



AMERICAN CHEMICAL SOCIETY
DIVISION OF INDUSTRIAL AND ENGINEERING CHEMISTRY
SUBDIVISION OF SEPARATION SCIENCE AND TECHNOLOGY

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March 4, 1999

SS&T NEWSLETTER

Andy Bond, Editor

Chair's Message

SS&T Looks to the Future

by Ken Nash

In this final year of the Millennium (at least as far as our computers are concerned), I bid you welcome to the Separation Science and Technology Spring Newsletter. It is an exciting time to be involved in separation science and technology, as our elected officials and other politically connected/active individuals are deeply engaged in preparing "Vision" documents for the future direction of the world's industries. Solutions to separations problems of a staggering variety figure prominently in most of these "Visions". Our challenge as separation science and technology practitioners is to stay abreast and try to help shape the future in directions we know to be profitable. One of the best means for the SS&T Subdivision to contribute to the growth and direction of separation science and technology is through the programming we offer at the national and regional meetings of the Society. We have planned for the upcoming meeting in Anaheim a typically diverse program ranging from "Industrial Separations Research Needs" to "Calixarene Molecules for Separations" with several stops in between. Our SS&T Awards recipient is Professor Emeritus Charles Gehrke of the University of Missouri, Columbia. The complete program for the meeting is listed on page 3. I strongly encourage you to check out the program and join us at the Disneyland Hotel for what will no doubt be a highly stimulating technical program.

At the fall meeting in New Orleans, our Subdivision will cosponsor with the Nuclear Chemistry and Technology and Analytical Divisions a major symposium entitled "First Accomplishments of the Environmental Management Science Program". For those of you who are not familiar, the EMSP is a program started three years ago by the U. S.

Department of Energy to involve a wider spectrum of the science and technology community in the daunting task of cleaning up the former nuclear weapons complex. As the program develops, this symposium shapes up as a week-long event including both oral and poster presentations.

Our Program Committee has already lined up a number of symposia for the Spring 2000 meeting in San Francisco and even a few for 2001. This committee will meet on Sunday evening, March 21 in the Bering Room of the Disneyland Hotel from 5:00 to 6:30 PM. You are all welcome to attend this meeting. If you cannot be there in person but have an idea for a symposium, contact me or any of the other officers or Program Committee members (listed on page 2) and we'll try to accommodate your request. If you'd like to organize a symposium, so much the better! The Subdivision Executive Committee meeting (members listed on page 2) will be held on Monday evening (March 22) from 5:00 to 6:30 PM in the Coral Room at the Disneyland Hotel. This meeting is also open to the membership and your presence will be welcomed. We are always looking for new ideas and perspectives.

Some WWW Links to Separation Science

Survey course in separation science:

<http://ull.chemistry.uakron.edu/chemsep/>

Process-scale separations equipment:

<http://www.api.tudelft.nl/>

Membrane research:

<http://www.usbr.gov/water/consort/consort.html>

ACS electronic abstract submission:

<http://207.244.115.201/acs/218nm/>

Thank You from the New SS&T Officers

The new slate of officers wish congratulate and extend their appreciation to the departing SS&T Subdivision officers for their efforts. Ken Nash assumes the position as Chair from Doug Way who has done a terrific job over the past year. Doug will continue to serve in the Subdivision with the primary responsibility of chairing the Nominating Committee. Kent Abney's reign as Treasurer is ending and the Subdivision is sincerely thankful for his service as both Secretary and Treasurer. We also wish to thank Gregg

Lumetta for his efforts as Membership Committee Chair with responsibilities of maintaining the membership database of addresses and contact information. John Scamehorn's role as Past Chair also ends, and we again want to thank John for his leadership of the Subdivision. These individuals have done an outstanding job and we count on their continued guidance and assistance in keeping the Subdivision at the forefront of programming in separation science.

Many Thanks to These 1998 SS&T Officers and Committee Members!

