but since they cross traditional disciplines and are often in non-traditional chemical industries, they often lack a good home elsewhere in ACS.

The current slate of symposium programming in the subdivision reflects the multidisciplinary and non-traditional applications embodied in this mission and will begin to represent a significant part of the division’s programming in 2006. To date, the subdivision has obtained commitments for future programs in *Chemistry in the Electronics Industry* (Spring 2006); *Ionic Liquids* (Spring, 2006), *Diagnostics in Detection of Biological and Chemical Warfare Agents and Food Safety* (Spring, 2006), *Process Intensification* (Fall, 2006), and *Industrial Applications of In-line Spectroscopic Monitoring and Control* (Fall, 2006). Further, commitments have been obtained in other areas, such as computational modeling in industrial processes and alternative feedstocks, although dates have not been established.

Whereas the Novel Chemistry with Industrial Applications subdivision has been successful at generating an interesting slate of programs for the division in its 2 years of existence, it will

need to grow its membership if this type of programming is to continue long term. If you find this mission and type of programming useful to you, we would like to encourage you to join the subdivision. There is no additional cost. Simply contact the subdivision chair, Joe Zoeller, by email at jzoeller@eastman.com, or if you prefer, by mail at Eastman Chemical Co., P.O. Box 1972, Kingsport, TN 37662-5150 or phone at 1-423-229-5684 to join the sub-division or to get additional information.

Reasons to Recruit New Members to the I&EC Division!

By Steven Cooke, Membership Chair 2005, scooke@sprynet.com

The ACS is going through continuing changes as we adapt to the changing technology and marketplace of the world. The I&EC Division will be going through no less change as a part of the Society, and we have the opportunity to make both our Division and our Society more relevant and valuable than ever before.



We have more joint symposia and secretariats than ever before, and the general trend will be towards more and more "cross-over" programming. Chemistry is everywhere, and

we are all in it! It is harder and harder to define unique niches of chemical specialty that remain separate from many other areas of study and industry. How will this affect us? We have a proud distinction of being one of the first ACS Divisions, and the parent Division to many of the existing Divisions today. As we once spawned additional Divisions, we are now becoming a natural "attractor" for multidisciplinary programming within the ACS. Our unique composition of academic, government and industry researchers and practitioners provides an ideal setting for the ACS goal of more comprehensive and synergetic programs.

You know why our Division is an asset to your professionalism. Now we are becoming even more valuable as a forum for many scientists

who may have different specialties and yet a common focus on a topical subject. Examples include nanotechnology, non-petrochemical polymers, "Green" chemistry, and many more. Do you have any colleagues that would like a broader access to related science and technology? Do any of them desire a forum for new technologies that cross "Divisional" boundaries? Introduce them to the I&EC Division! We are going to be THE place to be at future ACS meetings, both on a National and a Regional level.

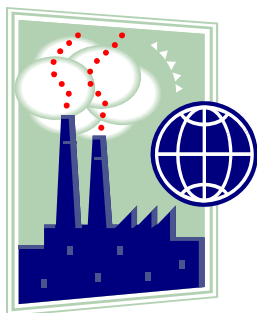
The most effective membership recruitment has always been the personal contact. Your leadership team can help, but we cannot effectively reach all of the people that you know. Just ask. Anyone with an interest in joining the Division may contact me or any other officer for further information, or simply send me their name, address, and ACS membership number for immediate inclusion in our membership. We also have many opportunities for more Divisional activity in either your local Section or on a National level. Let us know of your interests – we'd love to have your active participation!

AICHe/ACS Joint Symposium on Sustainability and the Chemical Enterprise

230th National Meeting of ACS August 28 - September 1, 2005 in Washington, DC

Co-sponsored by: AICHe Institute for Sustainability, AICHe Sustainability Engineering Forum, AICHe Environmental Division, ACS I&EC Division, ACS Green Chemistry and Engineering Subdivision, ACS Green Chemistry Institute, ACS Committee on Environmental Improvement, ACS Environmental Division, ACS Fuels Division and ACS Chemical Health and Safety Division.

