

AMERICAN CHEMICAL SOCIETY

Division of Environmental Chemistry

Preprints of Extended Abstracts

Presented at the

219th ACS National Meeting San Francisco, CA

March 26-30, 2000
Vol. 40 No.1

■ SYMPOSIA

- ▶ Organizers
- General Papers
 - ▶ A.M. Ford
- Issues in the Analysis of Environmental Endocrine Disruptors
 - ▶ L.H. Keith, L.L. Needham and T.L. Jones-Lepp
- Specialty Chemicals in the Environment
 - ▶ A.T. Stone
- Exploring the Environmental Issues of Mobile, Recalcitrant Compounds in Gasoline (Cosponsored with the Division of Fuel Chemistry and the Division of Geochemistry)
 - ▶ D.L. Drogos and A.F. Diaz
- ACS Award for Creative Advances in Environmental Science and Technology: Honoring Dr. R.K.M. Jayanty (Sponsored by Air Products and Chemicals, Inc.)
 - ▶ R.A. Hathaway and E.D. Winegar
- Computational Methods in Environmental Chemistry (Cosponsored with the Division of Computers in Chemistry and the Division of Geochemistry)
 - ▶ S.E. Cabaniss
- Environmental Chemistry of the Atmosphere: 2000 and Beyond
 - ▶ R.A. Hathaway and R.L. Tanner
- Environmental Chemistry of Water: 2000 and Beyond
 - ▶ A.W. Elzerman and R.W. Paddock



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Allan M. Ford

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at the
219th ACS National Meeting

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Division of Environmental Chemistry, Inc.
American Chemical Society

**Division of Environmental Chemistry
American Chemical Society**

The Division of Environmental Chemistry was established as a Division of the American Chemical Society in 1913, as the Division of Water, Sewage, and Sanitation Chemistry. (The name was changed in 1959). The objectives of the Division are to promote research, disseminate information and improve education and public awareness regarding the chemistry of the environment, in all of its aspects. In addition, the Division provides assistance to the American Chemical Society and its committees and divisions in matters regarding the environment.

In fulfillment of the above objectives, the Division sponsors symposia at the two annual meetings of the American Chemical Society. These symposia are organized by volunteers from the Division under the guidance of the program chair. For information on upcoming symposia at national meetings or to volunteer to organize a symposia, contact the **Program Chair**:

Allan M. Ford
1050 Edgewater Lane
Gulf Breeze, FL 32561
850-934-1790

Extended abstracts of papers presented in symposia sponsored by the Division of Environmental Chemistry are published twice each year by the Division. These extended abstracts generally are two to four pages in length and contain data, figures and references. The extended abstracts appear in "Preprints of Extended Abstracts...", which are sent to all members of the Division as part of their benefits of membership. Copies of this volume and previous volumes are available from the **Publication Chair**:

Ruth A. Hathaway
1810 Georgia St.
Cape Girardeau, MO 63701-3816
573-334-3827

Membership in the Division of Environmental Chemistry is open to all members and National Affiliates of the American Chemical Society upon request of to the Secretary of the Division and payment of dues. A person who is not a member or National Affiliate but wishes to participate in the activities of the Division may become a Division Affiliate provided that person is not a chemist or chemical engineer, resides in the United States, and pays all dues. For information regarding membership in the Division or the American Chemical Society, contact the **Business Office**:

Ruth A. Hathaway
1810 Georgia St.
Cape Girardeau, MO 63701-3816
573-334-3827

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EXECUTIVE COMMITTEE

The Executive Committee is the governing body for the Division of Environmental Chemistry. The committee regularly addresses programming for future National meetings, membership dues and benefits, finances, and involvement of the Division in environmental activities of the American Chemical Society and related organizations. All members of the Division are encourage to participate in the governance of the Division.

