Dr. Ulf-H. Dolling
2005 North Jersey Section’s Lifetime Achievement Awardee
(See page 5)
ULF-H. DOLLING RECEIVES THE NORTH JERSEY ACS SECTION LIFETIME ACHIEVEMENT AWARD

Sponsored by the Novartis Pharmaceutical Company

Dr. Ulf-H. Dolling of the Process Research Department of the Merck Research Laboratories has compiled an outstanding record of groundbreaking scientific achievements during his career at Merck, and much of his work has been recognized internationally for its creativity and excellence. After completing his undergraduate education with the Vordiplom from the University of Hamburg, Germany, in 1967, Dr. Dolling pursued his PhD in organic chemistry with Prof. Robert Moss at Rutgers University. His postdoctoral research with Prof. Gerhard Ollis at the University of Chicago, widened his horizon employing CIDNP NMR for detailed mechanistic studies. In 1973 he joined the Merck Research Labs as a Senior Research Chemist in the Process Research Group. He is currently Executive Director and is responsible for a group of more than fifty chemists in the United States and England.

Dr. Dolling had rigorous training in physical organic chemistry during his doctoral and post doctoral studies, and his meticulous attention to scientific detail has been evident throughout his career. His first MRL programs represent a scientific benchmark for outstanding accomplishment. He designed the first practical racemic syntheses of 3-fluoro-D-alanine-2-d, a bacterial candidate that Merck was developing at the time via a novel reductive amination of lithium fluoropyruvate with sodium borodeuteride in conc. ammonium hydroxide. The kinetics of the pyruvate equilibration from aminal to gem-diamine and subsequent reduction was studied via 1H- and 13C-NMR in the presence of 19F and 15N (certainly one of the most complex array of single spin systems at the time). Of course, it was a racemic process, and Dr. Dolling developed a laboratory resolution via preferential crystallization in a continuous, fluidized bed to prepare the D-isomer as its p-benzenesulphonate salt. Although this type of resolution was known in physical chemistry texts and had been applied to the methylalcohol manufacturing process, Dr. Dolling was the first to apply it on a preparative multi kg laboratory scale.

Thereafter, Dr. Dolling conceived of and demonstrated the first-ever practical chiral, catalytic phase transfer alkylation (94% e.e. at 100% yield) and demonstrated the process on pilot plant scale. In a follow up Dr. Dolling and his group developed a novel variant of this chemistry, wherein 1,3-dichloro-2-butene was used to achieve an enantioselective Robinson annulation via alkylation. In a unique efficiency enhancement for this industrial process he designed a novel dual catalyst in which an achiral co-catalyst derived from poly(ethylene glycol) carries out the phase transfer part of the reaction while the high affinity of the chiral catalyst for the substrate forces the chiral alkylation exclusively through the substrate-chiral catalyst ion pair. In addition to JACS, JOC, Angewandte Chemie, and Catalysis of Organic Reaction publications, this work was highlighted in C&EN News at the time. This groundbreaking achievement set the stage for all of the chiral phase transfer work that has followed in the past twenty years, including that of O’Donnell, Corey and Maruoka. While the others have developed newer catalysts and new applications, Dr. Dolling’s basic principal still obtains – the remarkable e.e.’s in these processes are controlled by the nature of the catalyst-substrate complexes and their subsequent reactions. Not only has this work been recognized as an outstanding achievement by the world-wide chemical community, but it is still regularly taught in advanced undergraduate and graduate courses throughout the world. During the 1980’s Dr. Dolling’s work clearly put him at the forefront of the enantioselective research.

Dr. Dolling continued his research successes with the development of a novel double-bond introduction method employing DDQ for the finasteride manufacturing process. In this variation amidines and ketones are converted to their respective silylimidates and sulfenol ethers. These react at room temperature in an SET process with electron deficient quinones to form substrate-quinone adducts, which undergo a rapid 1,2-electrocycl reaction to establish the desired double bond. Thus, Dr. Dolling was able to demonstrate a novel mechanism for oxidation via quinones that had not been anticipated by the chemical community. Not only was this chemistry worthy of a JACS publication, but it still forms the basis of the finasteride manufacturing process, and has been used over the years to produce thousands of kilograms of this drug product.

At this point in Dr. Dolling’s career he began assuming larger responsibilities. Yet, he has steadfastly maintained a superb record of scientific accomplishment and their practical applications in all of his programs. His group’s work on the MRSA carbapenems represents some of the very best and most complex applications of metal-mediated couplings to practical β-lactam syntheses. In the realm of drug processes, those for the carbapenems remain the most challenging and complex. Most remarkable in his design of the Invanz manufacturing process, is that the observation that an intermediate was forming a CO₂ adduct was not discarded as a nuisance, but captured as a novel way of stabilizing the system throughout the processing and allowing the desired chemistry to proceed forward. The extreme attention to detail and capitalizing on minute observations as reflected in the Invanz process, has proven to be a hallmark of Dr. Dolling’s work. In addition his group has had numerous achievements in the field of asymmetric synthesis and catalysis ranging from new mechanistic understanding on the Itosu-Cory OAS reduction system to a new method for the enantioselective synthesis of 2-arylxy acids employing lactamide derived esters and his group’s work in the diasteroselective double ring closing metathesis reactions in the enantioselective synthesis of NK-1 receptor antagonists.

Over the years Dr. Dolling has compiled an excellent record of publications and patents. He is a sought-after speaker, whose lectures are those of a dedicated teacher. Within the Merck Process Group he has always been a scientific leader and teacher, which has repeatedly demonstrated his remarkable ability to take small and seemingly unimportant observations and turn them into remarkable scientific and practical achievements that he has made during the course of his MRL career render him a most deserving recipient of the Lifetime Scientific Achievement Award of the North Jersey Section of the ACS.

Dr. Ralph P. Volante
Editor’s Note: Award will be presented at the MARM 2005 meeting.

Deadline for items to be included in the September 2005 issue of The Indicator is July 15, 2005.
North Jersey increasingly is involved in materials and nanoscience. Related symposia will include Polymeric Biomaterials, Catalytic Routes to Novel Biomaterials, Tissue Engineering and Cell-Material Interactions, Interfaces, Surfaces and Nanoparticles, Solid State and Materials Chemistry and Nanoscience and Technology. Physical Chemistry will be showcased in three symposia: Spectroscopy of Biomolecules, Interfaces & Materials; Gas-Phase Thermochromy; and Electronic Structure in Chemistry.