You are invited to attend the American Institute of Chemical Engineers / American Chemical Society's Joint Symposium on Sustainability, to be held at the 230th National Meeting of ACS, August 28-30, 2005 in Washington, DC. The theme of the symposium will be 'Sustainability and the Chemical Enterprise', and sessions will be offered that focus on the key drivers for sustainable operating practices, and business methods and scientific and technological developments that facilitate sustainable



operating results. This is an ACS President-endorsed event.

Presentations will be given on a variety of topics related to the theme, such as: the business case for sustainability, financing sustainability, policy

and sustainability, sustainability metrics, safety and toxicology, scientific and technical advances to sustain the enterprise, e.g. new concepts in energy and efficiency, pollution prevention, sensors, sustaining water resources, renewable feedstocks, greener synthesis, greener solvents and separations, inherently safer products, ionic liquids

High caliber poster and oral presentations will be given Sunday, August 28 and Tuesday, August 30, respectively. Plenary talks will be given Monday, August 29 by eminent figures in sustainability:

- Cecil Chappelow (Air Products and Chemicals)
- David Constable (Glaxo Smith Kline)
- Earl Beaver (Institute for Sustainability)
- James Trainham (PPG Industries)
- David Bott (Royal Society of Chemistry and EotR Solutions Ltd.)
- William Russell (SKN Worldwide)
- Cynthia Page (formerly UN)
- Thomas Graedel (Yale University)
- Lunchtime speaker: Joseph Helble (Dartmouth and policy advisor to Senator Lieberman) – Introduced by Paul Anastas (Green Chemistry Institute)

These sessions offer their audiences a unique opportunity to interact with leaders in business, policy, science and technology on sustainability as it relates to the chemical and allied enterprises.

Registration for the meeting is available at discounted prices July 5 to August 3 from the ACS website: www.acs.org. We hope you are able to attend.

Co-Organizers:

- Subhas Sikdar, Acting Associate Director for Health National Risk, Management Research Lab/USEPA, 26 W. M.L. King Dr., Cincinnati,

OH 45268, Phone: 513-569-7528, Fax: 513-569-7680, E-mail: sikdar.subhas@epa.gov

- Brian Blakey, Chair, Green Chemistry and Engineering Subdivision, I&EC, ACS, One Research Circle, K1 4A43, Niskayuna, NY 12309, Phone: 518-387-5327, Fax: 518-387-7611, E-mail: blakey@research.ge.com

Organizing Committee: Subhas Sikdar, Brian Blakey, Charles Kolb, Dennis Hjeresen, Michael Gonzalez, Anthony Noce, Alex Tabatabai



I&EC Division and Subdivision Web Sites	
I&EC	http://membership.acs.org/IIEC/
IBT	http://membership.acs.org/IIEC/html/ibt/ibt.html
SST	http://membership.acs.org/IIEC/html/sst/default.htm
GCE	http://membership.acs.org/IIEC/html/GCE/gce.html
AM&NT	http://carbonsolution.com/acs1.htm
NCIA	http://membership.acs.org/IIEC/html/ncia/ncia.html

Councilor's statement from Spiro Alexandratos

I (along with your other councilors) represented the Division at the Council meeting in San Diego on Wednesday March 16, 2005. The highlights of the meeting included forming a Committee on Ethics to "serve as an educational resource and clearinghouse, but not as an adjudication body, for ACS members seeking guidance on ethics issues", and discussion of President Carroll's initiative of Chemistry Enterprise 2015 wherein an effort was made to guide policy over the next ten years, primarily through the question "Where will our students come from in the next ten years and where will they go?". Since this was my first meeting, of particular importance to me was determining how the interests of the Division fit in with the overall interests of the ACS. Ideally, there should be no conflict there and I certainly did not see it at this meeting. Indeed, while councilors are to represent their divisions, the Council is to form policy for the good of the ACS as a whole. In that way, it is not quite like Congress wherein representatives represent their districts and lobby for their individual interests while moving forward the national

agenda. However, I don't think that councilors can help but look at matters through the filter of their own divisions and balk at supporting something that they perceive as harmful to their division (e.g., in matters related to their identity and independence). At the very least, it would be important to keep you informed on matters that affect this division and we can go in with the expectation that what is good for ACS is good for IEC.