**The Executive Committee meeting will begin at 7:00 PM on Sunday, March 26, 2000
in the Olympic Room at the Hotel Nikko.
All Division members are invited to attend.**

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COMMITTEE CHAIRS

Awards	Glenn C. Miller see address above	Nominating	Jurgen H. Exner see address above
Editor, EnvirofACS	Larry H. Keith Waste Policy Institute Suite 2100 2000 Kraft Dr. Blacksburg, VA 24060 540-557-6095	Program (2000)	Allan M. Ford see address above
		(2001)	Michael L. Trehy see address above
Editor, ES&T	William H. Glaze Carolina Environmental Program University of North Carolina Miller Hall, Campus Box #1105 Chapel Hill, NC 27599 919-966-9921	Publications Books	Victor Turoski see address above
Division Business Office Manager	Ruth A. Hathaway 1810 Georgia St. Cape Girardeau, MO 63701 573-334-3827 573-334-2551 fax		
Division Web Site General	http://acs-envchem.duq.edu		
Division Web Site Program	http://gemini.tntech.edu/~mjlw5030/acspage.html		

Division of Environmental Chemistry Activities during the San Francisco National Meeting

Technical Sessions:

Symposia:	Sunday-Thursday,
Cocktail Hour:	Monday Evening, Hilton, 5:00-6:30 p.m.
Division Poster Session/Social Hour:	Wednesday Evening, Hilton, 5:00-8:00 p.m.
ACS Sci-Mix	Monday Evening, Convention Center, 8:00 - 10:30 p.m.

Division Business:

Long Range Planning Committee: The future of the Division is discussed and planned. Issues dealing with membership, finances, and programs may be discussed. All members of the Division are welcome and encouraged to participate.	Sunday Afternoon, Olympic Room, Hotel Nikko 3:00-4:00 p.m.
Program Planning Committee: Future symposia topics are considered and discussed. All members interested in participating in the technical session planning for the Division are encouraged to attend this meeting	Sunday Afternoon, Olympic Room, Hotel Nikko 4:00-5:00 p.m.
Executive Committee Meeting: Financial and program issues are addressed and decided in this meeting. All members of the Division are encouraged to attend.	Sunday Evening, Olympic Room, Hotel Nikko 7:00-10:00 p.m.

Division Social Events:

Social Hour and Dinner: All members and their guests are invited. We select the restaurant for its quality and atmosphere. You will have the opportunity to meet with other Division members in a relaxing atmosphere.	Tuesday Evening, Alioto-the-Original, 8 Fisherman's Wharf Social Hour: 6:30-7:30 p.m. (COD)
Tickets must be purchased by Monday, March 27. Tickets can be purchased at the meeting registration area or at the Division Table.	Dinner: 7:30 p.m. \$56 per person

Division of Environmental Chemistry

Activities during the San Francisco National Meeting

Event	Sun	Mon	Tues	Wed	Thurs
Long Range, Program Planning, and Executive Committee Meetings					
Division Cocktail Hour					
Division Social Hour and Dinner (Alioto-the-Original)					
ACS Sci-Mix					
Division Symposia					
Division Poster Session/Social Hour					
General Papers					
Issues in the Analysis of Environmental Endocrine Disruptors					
Specialty Chemicals in the Environment					
Exploring the Environmental Issues of Mobile, Recalcitrant Compounds in Gasoline (Cosponsored with the Division of Fuel Chemistry and the Division of Geochemistry)					
ACS Award for Creative Advances in Environmental Science and Technology: Honoring Dr. R.K.M. Jayanty (Sponsored by <i>Air Products and Chemicals, Inc.</i>)					
Computational Methods in Environmental Chemistry (Cosponsored with the Division of Computers in Chemistry and the Division of Geochemistry)					
Environmental Chemistry of the Atmosphere: 2000 and Beyond					
Environmental Chemistry of Water: 2000 and Beyond					

For changes in times or events, please stop at the Division Information Table, which will be located in the Hilton, near the Division's Symposia.

DIVISION OF ENVIRONMENTAL CHEMISTRY

Listed below are upcoming symposia scheduled for the Division of Environmental Chemistry at the fall National ACS meeting. If you are interested in presenting a paper at a symposium or assisting in symposia organization, please contact the appropriate symposium organizer listed below or the Program Chair: Allan M. Ford, 1050 Edgewater Lane, Gulf Breeze, FL 32561, Phone/Fax (850)934-1790, fordam@worldnet.att.net. Papers should be sent to the Environmental Division Office: Ruth A. Hathaway, 1810 Georgia St., Cape Girardeau, MO 63701-3816; Phone (573)334-3827, Fax (573)334-2551, scifair@semovm.semo.edu.