Undergraduate Poster Session
MARM’s undergraduate poster session Monday, May 23rd, provides an exciting opportunity for students to present their research and to network with potential mentors and employers. Students will vie for the Jean Durana Award for best overall poster, the Sigma-Alpha-Chemist award for best poster in organic chemistry, and the Sigma-Gamma-James Award for best poster in analytical chemistry. Each of the 25 presenters will receive a prize in recognition of their efforts. A lecture by a distinguished University professor will be presented following the award ceremony. The celebratory event will be followed by a special networking reception for the students present. The Chromatography Forum of Delaware Valley Student Award symposium will feature eight of the best separations papers.

Graduate Student Poster Session and Related Programming
Several events are planned specifically for graduate students. On Tuesday, May 24th, The New York and North Jersey Sections of the ACS will co-host the graduate student poster session, with primary sponsorship from the Camille and Henry Dreyfus Foundation. Four winners will receive a $250 prize and an invitation to present their research at the annual N.J. Section/American Chemical Society Symposia at Rutgers University. Undergraduate poster sessions will be judged by a panel of young chemists/recent graduates employed in industry. Poster sessions will be followed by a complimentary lunch for the participants. That afternoon they are invited to a panel discussion by three pharmaceutical industry leaders on Making Plans for a Career in the Pharmaceutical Industry. The panel will focus on employment opportunities, especially for new doctoral graduates, and what it is like to work in the pharmaceutical industry. See www.marmacs.org for more information and details on how to submit a poster.

Symposia for students, teachers, parents, and scientists will cover exciting developments in biology, chemistry, material science, engineering, biotechnology, forensics, and public health and safety. Additional sessions on mentoring, career development, an educational exposition, and a college fair will be included, along with special tours of the Wright-Riemann chemistry laboratories, panel discussions on college life from the perspective of science students, and a presentation on So You Want to Be a Doctor.

Symposia
MARM 2005 will present more than 70 invited technical sessions organized by and featuring experts from many chemical disciplines. Some of the many highlights include: A keynote talk by Dieter Seebach (ETH) on “Self-Assembling Synthetic Systems, Volumes, and Biomedical Potential.” A symposium organized by S. Knapp on Advances in Organic Synthesis will include presentations by Lawrence Williams, Gary Molander, Marco Ciufolini, and Eric Sorensen. Experts John Hartwig, Xumu Zhang, Dai Sames, and Pat Cashman on Catalysis. A Symposium on Organic-Based Catalysis. A Symposium on Research Opportunities with T. Jacoby, industry experts Michael Palucki and Ramesh Patel in a cutting-edged session on Enantioselective Reactions and Syntheses.

A strong medicinal chemistry program that should be of particular interest to pharmaceutical scientists is built around drugs, targeting Kinases, Ion Channels, Proteins, and GPCR. Pharmaceutical Profiling with Roy Vaz (Aventis) and Ken Korzekwa (Merck) will appeal to analytical scientists, as will ADMET Toxicology, Analytical Chemistry Frontiers, Biomarkers, and numerous individual technologies such as In-Line Analytics, LC-MS, and Enabling Technologies. The Divisions of Analytical Chemistry and Chemical Toxicology are sponsoring symposia on Transporters, Metabolizing Enzymes, Pharmacokinetics, Biotransformations, Toxikokinetics and Toxicological Studies.

Bench to Pilot Plant will feature Mauricio Futran (BMS), Amit Banerjee, Robert Waltermire (BMS) and Yogesh Sanghvi (Rasayan). This symposium has become an institution over the last six years at both local and national meetings. Aventis’ signature chemistry symposium, Visions in Chemistry features Steven Ley (Cambridge), Victor Sniekus, David Triggle, and Scott Denmark. Hot topics include Functional Proteomics and Cell Signal transmission organized by T. Neubert, and DNA Gadgets with Wilma Olson.

Two landmark events will take place this year at MARM: 1) The Cope Scholar Award Symposium honoring Professor Gary Posner of Johns Hopkins University marks the first time this national award of the ACS will be presented at a Regional Meeting. 2) An ACS National Historic Chemical Landmark Award will be presented along with a technical symposium recognizing the work carried out by Selim Waksman’s research group at Rutgers. Additionally, two ACS Regional Innovation Award winners will present their work.

The American Institute of Chemical Engineers (AIChE) is contributing several workshops, and the Royal Society of Chemistry is holding its quarterly meeting at MARM. The American Association of Pharmaceutical Scientists (AAPS) is a meeting sponsor bringing programming from the school of pharmacy and pharmaceutical scientists. Programs on Small Business and Patent and Legal Issues are planned, as well.

The Director of the ACS Green Chemistry Institute, Paul Anastas, will discuss green chemistry issues with several well-established figures in the synthetic organic community, including Peter Wipf. Talks will focus on second generation Gleevec, a new carbapenem antibiotic and an HIV treatment along with new technologies and their applications.

Workshops
Throughout the meeting there will be workshops of interest to new graduates on diverse employment opportunity subjects such as: Exploring Routes to becoming a High School Teacher, Curriculum Vita Preparation, Interviewing Techniques for Experienced Chemists/Chemical Engineers, Becoming A Teacher at a College/Community College, Internships, Managing an Effective Job Search, Career Enhancements for Chemical Technicians, Getting Research Grants, Job Transitioning to Alternative Careers, Resume Preparation, and, of special interest to graduate students, a panel discussion on Landing Your First Job at a Pharmaceutical Industry. This two-day package of workshops and poster sessions is a powerful, useful collection of opportunities for graduate students that rarely, if ever, occur in one place. Please register for the workshops of your choice on the advance registration form found on the MARM website at www.marmacs.org.

Awards and Related Presentations
Several awards and recognitions to very worthy individuals and groups will be presented during MARM. An individual or institution will be given the Stanley C. Israel Regional Award for Advancing Diversity in Chemical Science. The ACS Office of Industry Programs will present the Regional Industrial Innovation Award, given to the person and/or team in industry that has invented something that has improved the lives of the citizens in the region. The E. Emmett Reid Award will be presented to a college chemistry teaching faculty. A Regional High School Teacher Award will be presented. The North Jersey Section of the ACS will present a Lifetime Achievement Award for service to a deserving chemist, chemical researcher, or chemical engineer.