One item that I will be working on because I believe it is good for both I&EC and ACS is closer ties with our sister organization, AIChE. I hope to report news in our next newsletter on initiatives we have begun and expect to discuss at the Fall ACS meeting. By all means, contact me if you think something should be on our agenda. I have been involved within I&EC for many years and continue to be impressed with how hard people work within this truly volunteer organization. The pay is lousy (well, it's nothing, actually) but the reward in being part of something bigger than yourself is great.

Bylaws Amendment to Be Voted On In D.C.



In preparation for future electronic voting of some sort, the Executive Committee voted in San Diego to amend the Bylaws to delete the word "mail" in the phrase "mail ballot" wherever it appears. We are

required to publish a notice of a membership vote on this amendment in the Division newsletter, and a vote can then be taken at the business meeting of the Division during the Washington, D.C. ACS National Meeting in August. Along with several housekeeping-type changes approved earlier, this change will then become part of the revised Official Bylaws of the Division, and will allow us to consider how to reduce the now-considerable expense of our annual elections.

Programming for the Atlanta (Spring 2006) and San Francisco (Fall 2006) National Meetings

Atlanta, Georgia; Spring 2006 ACS National Meeting I&EC Division—10 Years of Presidential Green Chemistry Challenge

Awards (Sponsored by Green Chemistry and Engineering SubDivision) (Oral symposium #7404) Sponsored by I&EC, cosponsored with GCI. Organizers: Martin A. Abraham, Department of Chemical Engineering, University of Toledo, 2801 W. Bancroft, Toledo, OH 43606; Larry Koskan, Global Green Products LLC, 8617 Golfview Dr, Orland Park, IL 60462

Advanced Materials for Separation and Recovery of Metals - Sponsored by Separation Science and Technology (Oral symposium #7406) Sponsored by I&EC. Organizer: R. Shane Addleman, Pacific Northwest National Laboratory, MS K2-12, PO Box 999, Richland, WA 99352

Automated Separations - Sponsored by Separation Science and Technology (Oral symposium #7407) Sponsored by I&EC. Organizer: Oleg Egerov, Pacific Northwest National Laboratory, P.O. Box 999, MS K2-12, Richland, WA 99352

Chemistry in the Electronic Industry - Sponsored by Novel Chemistry with Industrial Applications (Oral symposium #7401) Sponsored by I&EC. Organizer: David S. Ginley, National Renewable Energy Laboratory, 1617 Cole Blvd, Golden, CO 80401

Detection of Biological and Chemical Agents in Warfare and Food Safety - Sponsored by Novel Chemistry with Industrial Applications (Oral symposium #7398) Sponsored by I&EC. Organizer: Cyndi A. Wells, Nonproliferation and International Security Division, Los Alamos National Laboratory, MS E541, Los Alamos, NM 87545

I&EC Poster Session (Poster symposium #7403) Sponsored by I&EC. Organizer: Hollie Jacobs, Department of chemistry and biochemistry, New Mexico State University, Las Cruces, NM 88003

Ionic Liquids - Not Just Solvents Anymore or Parallel Futures – **SEE FULL DESCRIPTION IN FOLLOWING ARTICLE.**

Joe Breen Student Poster Session in Green Chemistry - Sponsored by Green Chemistry and Engineering Subdivision (Poster symposium #7402) Sponsored by I&EC.

Nanotechnology for the Environment - Tentative - Sponsored by Advanced Materials and Nanotechnology Sub-division (Oral symposium #7400) Sponsored by I&EC.

Women in Industrial Chemistry - Tentative (Oral symposium #7405) Sponsored by I&EC.