WASHINGTON, DC, AUGUST 20-25, 2000

The Online Abstract Submittal System (OASys) is now available for instant paper submissions at www.acs.org/meetings. If you do not have web access, please send one original hardcopy abstract form to the individual listed. Original plus 2 copies of extended abstract should be sent to respective symposium organizers. Deadlines: Electronic submittals by April 12, 2000. Hardcopy submittals must be received by April 5, 2000. All general papers will be presented in the Division's poster session. The [Extended Abstract Instructions](#) are available on the Web. Links to this and other important meeting information are also available on the [ACS Environmental Division Program Page](#).

General Papers.

- A.M. Ford (see above)

Chemical-Biological Interactions in Contaminant Fate. (Cosponsored with GEOC).

- P. Tratnyek, Department of Environmental Science and Engineering, Oregon Graduate Institute of Science and Technology, 20000 NW Walker Rd, Beaverton, OR 97006-8921, (503) 690-1023, Fax (503) 690-1273, tratnyek@ese.ogi.edu; P. Adriaens, Environmental and Water Resources Engineering, University of Michigan, 1352 Beal Street, Ann Arbor, MI 48109-2125, (734) 763-1464, Fax (734) 763-2275, adriaens@engin.umich.edu; E. Roden, University of Alabama, Department of Biological Sciences, Room A122 Bevill Bldg. 7th Ave., Tuscaloosa, AL 35487-0206, (205) 348-0556, Fax (205) 348-1403, eroden@biology.as.ua.edu

Chemical Speciation and Reactivity in Water Chemistry and Water Technology: A Symposium in Honor of James J. Morgan.

- J. Hering, California Institute of Technology, Environmental Engineering Science, 1200 E. California Blvd. (138-78), Pasadena, CA 91125, (626) 395-3644, Fax (626) 395-2940, jhering@cco.caltech.edu; J. Schnoor, University of Iowa, Civil and Environmental Engineering, 116 Engineering Research Facility, Iowa City, IA 52242, (319) 335-5649, Fax (319) 335-5585, jschnoor@cgrer.uiowa.edu

Electrochemical Methods for Environmental Analysis of Trace Metal Biogeochemistry.

- T.F. Rozan, College of Marine Studies, University of Delaware, Lewes, DE 19958, (302) 645-4284, Fax (302) 645-4007, trozan@udel.edu; M. Taillefert, College of Marine Studies, University of Delaware, Lewes, DE 19958, (302) 645-4207, Fax (302) 645-4007, mtaillef@udel.edu

Environmental Chemistry: Emphasis on EPA and EPA Supported Research.

- R. Lipnick, U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics (7403), 401 M St., SW, Washington, DC 20460, (202) 260-1274, Fax (202) 260-1236, lipnick.robert@epa.gov; B. Karn, U.S. Environmental Protection Agency, National Center for Environmental Research and Quality Assurance (8722R), 401 M St., SW, Washington, DC 20460, (202) 564-6824, Fax (202) 565-2446, karn.barbara@epa.gov

Environmental Chemistry Awards.

- T. Anderson, The Institute of Environmental and Human Health, Texas Tech University, P.O. Box 41163, Lubbock, TX 79409-1163, (806)885-4549 ext 231, Fax (806)885-4577, tanderson@ttu.edu

Membrane Separation Processes in Aquatic Systems.

- M. Elimelech, Dept. of Chemical Engineering, Yale University, New Haven, CT 06520-8286, (203) 432-2789, Fax (203) 432-7232, menachem.elimelech@yale.edu; G.L. Amy, Dept. of Civil & Environ Eng, University of Colorado, Boulder, CO 80309-0428, (303) 492-6274, Fax (303) 492-7317, gamy@spot.colorado.edu; M. Clark, Dept. of Civil Eng., MC-250, University of Illinois, Urbana, IL 61801-2352, (217) 333-3629, Fax (217) 333-9464, m-clark3@uiuc.edu

Sequestration of Organic Solutes in Natural Organic Matter and Mineral Aggregates.