National Historic Chemical Landmark
On Tuesday, May 24th at 2 PM the discovery of the actinomycete antibiotics (especially streptomycin by Albert Schatz and Selman Waksman) will be dedicated a National Historic Chemical Landmark in a ceremony at Martin Hall on the campus of Rutgers University. The thread-like soil bacteria, the actinomycetes, became soil microbiology’s gift to medicine. The actinomycetes were recognized as a pharmaceutical lead by the most successful streptomycin as a cure for tuberculosis, and more than 1200 compounds such as FK 506, anti-infectives such as aminovencin (a cure for river blindness), and anti-cancer agents, including Rutgers’ first antibiotic, actinomycin. Waksman and his colleagues made a major conceptual leap in determining the actinomycetes had the potential to be the fiscal resource, and they developed a process for investigating soil microbes. The Landmark celebration illustrates how the actinomycetes dramatically
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changed the course of medicine, the pharmaceutical industry, and fermentation engineering. An Actinomycete Antibiotic Symposium Wednesday morning, May 25, will address the historical perspectives in the search for new antibiotics.

At the Awards Dinner Wednesday night, Jeannette Brown, North Jersey Section, Retired, will be recognized as the recipient of the ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences. She will receive the award at the fall meeting of the ACS in Washington, DC. Ed Chandross, Retired, Bell Labs, Lucent Technologies, will be recognized for winning the ACS Award in Industrial Chemistry. MARM also will recognize its ACS 50-year members and the student winner of the Chemistry Olympiad. There will also be an Industrial Innovation Plenary Session and Reception on Wednesday afternoon. Topical and affiliate groups will also be presenting awards or recognizing their members. Seating at this event is limited, so purchase your ticket on the advance registration form.

Chemical Exposition

A vendor exhibit featuring local and national scientific companies will be held Monday and Tuesday, May 23-24, from 11 am to 7 pm. The exhibit will be directly adjacent to poster presentations and the complimentary food and beverage services for all attendees. Vendors wishing to participate may contact Jiwen Chen (Scherig, Piccigallo), 908-740-4931 or sign up online at www.marmacs.org/vendors.html.

Career Services & Regional Employment Clearinghouse (RECH)

MARM 2005 is pleased to offer an ACS Regional Employment Clearing House for job seekers, one-onone resume reviews with trained career consultants, and a broad range of career workshops and panel discussions designed to enhance the careers of chemical professionals.

MARM members and national and student affiliates interested in signing-up as job candidates for the Employment Clearing House should contact ACS Career Services at 1-800-227-5558 x6209 to enroll. Employers interested in recruiting on-site or posting positions in absentia may obtain registration and fee information for the ACS Career Services at 1-800-227-5558 x6209. The deadline for signing-up for the Employment Clearing House is May 6.

Members and student affiliates wishing to have their resumes reviewed by a career consultant should register by May 6 by going to www.marmacs.org. Those who do will be given preference over attendees who register on site. Individuals should bring copies of their resumes. Reviews will be done Sunday through Tuesday.

On Sunday through Tuesday, the ACS Office of Career Services will host workshops for undergraduate and graduate students, and experienced chemists:

- Resume Preparation
- The Value of Internships for Recent Graduates
- Interviewing Skills
- Curriculum Vita Preparation
- For Experienced Chemists/Chemical Engineers
- Resume Preparation
- Managing an Effective Job Search
- Career Enhancement for Technicians
- Getting Research Grants Funded

There is no charge for these workshops; however, attendees should register on-line at www.marmacs.org.

MARM has scheduled several panel discussions featuring speakers from diverse career pathways in government, patent law, consulting, chemical information, industry, and academia on Monday and Tuesday. Panel members will address the following topics:

- Exploring Routes for Becoming a HS/MS Teacher
- Alternative Careers for Chemists
- Landing Your First Job at a Pharmaceutical Company
- Planning A Career in the Pharmaceutical Industry
- Becoming a Teacher at a College/Community College

Advance registration for these sessions at www.marmacs.org is strongly urged.

Housing

MARM has reserved single and double rooms on campus in McCormick Residence Hall. These rooms are arranged in clusters of three bedroom suites, with a shared living area and common bath. Daily maid service is available. To reserve a dorm room, please submit the reservation form located at http://marmacs.org/hotels.html.

Additionally, MARM has arranged for special rates at the Hyatt Regency New Brunswick (732-873-1234) and the Radisson Hotel Piscataway (formerly the Sheraton Four Points Barceló, 732-980-0400). The Hyatt Regency New Brunswick is a short walk from a NJ Transit train station and the Radisson Hotel Piscataway is located just off Rt. 287, a short drive from Rutgers. Please call either directly to make your reservation. Mention that you are attending the ACS Middle Atlantic Meeting to receive the meeting discount.

Other Special Events

There will be a networking lunch Monday where attendees will have the opportunity to meet many of the speakers and their fellow attendees from academia and industry. On Tuesday at noon there will be a Women Chemists Committee (WCC) luncheon where ACS Past President Elsa Reichmanis will talk on Breakthroughs in Material Chemistry for Advanced Technologies: A Collaborative Endeavor. The luncheon will be followed by a symposium sponsored by the WCC on Nature/Nurture: Women in Academe. On Wednesday at noon, ACS Past President Ronald Breslow will speak on Chemistry: A Glorious Past, and an Even Greater Future at a luncheon celebrating chemists and chemistry. On Monday and Tuesday evenings there will be a "Roving Feast," a buffet dinner near the Chemical Exposition. After dinner on Tuesday Dieter Seebach (ETH) will give his keynote talk. Also on Tuesday evening there will be a panel discussion with ACS past presidents led by ACS Past President Paul Anderson. Reserve your tickets to these events on the advance registration form available on the MARM website.

Meeting Registration

Register online at the MARM website at http://marmacs.org, or the ACS regional meetings website at http://www.chemistry.org/meetings/regional. Registration forms may also be downloaded from either site. Take advantage of the discounted fees for advance registration and submit your form online, by fax, or mail before the May 2nd deadline.

Onsite registration will be available beginning Sunday morning, May 22, at the Rutgers Busch Campus Center from 8:30 am to 5:30 pm. Registration opens 30 minutes before the first session throughout the meeting, and closes 30 minutes after the start of the last session or event on Monday and Tuesday. Registration ends at 11:00 am on Wednesday.