San Francisco, California; Fall 2006 ACS National Meeting Division of Industrial and Engineering Chemistry

Fuel Cells - Sponsored by Green Chemistry and Engineering Subdivision (Oral symposium #7408) Sponsored by I&EC. Organizers: Martin A. Abraham, Department of Chemical Engineering, University of Toledo, 2801 W. Bancroft, Toledo, OH 43606; Michael A. Matthews, Department of Chemical Engineering, University of South Carolina, Swearingen Engineering Center, S. Main Street, Columbia, SC, 29208.

Green Chemistry and Engineering Poster Session (Poster symposium #7412) Sponsored by I&EC.

I&EC Poster Session (Poster symposium #7413) Sponsored by I&EC. Organizer: Hollie Jacobs, Department of chemistry and biochemistry, New Mexico State University, Las Cruces, NM 88003

Industrial Applications of Computational Chemical Structure Modeling - Sponsored by Novel Chemistry with Industrial Applications (Oral symposium #7410) Sponsored by I&EC.

Molecular Containers - Sponsored by Separation Science and Technology Sub-Division (Oral symposium #7416) Sponsored by I&EC. Organizers: Darren Johnson, Department of Chemistry, University of Oregon, Eugene, OR 97403; Benjamin P. Hay, Pacific Northwest National Laboratory, PO BOX 999, Richland, WA 99352

Nanomedicine - Sponsored by Advanced Materials and Nanotechnology (Oral symposium #7409) Sponsored by I&EC; cosponsored with Division of Medicinal Chemistry. Organizer: Alexander Wei, Department of Chemistry, Purdue University, 560 Oval Drive, West Lafayette, IN 47907-2038

Nuclear Processing and Separations - Sponsored by Separation Science and Technology and Green Chemistry and Engineering Subdivisions (Oral symposium #7411) Sponsored by I&EC. Organizers: Dennis L. Hjeresen, Environmental Stewardship Division, Los Alamos National Laboratory, Mail Stop M992, Los Alamos, NM 87545; Gregg J. Lumetta, Radiochemical Science and Engineering Group, Pacific Northwest National Laboratory, P.O. Box 999, MSIN P7-22, Richland, WA 99352

Sci-mix (SciMix symposium #7414) Sponsored by I&EC.

Separation of f-elements - Sponsored by Separation Science and Technology Sub-division (Oral symposium #7415). Sponsored by Division of Industrial and Engineering Chemistry, Cosponsored with Division of Nuclear Chemistry & Technology. Organizers: Kenneth L. Nash, Chemistry Department, Washington State University, PO Box 644630, Pullman, WA 99164-4630; Dale D. Ensor, Department of Chemistry, Tennessee Technological University, Box 5055, Cookeville, TN 38505

Innovation: The Engine for Growth
November 2-4, 2005, Cincinnati, OH

Join a select group of chemical industry leaders as they discuss why innovation is a necessity and not a luxury. With your peers you will investigate the forms innovation can take and the metrics to measure it. Over the course of this meeting you will examine innovation success stories. You will discuss innovation inside and outside the organization, consider domestic and international possibilities, and weigh options that exist both upstream and downstream in the supply chain.

Conference chair
Louis Hegedus, Senior VP &&D, Arkema, Inc.

Keynote speakers
Miles Drake, VP & CTO, Air Products]
Tom Connelly, Senior VP and CS & TO, Dupont

Other speakers
Doug Berger, Managing Director, Innovation LLC

F. Peter Boer, President and CEO, Tiger Scientific
 Gary Calabrese, VP and CTO, Rohm and Haas
 Christian Collette, VP R&D, Arkema, France
 Carol Dudley, VP R&D, Dow
 Stan Gembicki, VP & CTO, UOP
 Isy Goldwasser, President, Symyx, Inc.
 Steve Lerner, Senior VP & CTO, Praxair
 Kenan Sahin, Founder and CEO of TIAX
 Ray Stark, VP & CTO, Honeywell Specialty Materials
 Paul Stiros, President and CEO, NineSigma
 James Trainham, VP Science and Technology, PPG Industries, Inc.