<i>Officers</i>		<i>Executive Committee Members</i>		<i>Programming Committee</i>	
Doug Way	Chair	Doug Way (Committee Chair)		Ken Nash (Committee Chair)	
Ken Nash	Chair-Elect	John Scamehorn	Ken Nash	John Scamehorn	Doug Way
Gordon Jarvinen	Vice Chair-Elect	Gordon Jarvinen	Kent Abney	Gordon Jarvinen	Andy Bond
Kent Abney	Treasurer	Andy Bond	Gregg Lumetta	Bruce Moyer	Dale Ensor
Andy Bond	Secretary	Spiro Alexandratos	Steve Cramer	Dave Pruett	Dick Bartsch
John Scamehorn	Past Chair	Dale Ensor	Ralph Gatrone	Jim Ritter	Kent Abney
		Dave Pruett	Luis Nuñez	Luis Nuñez	Robin Rogers
		Robin Rogers	Norm Schroeder	Ralph Gatrone	Steve Cramer
		Wally Schulz		Spiro Alexandratos	Wally Schulz
				Bruce Pynnonen	Norm Schroeder

1999 SS&T Officers and Committee Members

<i>1999 Officers and Executive Committee Members</i>		<i>1999 Executive Committee Members-at-Large</i>		<i>1999 Programming Committee</i>	
Ken Nash	Chair			Gordon Jarvinen (Committee Chair)	
Gordon Jarvinen	Chair-Elect	Bruce Moyer	Dale Ensor	Ken Nash	Jim Ritter
Jim Ritter	Vice Chair-Elect	John Scamehorn	Kent Abney	Gregg Lumetta	Andy Bond
Gregg Lumetta	Treasurer	Paul Smith	Ralph Gatrone	Doug Way	Dave Rockstraw
Andy Bond	Secretary	Dick Bartsch	Robin Rogers	Mark Dietz	Bruce Moyer
Doug Way	Past Chair	Steve Cramer	Wally Schulz	Dale Ensor	John Scamehorn
Dave Rockstraw	Mmbrshp. Chair			Kent Abney	Dick Bartsch
Spiro Alexandratos	AICHe Liaison			Robin Rogers	Steve Cramer
				Spiro Alexandratos	

Addresses, phone numbers, and email addresses for the SS&T officers appear on the front page of this newsletter. Please feel free to contact any of these individuals regarding thoughts or concerns related to the SS&T Subdivision.

Anaheim ACS Meeting: Committee Meetings and Mixers

At the Anaheim ACS Meeting, the SS&T Program Committee Meeting will be held early Sunday evening, March 21, 1999, from 5:00-6:30 in the Bering Room at the Disneyland Hotel, and the SS&T Executive Committee will conduct the annual SS&T Business Meeting early Monday evening, March 22, 1999 from 5:00-6:30 in the Coral Room of the Disneyland Hotel. All SS&T Subdivision members are invited and encouraged to attend each of these meetings.

The membership influences the Subdivision's programming and business - please attend and let your thoughts be heard. The I&EC Division mixer and poster session will be held from 8:00-10:00 on Sunday evening in the Disneyland Pacific Hotel. The I&EC Sci-Mix presentations can be seen from 5:30-7:30 on Monday evening in the Convention Center.

Upcoming Anaheim SS&T Meeting Agenda

Spring ACS National Meeting, Anaheim, CA, March 21-25, 1999

- 1 SS&T Award Symposium Sponsored by IBC Advanced Technologies, Inc. and Millipore Corp. Honoring Dr. Charles W. Gehrke.** C. W. Gehrke and R. L. Wixom.
- 2 Bioseparations.** Roger Harrison, School of Chemical Engineering and Materials Science, University of Oklahoma, Norman, Oklahoma 73069; Ph. 405-325-4367; Fax 405-325-5813; email harrison@uoknor.edu and Steve Cramer, Department of Chemical Engineering, Rensselaer Polytechnic Institute, Troy, NY 12180; Ph. 518-276-6198; email crames@rpi.edu.
- 3 Separations in Nuclear Chemistry.** Spiro D. Alexandratos, Department of Chemistry, University of Tennessee, Knoxville, TN 37996; Ph. 423-974-3399; Fax 423-974-3454; email alexsd@utk.edu and Mark P. Jensen, Chemistry Division, Argonne National Laboratory, Argonne, IL 60439; Ph. 630-252-3647; Fax 630-252-7501; email jensen@anlchm.chm.anl.gov.