Additional Information

For more information, visit the meeting web site at http://marmacs.org, or contact the General Co-Chairs, Alan Cooper at 908-740-3106 or alan.cooper@spcorp.com, or Bill Suits at 908-234-9240 or billsuits@earthlink.net. The program Co-Chairs are Les McQuire, 862-778-0307 or leslie.mcquire@pharma.novartis.com and Joe Potenza at 732-445-2115 or jpotenza@rutchem.rutgers.edu.

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Middle Atlantic Regional Meeting Program

Sunday, May 22, 2005 (Science Education & Career Day)

Day-Long Events
Math Science Learning Center
Tours of the Chemistry Research Laboratories
IMAX video, Volcanoes of the Deep, commentary by Rich Lutz
How to be a More Effective Chemical Hygiene Officer short course (Russ Phifer, CHAS)

Special Events & Programs (Morning)
Talk on 100 Years of Genetics
Talk on From Willow Bark to Polyaspirin: Discovery and Invention
Talk on The Seascape Then and Now
Panel Discussion: So You Want to be a Doctor
Workshops
Resume Preparation for Pre-college Students
Resume Preparation for Undergraduates
Public Relations Workshop

Special Events & Programs (Afternoon)
Spectacular Physics Show
Talk on Counterfeiting: From Banknotes to Diamonds
Talk on Antibiotic Discoveries at Rutgers
Talk on 100 Years of Chemistry
Talk on Using Technology to Inspire Students, Teachers, and Mentors
Career Development Symposium
Forensics Symposium
Chemistry Magic Show
Joseph Priestly (David Blatchley) will perform his original gas discovery experiments
Tech to Great Symposium
Posters & Projects: Project SEED Poster Session, Chemagination, Young Science Achievers, Regional Science Fair, NJ Academy of Sciences, College Fair

Monday, May 23, 2005
11:00 am – 7:00 pm Exposition

Special Events (Morning)
Undergraduate Poster session (Jean Durana Award, Sigma-Aldrich Award)
NRCC Certification Exam
Workshops
Resume Preparation for Experienced Chemists
Interviewing for Experienced Chemists and Chemical Engineers

Special Events (Afternoon)
Networking Lunch
Astrochemistry: What's New and Exciting in Interstellar and Planetary Chemistry?
Symposium for Undergraduate Educators: The General Chemistry Laboratory
Undergraduate Reception
Workshops
Resume Preparation for Recent Graduates and Undergraduates
Managing an Effective Job Search
Alternative Careers (panel discussion)
Career Enhancement for Chemical Technicians
Landing Your First Job at a Pharmaceutical Company (panel discussion)
Exploring Routes for Becoming a HS/MS Teacher (panel discussion)
Interviewing for Recent Graduates and Undergraduates

Special Events (Evening)
Roving Feast Buffet Dinner

Symposia (Morning)
Amphiphilic Biomaterials
Bench to Pilot Plant I
Bioinformatics
Biomarkers: Quantification, PK/PD Correlation and Bioanalytical Issues
DNA Gadgets: Making Novel Use of the Physico-chemical Properties of DNA
Drug Transporters
Kinases
Materials Chemistry, Inorganic & Organic Polymers
Pharmaceutical Profiling I
Regulatory and Patent Law
Solid State and Materials Chemistry I
Strategies for Growth: Small Company-to-Big Player
Symposium on Spectroscopy of Biomolecules, Interfaces & Materials I

Symposia (Afternoon)
About the General Chemistry Laboratory
Bench to Pilot Plant II
Discovery to Commercialization
Frontiers in Organometallic-Catalyzed Organic Synthesis
GPCR/Virtual Screening
Gene Expression: Transcription
Marine Environment Chemistry
Pharmaceutical Profiling II
P450 and Other Metabolizing Enzymes
Solid State and Materials Chemistry II
Stars and Branched Polymers
Symposium on Spectroscopy of Biomolecules, Interfaces, & Materials II

Tuesday, May 24, 2005
11:00 am – 7:00 pm Exposition

Special Events (Morning)
Graduate Poster Session with complimentary lunch for participants
Symposium: Laboratory Experiences in Undergraduate Curriculum
Undergraduate Research Symposium
Workshops
Preparing a Curriculum Vitae
Resume Preparation for Experienced Chemists
Internships-A Tremendous Learning Experience
Interviewing for Experienced Chemists and Chemical Engineers
AIChE Short Course: Pharmaceutical Engineering Fundamentals, Part I

Special Events (Afternoon)
WCC Lunch with ACS Past President Elsa Reichmanis as guest speaker
WCC Symposium: Nature/Nurture: Women in Academe
Panel Discussion for Graduates: Making Plans for a Career in Pharmaceutical Industry
Symposium: Research Opportunities for Primary Undergraduate Institutions
2005 Chromatography Forum Student Award Symposium
A.P. Chemistry Symposium
Journal of Chem. Ed.As Resource
Student contests
Workshops
Computer Simulations for HS Education
Managing an Effective Job Search
PowerPoint for High School Education
Becoming a Teacher at a College/Community College
Getting Research Grants
Resume Preparation for Recent Graduates
Interviewing for Recent Graduates
AIChE Short Course: Pharmaceutical Engineering Fundamentals, Part II
National Historic Chemical Landmark Ceremony (Discovery of the Actinomycete Antibiotics)
Panel Discussion with ACS Presidents

Special Events (Evening)
Roving Feast Buffet Dinner
Panel Discussion with ACS Presidents
High School Teacher Affiliate Group Event
Keynote address by Prof. Dieter Seebach: β- and γ Peptides: Syntheses, Structures, and Biomedical Potential

Symposia (Morning)
Electronic Structure in Chemistry
Enabling Technologies in the Analytical Laboratory
Gas-phase Thermochemistry
Green Chemistry I
In-Line Analytics for Reaction Monitoring

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Middle Atlantic Regional Meeting Program

Inorganic & Organic Polymers
Ion Channels
Laboratory Experiences in the Undergraduate Curriculum
Molecular Modeling throughout the Drug Discovery Process I
Nanoparticles and Nanoshells
Novel Instrumentation and Applications of Mass Spectrometry in ADME Studies
Pharmacokinetics
Surface & Interface Science
Toxicokinetics: Visions in Chemistry I