- E.J. LeBoeuf, Dept. of Civil and Environmental Engineering, Vanderbilt University, Nashville, TN 37235, (615) 343-7070, Fax (615) 322-3365, eugene.j.leboeuf@vanderbilt.edu; C. Werth, Dept. of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, 3215 NCEL, 205 N. Mathews Ave., Urbana, IL 61801, (217)333-3822, Fax (217)333-6968, werth@uiuc.edu

Emission Control in Petroleum Processing. (Cosponsored with FUEL & PETR - see PETR)

1990 Clean Air Act Amendments: A 10 Year Assessment. (Cosponsored with FUEL - see FUEL)

Listed below are upcoming symposia scheduled for the Division of Environmental Chemistry at future National ACS meetings. If you are interested in presenting a paper at a symposium or assisting in symposia organization, please contact the appropriate symposium organizer listed below or the Program Chair: Michael L. Trehy, Solutia Inc., P.O. Box 66760, St. Louis, MO 63166-6760, (314) 674-1515, Fax (314) 674-5640, mltreh@solutia.com. Papers should be sent to the Environmental Division Office: Ruth A. Hathaway, 1810 Georgia St., Cape Girardeau, MO 63701-3816; Phone (573)334-3827, Fax (573)334-2551, scifair@semovm.semo.edu.

SAN DIEGO, CA, APRIL 1-5, 2001

The Online Abstract Submittal System (OASys) is now available for instant paper submissions at www.acs.org/meetings. If you do not have web access, please send one original hardcopy abstract form to the individual listed. Original plus 2 copies of extended abstract should be sent to respective symposium organizers. Deadlines: Electronic submittals by November 27, 2000. Hardcopy submittals must be received by November 22, 2000. All general papers will be presented in the Division's poster session. The Extended Abstract Instructions are available on the Web. Links to this and other important meeting information are also available on the ACS Environmental Division Program Page.

General Papers.

- M.L. Trehy (see above)

ACS Award for Creative Advance in Environmental Science and Technology (Sponsored by Air Products and Chemicals, Inc.) - To be announced

- R.A. Hathaway (see above)

Biogeochemistry of Environmentally Important Elements

- Y. Cai, Florida International University, Department of Chemistry and Southeast Environmental Research Center, University Park, Miami, FL 33199, (305) 348-6210, Fax (305) 348-3772, cai@fiu.edu

CHICAGO, IL, AUGUST 26-30, 2001

The Online Abstract Submittal System (OASys) is now available for instant paper submissions at www.acs.org/meetings. If you do not have web access, please send one original hardcopy abstract form to the individual listed. Original plus 2 copies of extended abstract should be sent to respective symposium organizers. Deadlines: Electronic submittals by April 11, 2000. Hardcopy submittals must be received by April 4, 2000. All general papers will be presented in the Division's poster session. The [Extended Abstract Instructions](#) are available on the Web. Links to this and other important meeting information are also available on the [ACS Environmental Division Program Page](#).

General Papers.

- M.L. Trehy (see above)

Environmental Chemistry Awards.

- T. Anderson, The Institute of Environmental and Human Health, Texas Tech University, P.O. Box 41163, Lubbock, TX 79409-1163, (806)885-4549 ext 231, Fax (806)885-4577, tanderson@ttu.edu

**The Environmental Chemistry Division
of the
American Chemical Society**

**Presents the Following Awards in Recognition of Excellence
in the Environmental Sciences:**

- | **Distinguished Service Award** (sustained and distinguished contributions to the field of environmental chemistry and to the Division)
- | **Certificate of Merit** (first notable presentation)
- | **Kenneth G. Hancock Memorial Scholarship in Green Chemistry** (contribution in green chemistry)
- | **Graduate Student Award** (excellence in graduate studies)
- | **Graduate Student Research Paper Award** (excellence in research and presentation)

Distinguished Service Award

Members of the Division who demonstrate continued and active participation in the Division and in environmental chemistry will be considered for this award. The nominee must have been a member of the Division for at least ten years and active through presentations at and organization of symposia, effective work on Division committees, regular attendance and participation at National meetings, holding office in the Division and a general attitude and willingness to help in the Divisional work. The award is presented annually at the Fall ACS meeting.