This symposium will focus on separations in support of nuclear energy and nuclear waste as well as identification and removal of radionuclides from water in the environment. All relevant techniques, including solvent extraction, polymer-supported extractants, extraction chromatography, and ion chromatography, are within the scope of the symposium.

- 4 Inorganic Materials for Separations.** Abraham Clearfield, Department of Chemistry, Texas A&M University, College Station, TX 77843-3255; Ph. 409-845-2936; Fax 409-845-4719; email clearf@acxrd.tamu.edu.

Separations by means of inorganic ion exchange materials is a rapidly expanding field. This activity results from the wide variety of materials that are available and the continuing need for materials with high selectivities. This is especially true for the nuclear area where removal of very low levels of radionuclides from a matrix of many other elements in much higher concentrations is required. This symposium will feature recent advances in this area of research as well new methods and materials for a variety of separations.

- 5 Calixarene Molecules for Separations.** G. J. Lumetta, Pacific Northwest National Laboratory, P. O. Box 999, MSIN P7-25, Richland, WA 99352; email gregg.lumetta@pnl.gov and R. D. Rogers, Department of Chemistry, The University of Alabama, Tuscaloosa, AL 35487; email rdrogers@bama.ua.edu.

This symposium will focus on the application of calixarene derivatives to chemical separations. Topics to be covered at this symposium include synthesis and purification of calixarenes important to separations, studies of calixarene-substrate binding, demonstration of specific separations using calixarenes, and development of separation technologies based upon calixarenes.

- 6 Industrial Separations Research Needs.** Curtis L. Munson, Chevron Research and Technology Company, 100 Chevron Way, Richmond, CA 94802-0627; Ph. 510-242-1612; Fax 510-242-2893; email clmu@chevron.com, Jay F. Miller, Union Carbide Technical Center, P. O. Box 8361, South Charleston, WV 25303; email millerjf@ucarb.com, and Paul F. Bryan, Union Carbide Technical Center, P. O. Box 8361, South Charleston, WV 25303; Ph. 304-747-4131; Fax 304-747-5744; email bryanpf@ucarb.com.

- 7 I&EC General Poster Session.** Organized by Andrew H. Bond, Chemistry Division, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439; Ph. 630-252-0957; Fax 630-252-7501; email bond@anlchm.chm.anl.gov.

1999 ACS AWARD IN SEPARATION SCIENCE AND TECHNOLOGY TO CHARLES W. GEHRKE

For his pioneering research in developing gas chromatographic methods for detection and quantitation of amino acids, Charles W. Gehrke has been selected to receive the 1999 ACS award in separation science and technology sponsored by IBC Advanced Technologies, Inc. and Millipore Corp. Gehrke's success with assay methods for amino acids led to his assignment to develop and implement testing protocols for the study of lunar samples collected during the Apollo 11 through Apollo 17 missions. Later, Gehrke was selected to design analytical laboratories for manned lunar bases, and he is still a strong advocate of space research as Director of the Consortium for Space Exploration. In the latter post, he is currently lobbying NASA to begin development of laboratory facilities and capabilities in support of manned missions to Mars. Dr. Gehrke also founded Analytical Biochemistry Laboratories, based in Columbia, MO, which specializes in various analytical and synthesis projects for the biochemical and associated industries. Gehrke earned the Ph.D. degree from Ohio State University, Columbus in 1947 and joined the faculty at the University of Missouri, Columbia in 1949. Dr. Gehrke retired from the University of Missouri as Professor of Biochemistry in 1987 and from Chairmanship of the Board at Analytical Biochemistry Laboratories in 1992. He remains active with his duties at the Consortium for Space Exploration.