Conference registration includes complimentary attendance at the collocated AIChE Meeting. Visit www.aiche.org/conferences/management for more information.

Co-sponsored by AIChE and ACS.

Ionic Liquids: Not Just Solvents Anymore
OR
Ionic Liquids: Parallel Futures

A symposium at the Atlanta ACS National Meeting March 26-30, 2006

[ACS Division of Industrial & Engineering Chemistry](#)
[Green Chemistry & Engineering Subdivision](#)
[Separation Science & Technology Subdivision](#)
Novel Chemistry with Industrial Applications Subdivision

Organizers: J. F. Brennecke (jfb@nd.edu), R. D. Rogers (rdrogers@ua.edu), and K. R. Seddon (k.seddon@qub.ac.uk)

Sessions (organizer/presiding):

1. Why Are Ionic Liquids Liquid? (R. D. Rogers, rdrogers@ua.edu)
2. Ionic Liquid Structure Activity Relationships and Modeling (E. Maginn, ed@nd.edu)
3. Ionic Liquid Environmental Fate and Toxicity (Gary Lamberti, Gary.A.Lamberti.1@nd.edu)
4. New Industrial Applications of Ionic Liquids (Bob Hembre, rhembre@eastman.com)
5. Really New Ionic Liquids (Jim Davis, jdavis@jaguar1.usouthal.edu)
6. Ionic Liquids and Education (Robert Singer, robert.singer@smu.ca)

7. Ionic Liquids Applications Based on Physical Properties (John Wilkes, John.Wilkes@USAFA.af.mil)
8. Functional Ionic Liquids/Ionic Liquid Materials (H. Ohno, ohnoh@cc.tuat.ac.jp)
9. Analytical Applications of Ionic Liquids (D. Armstrong, sec4dwa@iastate.edu)
10. Micro-engineering with Ionic Liquids (Ray Allen, r.w.k.allen@sheffield.ac.uk)

Please contact the symposium or session organizers if you are interested in submitting an abstract to this symposium.

ELECTRONIC ABSTRACT SUBMISSION INSTRUCTIONS (NOT YET OPEN)

- Go to <http://oasys.acs.org/>
- Click on IEC (Division of Industrial & Engineering Chemistry)
- Check the circle next to our symposium; then click on 'Submit Topic Selection' at the bottom of the page
- Follow the remaining instructions!

PLEASE NOTE THAT ABSTRACT SUBMISSION IS NOT YET POSSIBLE FOR THE ATLANTA ACS MEETING, BUT IS ANTICIPATED TO OCCUR IN OCTOBER-NOVEMBER, 2005. PLEASE MONITOR THE WEB SITE FOR ABSTRACT SUBMISSION DEADLINES:

<http://www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=meetingsnational/index.html>

Ionic Liquids Workshop:
Background, State-of-the-Art, and Academic/Industrial Applications (Past, Present, and Future)
March 23-24, 2006
The University of Alabama, Tuscaloosa, AL

The workshop will provide R&D personnel with state-of-the-art information and a working knowledge of the chemistry, properties, and applications of ionic liquids, thus enabling decision making and utilization of these novel materials. The workshop which will include literature surveys, physical/solvent properties, engineering aspects, IL availability and synthesis, academic and industrial applications,

product demonstrations, and hands-on ionic liquid experience.

The workshop will immediately precede the Atlanta ACS meeting and will commence at noon on Thursday March 23 with some of the world's leading Ionic Liquids researchers and Ionic Liquids suppliers offering tutorials. The workshop will end on Friday evening March 24, allowing a leisurely 3.5 h drive to Atlanta on Saturday.

VENUE

The workshop will be held in the [Center for Green Manufacturing](#) laboratories located in the [Alabama Institute for Manufacturing Excellence](#) building on [The University of Alabama's](#) Tuscaloosa, AL campus. Directions to Tuscaloosa from the closest airport

(Birmingham, AL, ca. 60 miles) and to the AIME building are located on the web at URL <http://tour.ua.edu/>.