Symposia (Afternoon)
2005 Chromatography Forum Student Award Symposium
AP Chemistry Symposium
Applications of LC-MS in Drug Discovery/Development
Biotransformation
Computer Simulations Workshop for HS Education
Electronic Structure in Chemistry
Gas-phase Thermochemistry
Green Chemistry II
Journal of Chemical Education as a Resource
Molecular Modeling throughout the Drug Discovery Process II
PowerPoint Workshop for HS Education
Proteinase
Regulatory and Patent Law: The Scientist's Perspective
Research Funding Opportunities for Primarily Undergraduate Institutions
Student Contests in Education
Surface & Interface Science
Targeted Drug Delivery
Symposia (Evening)

Wednesday, May 25, 2005

Special Events (Morning)
ACS District Director's Breakfast hosted by ACS Board Member Madeleine Joullie. Open to all Attendees
Symposium for Undergraduate Educators: Forensic Chemistry Education
AIChe Short Course: Electrostatic Hazards and the Control of Dust Explosions

Special Events (Afternoon)
Symposium: Process Oriented Guided Inquiry Learning POGIL
Celebrating Chemistry & Chemists Lunch with guest speaker ACS Past President Ronald Breslow
AIChe Short Course: Microreactors & Microreaction Systems for Development & Production

Special Events (Evening)
Awards Reception & Banquet

Symposia (Morning)
Advances in Organic Synthesis
Celebrating Chemistry: National Historic Chemical Landmark Symposium
Functional Proteomics and Cell Signaling
Forensic Chemistry Education
Green Chemistry III
Nanoscience & Technology
Surface Modification
Tissue Engineering and Cell-material Interactions
Toxicological Studies

Symposia (Afternoon)
Cope Scholar Symposium honoring Gary Posner
Enantioselective Reactions and Syntheses
Engineered Biomaterials
History of the NJ ACS
Process-Oriented Guided Inquiry Learning (POGIL)
Polymeric Biomaterials

DEADLINE FOR RECEIPT OF ADVANCE REGISTRATION IS MAY 2, 2005
37th ACS Middle Atlantic Regional Meeting – MARM 05
Rutgers University, Piscataway, NJ
May 22-25, 2005
Hosted by the North Jersey Section and Rutgers University, Department of Chemistry

Please contact the Off. of Mags and Expo Services at (202) 872 - 6557 if you require special accessibility accommodations to fully participate.

REGISTRATION FEES

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<td>10. 50 Year ACS Member</td>
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CAREER WORKSHOPS (No Charge, advance registration required)
SAT. May 21, RSC Reception/Dinner/Talk

AECE SPONSORED SHORT COURSES (All = Morning/PM = Afternoon)
TUES. May 24, AECE Pharmaceutical Engr. Fundamentals Workshop (AM/PM) $190
TUES. May 24, AECE Electrostatic Hazards and Control of Dust Exp. (AM) $25
WED. May 25, AECE Micromachines & Micromechanics Sys. for Dev. & Prod. (PM) $25

Please read the following important information:

- All registrations must be prepaid by either check or credit card in order to be processed
- Mail or fax completed form to American Chemical Society, Office of Society Services, 1155-16th Street, N.W., Washington, DC 20036. Phone: 800-227-9550. Fax: 202-872-8988
- Please submit a separate registration form for each registrant.
- Request for refund must be submitted in writing to American Chemical Society, Office of Meetings and Exposition Services, 1155-16th Street, N.W., Washington, DC 20036
- ALL REFUNDS MUST BE SUBMITTED BEFORE MAY 15, 2005
- NO REFUNDS AFTER MAY 15, 2005

Total Fees $_________

Payment by: L American Express L MasterCard L Visa L Check (Payable to ACS)

Registration $_________

Cardholder Name (please print):

Events $_________

Signature:

Exp Date:

Total Amount Enclosed $_________

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THE INDICATOR-MAY 2005

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NORTH JERSEY ACS-TEACHER AFFILIATES
Annual Mole-Day Poster Contest — Theme: Moles-Go-Round
Attention All New Jersey High School Chemistry Teachers!

First place winner receives $100 and $100 Certificate for supplies from Flinn Scientific
Contact Patti Duncan at pduncan@hpregional.org for guidelines

SCENES FROM TEACHER AFFILIATES MEETINGS

Karen Posluszny and Maricar Korff of East Brunswick HS organized several make-and-take sessions for the February ChemTAG meeting.

DESERT ANALYTICS LABORATORY

CNOSP Halogens
Metals by AA / ICP
Ion Chromatography
Trace Analysis
Coal/Petroleum

Fast, Reliable Service
No Charge for Phone/Fax Results
Web: desertanalytics.com
E-mail: thelab@desertanalytics.com
We Accept:

ANALYSIS FOR THE CHEMICAL ELEMENTS

EXECUTIVE COMMITTEE AND SECTION MEETING
There will be no Executive Committee Meeting in May.

CAREERS IN TRANSITION GROUP
Job Hunting??
Are you aware that the North Jersey Section holds monthly meetings at Fairleigh Dickinson University in Madison to help ACS members? Topics covered at these cost-free workshops are:
- The latest techniques in resume preparation
- Ways for improving a resume
- Answers to frequently asked interview questions
- Conducting an effective job searching.

The next meeting for the Careers In Transition Group will be held Thursday, May 5, 2005, in the Rice Lounge on the first floor of the New Academic Building. The meeting will start at 5:30 PM and end at 9:00. There will be a Dutch-treat dinner. To get the most from the meeting, be sure to bring transparencies of your resume.

This will be the last time you will be able to get advice on your resume prior to the Regional Clearing House that will be part of MARM, May 23-25, 2005 at Rutgers University.

Please contact vjkuck@yahoo.com, if you plan on attending this meeting.

TEACHER AFFILIATES
Executive Committee Meeting
Date: Monday, May 9, 2005
Time: 4:30 PM
Place: Chatham High School
255 Lafayette Avenue
Chatham, NJ
Contact: Diane Krone at krored@optonline.net or (201) 385-4810

ChemTAG MEETING
Date: Thursday, May 12, 2005
Time: 4:00 PM
Place: North Brunswick High School
Raider Road
North Brunswick, NJ
Contact: Bobbi Gorman at rosellerams@yahoo.com
Directions to high school:
http://www.nbtschools.org/hsinfo.htm

CHEM CENTRAL MEETING
Date: Wednesday, May 18, 2005
Time: 4:00 PM
Place: Howell High School
Yellowbrook-Squankum Rd.
Farmingdale, NJ
Contact: roseannmcc@comcast.net

Chem Essentials Workshop

This will be the last time you will be able to get advice on your resume prior to the Regional Clearing House that will be part of MARM, May 23-25, 2005 at Rutgers University.