Certificate of Merit Award

A certificate of merit award is given for a notable first appearance before the Environmental Division. If you are planning to make your first presentation at a National American Chemical Society meeting, please notify the Program Chair at the same time you submit your ACS abstract forms and Extended Abstract.

For further information regarding the Distinguished Service Award, the Edward Bartow Award, the Fraser Johnstone Award, or the Certificate of Merit, contact: Glenn C. Miller, Dept. of Environmental & Resource Sciences, MS 199, University of Nevada-Reno, Reno, NV 89557, (775)784-4108.

Kenneth G. Hancock Memorial Scholarship in Green Chemistry

To honor his contributions in the field of Green Chemistry, Dr. Hancock's colleagues from academia, government, and industry established the Kenneth G. Hancock Memorial Scholarship in Green Chemistry, offered under the auspices of the American Chemical Society's (ACS's) Division of Environmental Chemistry. The Kenneth G. Hancock Memorial Scholarship is awarded annually in conjunction with the Presidential Green Chemistry Challenge Awards Ceremony, administered by the U.S. Environmental Protection Agency (EPA) at the annual Green Chemistry and Engineering Conference sponsored by EPA, ACS, and other chemical organizations associated with industry, government, and academia. The scholarship provides national recognition for outstanding student contributions to furthering the goals of Green Chemistry (i.e., the research, development, and implementation of fundamental and innovative chemical technologies that incorporate the principles of Green Chemistry into chemical design, manufacture, and use, and that have the potential to be utilized in achieving national pollution prevention goals). The Kenneth G. Hancock Memorial Scholarship is open to all undergraduate and graduate students.

For further information regarding the Kenneth G. Hancock Memorial Scholarship in Green Chemistry,

contact: Tracy Williamson, Office of Pollution Prevention and Toxics (Mail Code 7406), U.S. Environmental Protection Agency, 401 M Street, SW, Washington DC 20460, (202)260-2659.

Graduate Student Award in Environmental Chemistry

The Division of Environmental Chemistry sponsors up to 25 annual awards to full-time graduate students currently enrolled in a United States educational institution in chemistry, environmental engineering or other programs emphasizing environmental chemistry. These students must have completed one full year of graduate study at their current institution by the date of announcement of the awards (January or February).

The award is based upon students' records in course work, evidence of research productivity, and on statements from graduate faculty advisers. Primary emphasis will be given to the students' potential for future contributions as professionals in environmental chemistry. The application for the award is submitted by the graduate students' faculty advisers.

Graduate students who receive the award will receive a one year membership in the Division of Environmental Chemistry (which includes the Preprints of Extended Abstracts for the two National meetings and the Division newsletter, EnvirofACS) and a one year subscription to Environmental Science & Technology. Awardees will be publicized in the Preprints, ES&T and EnvirofACS.

Graduate Student Research Paper Awards

The Division of Environmental Chemistry also sponsors the Graduate Student Research Paper Award, the highest honor granted by the Division for students. Up to five awards are presented annually. All graduate students enrolled full-time in chemistry, environmental engineering or other program emphasizing environmental chemistry are eligible.

The research paper must be relevant to environmental chemistry, the student must be the first and major author, and the work must have been done while attending the student's current institution. The paper may have been submitted to a journal at the time of submission, but it should not have already been published or presented at another meeting.

Graduate students who receive this award will present their papers at the American Chemical Society National meeting in the Fall. Each awardee will also receive a \$500 cash award at the Environmental Division Dinner at the national meeting, a one year membership in the Environmental Division, and recognition in EnvirofACS, the newsletter of the Division and in ES&T.