Programming Cosponsored by SS&T at Fall ACS Meetings

Call For Papers:

SYMPOSIUM ON THE DEPARTMENT OF ENERGY'S ENVIRONMENTAL MANAGEMENT SCIENCES PROGRAM

The Division of Nuclear Chemistry and Technology is sponsoring the symposium "First Accomplishments of the Environmental Management Science Program" at the 1999 Fall National ACS Meeting, New Orleans, LA, August 22-26, 1999. All EMSP principal investigators, coinvestigators, program managers, and advisors are encouraged to submit abstracts. Participants are expected from many ACS divisions and papers will span all areas of chemistry related to environmental management funded by the EMSP program. The symposium will commence Sunday, August 22 with plenary lectures and tutorials on key Department of Energy environmental management problems. Please submit abstracts by April 15 to the cochairs: Dr. P. Gary Eller, Los Alamos National Laboratory; Ph. 505-667-7111; Fax 505-665-4459; email p_gary_eller@lanl.gov or Dr. William Heineman, University of Cincinnati; Ph. 513-556-9210; Fax 513-556-9239; email william.heineman@uc.edu.

Call For Papers:

CHEMICAL RECOGNITION PHENOMENA IN SEPARATIONS

Papers are invited for a symposium which will be held in conjunction with the Southeast Regional Meeting of the American Chemical Society (SERMACS-99) at the Hyatt Regency Hotel in Knoxville, TN on Oct. 18-20, 1999. This symposium addresses the issue of selectivity across a range of separation techniques, including ion exchange, chromatography, membranes, and solvent extraction. Topics will include ligand design/synthesis, computational techniques, structure, bonding, synthesis of new materials, thermodynamics, experimental characterization of separation behavior, and process development. The intent is to achieve a blend of papers from basic to applied research. Three sessions over a day and a half are planned for the symposium, to be held Tues., Oct. 19, morning and afternoon, and Wed., Oct. 20, morning. The rest of the SERMACS program is excellent and may entice you to attend the entire three days of the meeting. You may also wish to consider attending the Symposium on Separation Science and Technology for Energy Applications to be held nearby in Gatlinburg, TN, on Oct. 17-21. Please provide an abstract on a standard ACS form by May 8. A tentative title is requested by Apr. 1 by email, phone, fax, or letter.

Organizers

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Call For Papers:

11th International Conference on Partitioning in Aqueous Two-Phase Systems

The 11th International Conference on Partitioning in Aqueous Two-Phase Systems: "*The Expanding Boundaries of Aqueous Two-Phase Partitioning: Fundamentals and Applications of Environmentally-Benign Polymers in Biological, Industrial and Environmental Processes*" will be held June 27 - July 2, 1999, at Gulf State Park Resort Hotel and Convention Center, Gulf Shores, Alabama, USA (<http://www.ci.gulf-shores.al.us/>). The 1999 ATPS conference, sponsored in part by the Separation Science & Technology Subdivision, will emphasize the differences and similarities between aqueous two phase partitioning and other separations technologies utilizing environmentally-benign polymers, such as cloud point extraction, micellar extraction, aqueous biphasic systems, and extractions using thermoseparating polymers. Similar chromatographic methods such as micellar liquid chromatography, micellar electrokinetic chromatography, aqueous biphasic extraction chromatography, and admicellar chromatography will also be highlighted.

The meeting will utilize an adapted 'Gordon Conference' format with no concurrent sessions. This will allow active participation in the mornings and evenings with free time in the afternoon for lively discussion or just to

enjoy the beach. A highlight of the meeting will be a panel discussion early in the week to look at the differences, similarities, and technical challenges of using environmentally-benign polymers in separations. Representative experts in aqueous two-phase partitioning, cloud point extraction, thermoseparating polymers, aqueous biphasic extraction chromatography, hydrophobic interaction chromatography, and micellar enhanced ultrafiltration will give short presentations followed by an active morning of discussion.