Please contact vjkuck@yahoo.com, if you plan on attending this meeting.
THE INDICATOR-MAY 2005

TEACHER AFFILIATES

Summer Chemistry Workshop

The North Jersey Section of the American Chemical Society, Teacher Affiliates Group, is hosting a week long workshop for chemistry teachers. It is open all chemistry teachers who are interested.

The workshop will run from August 15 through 19, and be held on the campus of Fairleigh Dickinson University in Madison. The cost is $300 per person and includes breakfast, lunch, snacks, all materials and supplies including a notebook and CD of the week’s activities.

The lead presenters are Brenda Rosenau of Somerville H.S. and Patricia Duncan of High Point Regional H.S. and is being coordinated by George Gross, retired, Union H.S.

The New Generation: A Year of Chemical Tools for Chemistry Teachers will cover all major topics in the chemistry curriculum and will include five, eight hour days of demonstrations, experiments, make and takes and technology for chemistry. It is designed to give you new tools to liven up your chemistry classes.

Housing is available nearby but is not included. Participants must arrange their own housing.

The presenters are all experienced presenters having presented at local, state, national and international meetings of chemistry teachers. All three have been involved with Flinn Scientific programs during the summers or at national conventions as well.

Dates: August 15-19, 2005
Place: Fairleigh Dickinson University
Madison, NJ
Cost: $300 per person (includes breakfast, lunch, snacks, all materials and supplies including a notebook and CD of the week’s activities)

For additional information contact bkrosenau@aol.com or 908-218-9404. To register, send a check in the amount of $300.00, payable to ACS-TA, and mail it to George R. Gross, 445 Wyoming Avenue, Millburn, NJ 07041.

NEW JERSEY CHEMISTRY OLYMPICS-2005

A Competition for High School Students

Date: Wednesday, May 4, 2005
Place: NJIT
Newark, NJ

There are three categories of events: Research, General, Laboratory. Turn your students on to chemistry. Go to http://web.njit.edu/chemistryolympics/ for more details and for information about registering a team.
New York Meetings

www.newyorkacs.org

WESTCHESTER CHEMICAL SOCIETY

Distinguished Scientist Award

Recipient: Dr. Gary M. Williams, MD
Professor of Pathology
Director of Environmental Pathology and Toxicology

Student Achievement Awards for Excellence in Chemistry - High School and College

"Chemical Design for Improved Safety of Medicines"

In the development of medicines, new chemical entities are designed and selected primarily on anticipated therapeutic effects. Frequently, however, issues arise in the plethora of preclinical safety assessment studies that precede the clinical studies of safety and efficacy. Examples will be presented of chemical structures that convey specific preclinical toxicities and of the application of chemical design to address such safety concerns.

Date: Wednesday, May 4, 2005
Times: Refreshments and Social 5:00 PM
Awards and Presentation 5:45 PM
Dinner - 7:15 PM

Place: New York Medical College
Basic Science Building
Grasslands Road
Valhalla, NY

Costs: $25.00
Reservations are required for security reasons. Reservations deadline: April 27, 2005

Please send check addressed to Westchester Chemical Society to: Joan Laredo-Liddell, 391 Palmer Road, Yonkers, NY 10701-5239.
Information:
phone/fax: 1-914-476-6860
e-mail: JLaredoliddell@aol.com

Please check the Section website for specific directions at the beginning of May. It will be important to know which entrance to the parking lot has the security guard with the names of the attendees.

ANALYTICAL TOPICAL GROUP

Sampling for Hydrophobic Organics in Water and Air: Challenges and Data Usage

Speaker: Lisa Totten
Assistant Professor
Department of Environmental Sciences and Center for Environmental Prediction
Rutgers University
New Brunswick, NJ

Measuring hydrophobic organics such as PCBs, PAHs, brominated flame retardants, and polychlorinated dioxins and furans is essential to the development of fate and exposure models, but it is fraught with many difficulties and challenges. Methodology and quality control issues will be discussed.

Date: May 5, 2005
Times: 6:00 PM
Place: The Graduate Center of the City University of New York
365 Fifth Avenue
New York, NY

The room number will be posted in the Lobby for further information contact Dr RP Nolan (212)817-8248.

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Solution on page 25.
CHEMICAL MARKETING AND ECONOMICS GROUP

Chemical Investments in China: What Works and What Doesn’t?

Speaker: Russell Beiter
Partner
Chemical Advisory Partners

Date: Thursday, May 12, 2005
Place: The Chemists’ Club
40 West 45th Street
New York, NY

Times: Cocktails 11:30 AM
Luncheon 12 noon
Presentation 1:15 PM

Fees: $35 discount price for Members who reserve by Tuesday, May 10, 2005 (12 noon). $50 for Guests and Members (at the door without reservations)

To reserve: Please reserve early to be eligible for discount price. Call Probe Economics at (914) 923-4505, or via e-mail to: cme@chemmarkecon.com. To pay online by credit card (via PayPal), go to the CM&E Website: http://home.nyc.rr.com/chemmarkecon/
CALL FOR NOMINATIONS

The Committee on Minority Affairs is soliciting nominations for the Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences.

Nominees for this award may come from any professional setting: academia, industry, government or other independent facility. ACS local sections and divisions also are eligible for nomination. The awardees will have increased the participation and leadership of persons from diverse and underrepresented minority groups, persons with disabilities, and women through mentoring, hiring, promotion and/or other activities that lead to greater inclusiveness within the chemical sciences.

These awards are for each of the Regional Meetings taking place in the calendar year. For information please contact Stephanie R. Allen, ACS Department of Diversity Programs, (800) 227-5558, ext. 6262.

RECRUIT A MEMBER IN 2005 AND RECEIVE A GREAT GIFT

The 2005 Member-Get-A-Member Campaign is in full swing. This year's goal is to add one new member each day – 365 in all. Introduce a colleague or friend to the benefits of joining ACS, and once your candidate is accepted, you'll receive a custom-made throw created exclusively for this program.