Application materials and announcements regarding the Graduate Student Award in Environmental Chemistry and the Graduate Student Research Paper Award are distributed in the Fall of each year. If you do not receive the announcement or have **further questions regarding eligibility or application requirements, contact: Todd A. Anderson, The Institute of Environmental and Human Health, Texas Tech University, P.O. Box 41163, Lubbock, TX 79409-1163, (806)885-4549 ext 231.**

**Division of Environmental Chemistry
Distinguished Service Award Winners**

1957	W.D. Collins A.N. Buswell Edward Bartow A.S. Behrman R.C. Bardwell	1977	Alvin P. Black John J. Dwyer J. Carrell Morris
1958	F.W. Mohlman W.D. Hatfield	1978	Robert A. Baker Aaron A. Rosen
1959	J.R. Baylis D.K. French	1979	Frank M. Middleton C. Ellen Gonter
1960	C.S. Howard O.M. Smith	1984	Nina I. McClelland Donald F. Adams John I. Tealsey
1961	William Steriker Fred Lindsey	1985	Lawrence H. Keith Leslie B. Laird Roger A. Minear
1962	Hovhaness Heukelekian L.D. Betz	1986	Robert L. Jolley
1963	William Allan Moore William L. Lamar	1987	Herbert E. Allen
1965	Louis F. Warrick Clair S. Boruff	1988	J. Donald Johnson
1967	S. Ken Love Richard D. Hoak	1989	Gordon E. Bellen
1968	John J. Maguire H. Gladys Swope	1990	Irwin H. (Mel) Suffet V. Dean Adams
1969	Hilding B. Gustafson Henry C. Marks	1992	Richard G. Zepp
1970	George Hatch A.A. Berk	1998	Alan W. Elzerman
1971	J. Fred Wilkes T.E. Larson	1999	Jurgen Exner
1972	Robert Ingols Calvin Calmon		
1973	James P. Lodge, Jr. S. Charles Caruso		
1975	Henry C. Bramer Benjamin F. Willey Louis F. Wirth, Jr. Francis L. Estes		

Graduate Student Award Winners for 2000
Sponsored by the Division of Environmental Chemistry

Name	Advisor	Graduate Program
Joel Bandstra	Paul Tratnyek	Oregon Graduate Institute
Paul Hartmann	James Quinn	University of Rhode Island
Haojiang Zhou	Yuefeng Xie	Penn State Harrisburg
Katrice Lippa	A. Lynn Roberts	Johns Hopkins University
C. Andrew Ramsburg	Kurt Pennell	Georgia Institute of Technology
Sarunya Hengpraprom	Cindy Lee	Clemson University
Alexa Rihana	Peter Adriaens	University of Michigan
Jens-Uwe Kuhn	Richard Foust	Northern Arizona University
Ted Wu	Todd Anderson	Texas Tech University
Julia Rogers	Kenneth Reardon	Colorado State University
Mehmet Kitis	Tanju Karanfil	Clemson University
Julie Zimmerman	Kim Hayes	University of Michigan
Tie Li	James Farrell	University of Arizona
Jeffrey Chen	Menachem Elimelech	Yale University
Brian Desharnais	Barbara-Ann Lewis	Northwestern University
Weihong Wang	Barbara Finlayson-Pitts	UC-Irvine
Shaun Mendonsa	Robert Hurtubise	University of Wyoming
Rajat Chakraborti	Joseph DePinto	SUNY-Buffalo
Darryl Roberts	Donald Sparks	University of Delaware
Reggie Spaulding	M. Judith Charles	UC-Davis
Kavitha Subramaniam	Sotira Yiacoumi	Georgia Institute of Technology

Graduate Student Award Winners for 1999
Sponsored by the Division of Environmental Chemistry

Name	Advisor	Graduate Program
Brian Mader	James Pankow	Oregon Graduate Institute
Eric Vrijenhoek	Menachem Elimelech	Yale University
David Adamson	Gene Parkin	University of Iowa
Heath Mash	Yu-Ping Chin	Ohio State University
Martin Johnson	Walter Weber	University of Michigan
Paul Brunciak	Steven Eisenreich	Rutgers University
Tammy Taylor	Kurt Pennell	Georgia Institute of Technology
William Arnold	A. Lynn Roberts	The Johns Hopkins University
Hiroshi Awata	Todd Anderson	Texas Tech University
Elizabeth Butler	Kim Hayes	University of Michigan
Tarek Ladaa	Cindy Lee	Clemson University
Robert Bruant	Martha Conklin	University of Arizona
William Mills	Peter Scheff	University of Illinois at Chicago
William Bedsworth	David Sedlak	UC-Berkeley

Graduate Student Paper Award Winners for 1999
Sponsored by the Division of Environmental Chemistry