Abstracts of papers and posters for presentation at the conference are invited. Authors should send a title and 200-300 word abstract via email to LMRogers@Bama.ua.edu. The proceedings of the conference will be published in a special issue of *Journal of Chromatography*. Further information, including hotel accommodations, abstract format, and student travel grant application can be found on the conference website at URL: <http://radar.ch.ua.edu/~aq2phase/11thconf.html/>. To receive the second circular please email your intention to participate in the Conference to LMRogers@Bama.UA.edu.

SS&T Programming for the San Francisco ACS Meeting

San Francisco, CA March 26-30, 2000

Separations Award Symposium. Organizers to be determined.

Closed Loop Applications for Industrial Wastewater. Organizers to be determined. Contact Steve Cramer (crames@rpi.edu) with ideas for organizers.

Field-Enhanced Separations. James A. Ritter, Department of Chemical Engineering, Swearingen Engineering Center, University of South Carolina, Columbia, SC 29208; Ph. 803-777-3590; Fax 803-777-8265; email ritter@engr.sc.edu, David A. Rockstraw, Department of Chemical Engineering, New Mexico State University; MSC 3805, P. O. Box 30001, Las Cruces, NM 88003-8001; Ph. 505-646-7705; Fax 505-646-7706; email drockstr@nmsu.edu, and Kim Williams, Department of Chemistry and Geochemistry, Colorado School of Mines, Golden, CO 80401; Ph. 303-273-3629; Fax 303273-3629; email krwillia@mines.edu.

Molecular Level Characterization in Separations.

Rebecca Chamberlin, Los Alamos National Laboratory, CST-11, MS J514, Los Alamos, NM 87545; Ph. 505-667-1841; Fax 505-665-4955; email rmchamberlin@lanl.gov.

Activated Carbon Separations Symposium. Session Chairs: David A. Rockstraw, New Mexico State University, Chemical Engineering Department, Box 30001, MSC 3805, Las Cruces, NM 88003; Ph. 505-646-7705; Fax: 505-646-7706; email drockstr@nmsu.edu, Frank Derbyshire, University of Kentucky, Center for Applied Energy Research, 2540 Research Park Drive, Lexington, KY 40511-8410; Ph. 606-257-0306; Fax 606-257-0220; email derbyshire@alpha.caer.uky.edu, Marit Jagtoyen, Center for Applied Energy Research, 2540 Research Park Drive, Lexington, KY 40511-8410; Ph. 606-257-0213; Fax 606-257-0220; email jagtoyen@caer.uky.edu, and Christopher A. Toles, U. S. Department of Agriculture, Southern Regional Research Center, 1100 R. E. Lee Blvd., New Orleans, LA 70124; Ph. 504-286-4223, Fax 504-286-4419; email ctoles@nola.srrc.usda.gov.

Sessions on activated carbon separations will include discussions of the use of novel feedstock materials, unique manufacture techniques, the physical properties of the resulting materials, and the separation isotherms of activated carbons generated by these techniques.

Symposia Topics Planned for ACS National Meetings in 2001

Polymer Supported Reagents: Fundamental Studies in Separation Science and Organic Synthesis. Organized by Spiro D. Alexandratos, Department of Chemistry, University of Tennessee, Knoxville, TN 37996; Ph. 423-974-3399; Fax 423-974-3454; email alexsd@utk.edu.

Anyone interested in organizing any of the following symposia should contact Gordon Jarvinen (contact information at top of page 1). Alternatively, the names of potential organizers are also welcomed.

Isotope Separations. Organizer to be determined.

Selective Anion Separations. Organizer to be determined.

Ultrafiltration. Organizer to be determined.

New Materials for Activated Carbon Separations (Relating to Treatment of Agricultural Wastes). Organizer to be determined.

Nonbiological Combinatorial Separations. Organizer to be determined.

Matching Funds are Available from the SS&T Subdivision in Support of Symposia!

One mission of the Subdivision is to foster high quality programming activities. In support of this objective, funds are available from the Subdivision to support separations-related programming activities at ACS national and regional meetings as well as other international symposia. Organizers interested in obtaining matching funds should contact any member of the Executive Committee (contact information at the top of page 1) for more details, including selection criteria.

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