You are entitled to nominate as many candidates as you like during the campaign using separate Member-Get-A-Member application forms. (Please be aware that the program does not apply to student affiliate recruits, i.e. undergraduate students.)

Please help us reach our goal of 365 members in 2005. Look around at meetings, in your office or lab. Who do you see who belongs in ACS but has not, as yet, joined? Find someone? Then get the ball rolling by going to chemistry.org/membership/mgm.html and downloading an application.

ACS WOMEN CHEMISTS COMMITTEE TRAVEL AWARDS - YEAR 2006

The Eli Lilly & Company is sponsoring a program to provide funding for undergraduate, graduate, and postdoctoral women chemists to travel to scientific meetings in 2006 to present the results of their research. Grants may be applied only for registration, travel, and accommodations, and are restricted to travel to meetings within the United States. Grant funds are limited, but there are some funds set aside for undergraduates. Only U. S. citizens and permanent residents are eligible. Applications should be limited to one per research group. Awards will be given with preference to the following order: (1) any applicant who will be making her first presentation (regardless of format) at a national or major meeting, (2) graduate or postdoctoral applicants who have not presented at a national or major meeting since leaving undergraduate school. Women who have received a prior award under this program are ineligible.

The deadline dates for receipt of applications are as follows:

- September 15, 2005 – Meetings between January 1 and June 30, 2006
- February 1, 2006 – Meetings between July 1 and December 31, 2006

For detailed information about this award and how to apply visit the Women Chemists Web site at http://membership.acs.org/W/WCC/ or contact the WCC office at wcc@acs.org.
ATTENTION LOCAL SECTION YOUNGER CHEMISTS!

Submit your Local Section Younger Chemist activities for publication on the National Younger Chemists Committee (YCC) website and/or in the YCC Newsletter. YCC would like to recognize and publicize local section younger chemist events...including yours!

To see your local section's younger chemist event featured, please submit a short summary (a paragraph or two), at least one photo, and the name / email of a representative that can be contacted for additional details (if needed).

Events will be featured on a rotating basis in the Local Action section of the YCC website (www.chemistry.org/ycc) and unique/outstanding events will be chosen for publication in the YCC newsletter, which is distributed to all ACS members under 35 bi-annually.

Please send submissions to Kathy Glasgow or Maureen Kane at ycc@acs.org

Call for Nominations

ACS NEW YORK SECTION’S OUTSTANDING SERVICE AWARD FOR 2005

Each year the New York Section presents an Outstanding Service Award to the most deserving member of the section. Many members of the New York Section provide their time, leadership talent, educational skills and other valuable assets to the New York Section and the section leadership wants to recognize their outstanding contributions. Nominations will be reviewed by a committee consisting of the previous five winners of the award.

The tradition of excellence of the New York Section is directly attributable to the cumulative effect of these individuals. Please help us to recognize the efforts of our colleagues by nominating them for this award. Now that you’ve finished your annual reports to the section each subsection and topical group may reward one of your most active members by nomination for the New York Section’s Outstanding Service Award. The award will be presented at the New York Section’s General Meeting and Section-wide Conference in January 2006.

Nominations with supporting data should be mailed to Professor Yorke E. Rhodes, 1629 Glenwood Road, Route 565, Sussex, NJ 07461 or e-mailed to yr2@nyu.edu. Nominations may be sent as a letter describing the details of the contributions of the member. A Seconding nomination letter is highly recommended.

For more information about the award along with a list of former award recipients, please visit the New York Section website at www.NewYorkACS.org.

Nominations should be forwarded to Professor Rhodes by May 31, 2005.

THE WILLIAM H. NICHOLS MEDAL AWARD FOR 2006

The New York Section is accepting nominations for the William H. Nichols Medal Award for the year 2006. This distinguished award, established in 1902 by Dr. William H. Nichols, for the purpose of encouraging original research in chemistry, is the first award authorized by the American Chemical Society. It is presented annually in recognition of an outstanding contribution in the field of chemistry, and consists of a gold medal, a bronze replica and $5000. The medals are presented at the William H. Nichols Meeting that consists of a Distinguished Symposium related to the medalist’s field of expertise and a Medal Award dinner.

Investigators who have published a significant and original contribution in any field of chemistry during the five calendar years preceding the presentation meeting are eligible for consideration by the Nichols Medal Jury.

Nomination forms may be obtained from: The American Chemical Society’s, New York Section, Inc., Department of Chemistry, St. John’s University, 8000 Utopia Parkway, Jamaica, NY 11439. The request may be faxed to 516-833-4003 or e-mailed to njespert@optonline.net (The New York Section Office). Forms and additional information about the William H. Nichols Medal, including a list of past recipients may also be obtained from the New York Section website at www.NewYorkACS.org. Six copies of the nominating materials and the official nomination form should be sent to the above address. Nominations must be received by May 31, 2005. The Nichols Medal Award Jury will meet in June to select the Nichols Medalist for 2006.

THE PAUL J. FLORY POLYMER EDUCATION AWARD

Purpose: To recognize, encourage, and stimulate outstanding achievements by an individual in promoting undergraduate and/or graduate polymer education.

Nature: The award consists of a plaque and an honorarium of $2000. The award is usually presented biennially in even-numbered years at the Spring meeting of the Polymer Chemistry Division. The recipient is expected to present an address at a symposium organized in his/her honor. Reasonable travel expenses to the meeting are paid in addition to the honorarium.

Establishment and Support: The award was established in 1981 and is administered by the Polymer Chemistry Division. The DuPont Company sponsors the award.


Rules for Eligibility: A nominee must be a member or affiliate of the ACS Division of Polymer Chemistry at the time of nomination. The award shall be granted to an individual or team for significant contributions in furthering polymer education. The award shall be granted to an individual or team without regard to race, color, national origin, sex, religion, age, disability, or sexual orientation.

Nomination Procedure: Eight (8) collated individual copies of a complete nominating document, including a synopsis of the accomplishments of the nominee, a curriculum vitae, and a maximum of five reprints or other supplementary material for each copy, shall be submitted to the Awards Chairman for distribution to the committee. The document should be letter-size. A maximum of three (3) supporting letters, which contain factual information about the candidate not provided in the nominating document may be attached to the nomination. The nomination and its accompanying material for the 2006 award must be postmarked no later than July 1, 2005. Address nominating material to: Dr. Thomas J. Pacansky, 281 Valley Drive, Watchung, NJ 07069.