- “Genesis of Selectivity and Reversibility for Sorption of Synthetic Aromatic Anions Onto Polymeric Sorbents”
Ping Li, Arup. K. SenGupta, Department of Civil and Environmental Engineering, Lehigh University
- “Simulated Diagenesis of Natural Sediment Organic Matter and Its Impact on Sorption/Desorption Equilibria”
Martin D. Johnson, Weilin Huang, Walter J. Weber, Jr., Department of Civil and Environmental Engineering, University of Michigan
- “X-ray Absorption Spectroscopic Investigation of Aqueous Co(II) Sorption at Clay-Water Interfaces”
Chia-Chen Chen, Kim F. Hayes, Department of Civil and Environmental Engineering, University of Michigan
- “Reaction Pathways Involved in the Reduction of Monochloramine by Ferrous Iron”
Peter Vikesland, Richard L. Valentine, Department of Civil and Environmental Engineering, The University of Iowa
- “Pathways and Kinetics of Chlorinated Ethylene and Chlorinated Acetylene Reaction with Fe(0)”
William A. Arnold, A. Lynn Roberts, Geography and Environmental Engineering, The Johns Hopkins University

Graduate Student Paper Award Winners for 1998
Sponsored by the Division of Environmental Chemistry

- “Remediation at a Marine Superfund Site: Surficial Sediment PCB Congener Concentration, Composition, and Redistribution.”
Barbara J. Bergen, Kenneth A. Rahn, William G. Nelson, Graduate School of Oceanography, University of Rhode Island
- “Temporal and Spatial Trends in Biogeochemical Conditions at a Groundwater-Surface Water Interface: Implications for Natural Bioattenuation.”
John M. Lendvay, Sean M. Dean, Peter Adriaens, Environmental and Water Resources Engineering, The University of Michigan
- “Effect of Kinetics of Complexation by Humic Acid on the Toxicity of Copper to *Ceriodaphnia dubia*.”
Huizhong Ma, Sang D. Kim, Daniel K. Cha, Herbert E. Allen, Department of Civil and Environmental Engineering, University of Delaware
- “Enhanced Dissolution of Cinnabar (Mercuric Sulfide) by Aquatic Humic Substances.”
Mahaligam Ravichandran, George R. Aiken, Micahel M. Reddy, Joseph N. Ryan, Department of Civil, Environmental and Architectural Engineering, University of Colorado
- “Alkyl Bromides as Probes of Reductive Dehalogenation: 1) Reactions with Zero-Valent Metals.”
Lisa A. Totten, A. Lynn Roberts, Department of Geography and Environmental Engineering, The Johns Hopkins University

Note: **Student paper award winners are presented in bold**; faculty advisors are underlined

Books Available From: ACS Books

Based On Division of Environmental Chemistry Symposia

Several of the Symposia presented by the Division of Environmental Chemistry have been organized and published by ACS Books and are available for purchase. These titles include:

Aquatic Chemistry: Interfacial and Interspecies Processes. Chin Pao Huang, Charles R. O'Melia, and James J. Morgan, Editors, Advances in Chemistry Series 244, \$131.95

Benign by Design: Alternative Synthetic Design for Pollution Prevention. Paul T. Anastas and Carol A. Farris, Editors, Symposium Series 577, \$62.95

Bioremediation Through Rhizosphere Technology. Todd A. Anderson and Joel R. Coats, Editors, ACS Symposium Series 563, \$62.95

Designing Safer Chemicals: Green Chemistry for Pollution Prevention. Stephen C. DeVito and Roger L. Garrett, Editors, Symposium Series 640, \$89.95

Electromagnetic Fields: Biological Interactions and Mechanisms. Martin Blank, Editor, Advances in Chemistry Series 250, \$129.95

Environmental Biomonitoring: Exposure Assessment and Specimen Banking. K.S. Subramanian and G.V. Ivengar, Editors, Symposium Series 654, \$99.95

Environmental Chemistry of Lakes and Reservoirs. Lawrence A. Baker, Advances in Chemistry Series 237, \$157.95

Environmental Epidemiology. William M. Draper, Editor, Advances in Chemistry Series 241, \$83.95 (hardcover), \$52.95 (paper)