TIMETABLE

The workshop will start at noon on Thursday, March 23. The workshop will conclude with a reception at 5:00 pm on Friday March 24.

CONFERENCE OFFICE

Ionic Liquid Conference Office
Center for Green Manufacturing
Box 870336, The University of Alabama
Tuscaloosa, AL 35487 USA

+1-205/348-4323

+1-205/348-0823 (FAX)

Email: RDRogers@bama.ua.edu

I&EC Subdivision Programming Chairs

Industrial Biobased Technologies

Ramani Narayan
Prof Chem & Biochem Engineering
Department of Chemical Engineering
2527 Engineering Bldg
Michigan State University
East Lansing, MI 48824
narayan@msu.edu

Phone: (225)-578-3690

Fax: (208)-445-5569

Advanced Materials and Nanotechnology

Interim Programming Chair:
Florian Schattenmann
schattenman@crd.ge.com

Green Chemistry and Engineering

Ahmadali (Alex) Tabatabai
155 Peddlers Drive
Branford, CT 06405
Ph: 860-870-1258 or 203-481-3649
alextabai@yahoo.com

Separation Science and Technology

Gregg J. Lumetta
Staff Scientist, Sepns and Radiochem.
Team, Radiochemical Science and
Engineering Group
Pacific Northwest National Laboratory
PO Box 999; MSIN P7-22
Richland, WA 99352
gregg.lumetta@pnl.gov

Novel and Applied Industrial Chemistry

James J. (Jerry) Spivey
James M. Shrivvers Professor
Department of Chemical Engineering
Louisiana State University
S. Stadium Drive, Baton Rouge, LA 70803
jjspivey@lsu.edu
www.che.lsu.edu/faculty/spivey/index.htm

Industrial & Engineering Chemistry Division Officers (Bold) and Executive Committee Members for 2005

Position	Term	Name	E-mail
Chair	2005	Denny Hjeresen	dlh@lanl.gov
Chair-elect	2005	Rick Sachleben	richard.sachleben@solvias.com
Past-Chair	2005	Bill Flank	wflank@pace.edu
Treasurer	2004 - 2005	Angelo Cassar	angelo.cassar@chartermi.net
Secretary	2004 - 2006	Bill Crooks	crooks@lanl.gov
Councilor	2005 - 2007	Spiro Alexandratos	alexsd@hunter.cuny.edu
Councilor	2003 - 2005	Melanie Lesko	Leskom@tamug.tamu.edu
Councilor	2004 - 2005	Ken Nash	knash@wsu.edu
Councilor	2004 - 2006	Martin Abraham	martin.abraham@utoledo.edu
Program Chair	2004 - 2006	Rebecca Chamberlin	rmchamberlin@lanl.gov
Program Secretary	2004 - 2006	Michael Gonzalez	gonzalez.michael@epa.gov
Web/Newsletter	2004 - 2006	Dustin James	dustin@rice.edu
Book Pubs/Publicity	2004 - 2006	Gretchen Kohl	gretchen.kohl@dowcorning.com
Awards	2004 - 2006	Ronald L. Yates	ryates@dow.com
Membership	2002 - 2004	Steven J. Cooke	scooke@sprynet.com
Parliamentarian	2004 - 2006	Robin Rogers	RDRogers@bama.ua.edu
Industrial Relations	2004 - 2006		
Historian	2004 - 2008	Ralph Gatrone	rgatrone@vsu.edu
Subdivisions			
SS&T Chair	2005	Andy Bond	
GC&E Chair	2005	Brian C. Blakey	blakey@research.ge.com
GC&E Chair-elect *	2005	Phil Jessop	jessop@chem.queensu.ca
IBT Chair	2005	Graham G Swift	GrahamGswift@aol.com
AMN Chair	2005	Florian Schattenmann	florian.schattenmann@crd.ge.com
AMN Chair-elect *	2005		
NCIA	2005	Joe Zoeller	izoeller@eastman.com

* Non-executive committee positions