Dr. Thomas J. Pacansky
281 Valley Drive, Watchung, NJ 07069
Tel. (908) 753-0175 • Mobile (908) 672-3420
Email: T.Pacansky@worldnet.att.net

Puzzle Solution

(continued on page 26)
CALL FOR NOMINATIONS
(continued from page 25)

OVERCOMING CHALLENGES AWARD
The Overcoming Challenges Award (OCA) acknowledges the efforts of women and undergraduates who have overcome economic, personal, and/or academic hardships in pursuit of an education in the chemical sciences. The award consists of a plaque, a $250 honorarium, and $1,000 for travel expenses to the fall ACS National Meeting where the award is presented. Award candidates must be women matriculating as an undergraduate chemical science major/minor in a two-year program or at a four-year school not granting a doctoral degree in chemical-related disciplines. Nominations are due May 1, 2005, and should be sent to: Women Chemists Committee, American Chemical Society, 1155 16th Street, N.W., Washington, DC 20036. For additional information, contact the WCC at wcc@acs.org or visit http://membership.acs.org/W/WCC.

Others

ASSOCIATION OF CONSULTING CHEMISTS & CHEMICAL ENGINEERS, INC.
Single Screw Compounding and Venting: A Paradigm Shift
Speaker: Keith Luker
President
Randcastle Extrusion Systems

Historically, single screw extruders have not mixed or vented as well as twin screw extruders. It is now understood that the key to successful compounding is the creation of multiple elongational flow fields. It is also understood that effective venting results from the creation of large surface areas that expose the entrapped gases to vacuum. It has been discovered that compounding and venting can be combined in a single element that creates multiple elongational flow fields and a thin film for degassing. The compounding/venting element consumes as little as 2 L/D's and so permits at least 3 compounding elements in only a 36/1 screw. Many extruded products can benefit from superior compounding and venting. After earning a BA degree in Technology from Montclair State University, Keith Luker joined Kilion Extruders. Keith managed sales, manufacturing, the lab, and created their seminar program and in 1984 became Vice President of Development. Keith founded Randcastle Extrusion Systems a company designed to build the world's smallest extrusion lines in all forms where he remains as president. In addition, he has given 1 to 3 day courses in extrusion for The Society of Manufacturing Engineers, the Society of Plastics Engineers, and other organizations promoting plastics. Keith is the author of over thirty papers on extrusion and holds three patents in extrusion.

Date: Tuesday, May 24, 2005
Times: Networking/Cash Bar 6:00 PM
Dinner 6:30 PM
Presentation 7:30 PM
Place: Snuffy’s Pantagis Renaissance Park & Mountain Ave. (Route 22 East)
Scotch Plains, NJ
Registration: $40 ACC&CE Members,
$50 Non-members
To Reserve: Call Linda B. Townsend at 1-973-729-6671 or e-mail: acce@chemconsult.org
Advanced registration is required.
Cancellations must be made 24 hrs in advance or be invoiced.
Please visit our web site for more details: www.chemconsult.org.

MID-ATLANTIC CHAPTER - LABORATORY ROBOTICS INTEREST GROUP
Eleventh Annual Technology Exhibition & Presentations
An exciting day is planned with laboratory robotics, laboratory automation, other advanced technology exhibits in the main hall. Oral Presentations will be featured in the seminar areas throughout the day. Over one hundred exhibitors will demonstrate their latest products and services. Extensive hors d’oeuvre, courtesy of the exhibitors, will be available as well as cash bars.
Open career positions or resumes may be posted on the job board.
There is no fee to attend the meeting.
Date: Tuesday, May 17, 2005
Place: Hilton East Brunswick
Three Tower Center Boulevard
East Brunswick, NJ

ACADEMIC POSTER CONTEST SPONSORED BY THE LABORATORY ROBOTICS INTEREST GROUP, MID ATLANTIC CHAPTER
The competition will be run in conjunction with the May 17, 2005 annual technology exposition and meeting. Prizes to be announced.
Students may enter posters on ANY topic in the biological, earth, or physical sciences. Content relating to automation or robotics is encouraged but not required. Posters entered by full time faculty members must include content related to laboratory automation or advanced laboratory technology.
To enter a poster please call or write to Kevin Olsen, LRIG Publicity Chairman, (973) 655-4076 or OlsenK@Mail.Montclair.edu
Additional Meeting details and pre-registration at: http://lab-robotics.org
Food and refreshments will be available FREE OF CHARGE during the Exhibition and Social Period.

CHEMICAL HERITAGE FOUNDATION
Moore’s Law at 40: Chemistry and the Electronics Revolution
On Friday, May 13, 2005, the Chemical Heritage Foundation will host an all-day symposium featuring Gordon E. Moore and leaders in chemistry and technology assessing both the impact of Moore’s Law and the enabling role of chemical science and engineering in the development of the semiconductor industry. The event will begin with a public lecture the evening before the symposium.
In 1965, Gordon Moore published an observation and prediction about the exponential growth in the power of semiconductor technology, now known around the globe as “Moore’s Law.” Over the forty years since this initial publication, the semiconductor industry has produced a remarkable array of innovations that have kept it on the developmental curve of Moore’s Law. Indeed, this developmental pattern has become such a defining feature of the industry and its technology that current industry-wide efforts aim explicitly at continuing Moore’s Law well into the future.
“It is a great privilege for us to hold this important event,” said Arnold Thackray, president, Chemical Heritage Foundation. “The technological revolution and pace of change defined by Moore’s Law touches billions of lives around the globe. CHF is launching a much-needed historical assessment of this pervasive principle of modern life.”
When he received the Othmer Gold Medal in 2001, Moore delighted an audience of chemistry professionals by declaring, “The semiconductor industry is a chemical industry.” CHF’s symposium will reflect upon and assess the role of the semiconductor as the most revolutionary technology of the past half century. a technology that is critically enabled by chemical science and engineering.
Symposium speakers include:

(continued on page 28)
Contribute to The Indicator

The Indicator is interested in adding new features to the publication. Your input would be appreciated. Please let us know which type of feature you would like to see in future issues; i.e., book reviews, member news, short articles about your research or other ideas. Would you be willing to assist in gathering or writing such material?

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