Environmental Immunochemical Methods: Perspectives and Applications. Jeanette M. Van Emon, Clare L. Gerlach, and Jeffrey C. Johnson, Editors, Symposium Series 646, \$109.95

Green Chemistry: Designing Chemistry for the Environment. Paul T. Anastas and Tracy C. Williamson, Symposium Series 626, \$89.95

Groundwater Residue Sampling Design. Ralph G. Nash and Anne R. Leslie. ACS Symposium Series 465 \$89.95

Halon Replacements: Technology and Science. Andrzej W. Mistolek and Wing Tsung, Symposium Series 611, \$104.95

Herbicide Metabolites in Surface Water and Groundwater. Michael T. Meyer and M. Thurman, Symposium Series 630, \$99.95

Immunochemical Technology for Environmental Applications. Diana S. Aga and E. Michael Thurman, Editors, Symposium Series 657, \$119.95

Molecular Markers in Environmental Geochemistry. R.P. Eganhouse, Editor, Symposium Series 671, \$129.95

Phytoremediation of Soil and Water Contaminants. Ellen L. Kruger, Todd A. Anderson and Joel R. Coats, Editors, Symposium Series 664, \$109.95

Plastics, Rubber, and Paper Recycling: A Pragmatic Perspective. Charles P. Rader, Editor, Symposium Series 609, \$129.95

Pollution Prevention in Industrial Processes. Joseph J. Breen and Michael J. Dellarco, ACS Symposium Series 508, \$83.95

Radiation and Public Perception. Jack P. Young and Rosalyn S. Yalow, Editors, Advances in Chemistry Series 243, \$73.95 (hardcover), \$31.95 (paper)

Science of Global Change. David A. Dunnette and Robert J. O'Brien. ACS Symposium Series 483, \$104.95

Surfactant-Enhanced Subsurface Remediation: Emerging Technologies. David A. Sabatini, Robert C. Knox, and Jeffrey H. Harwell, Symposium Series 594, \$89.95

Water Disinfection and Natural Organic Matter: Characterization and Control. Roger A. Minear and Gary Amy, Editors, Symposium Series 649, \$109.95

For further information regarding these books or for purchase of books, please contact:

American Chemical Society
Distribution Office
1155 Sixteenth Street, N.W.
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Fax: 1-202-872-6067

Book Available From: ANN ARBOR PRESS

Based On Division of Environmental Chemistry Symposia

A Symposium presented by the Division of Environmental Chemistry has been organized and published by Ann Arbor Press and is available for purchase. The title is:

Chlorine and Chlorine Compounds in the Paper Industry. Vic Turoski, Editor, \$79.95

For further information regarding this book or its purchase, please contact:

Ann Arbor Press
Order Department
121 South Main Street
Chelsea, MI 48118
Telephone: 1-800-487-2323

Book Available From: KLUWER/PLENUM (July 2000)

Based On Division of Environmental Chemistry Symposia

A Symposium presented by the Division of Environmental Chemistry has been organized and will be published by Kluwer/Plenum mid-2000. The title is:

Perchlorate in the Environment. Edward Urbansky, Editor.

For further information regarding this book, please contact either Kluwer/Plenum or the Division Business Office.

EXPAND YOUR ENVIRONMENTAL CHEMISTRY LIBRARY

Back volumes of the Division of Environmental Chemistry's Preprints of Extended Abstracts are available in limited supply. Listed below are the available volumes with a brief listing of the symposia contained in the volume and the prices for each. If three or more volumes are ordered together the total price will be reduced by 20 percent. Postage within the U.S. is included in the price. Postage and handling for international mailings is an additional \$4.00 per volume. If multiple volumes are ordered for international delivery, please contact Ruth Hathaway, at the address listed below, for the postage and handling charges.

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Vol	Meeting	Listing of Symposia	
40(1)	219, Spring, 2000 San Francisco	Issues in the Analysis of Environmental Endocrine Disruptors; Specialty Chemicals in the Environment; Exploring the Environmental Issues of Mobile, Recalcitrant Compounds in Gasoline; ACS Award for Creative Advances in Environmental Science and Technology: Honoring Dr. R.K.M. Jayanty (Sponsored by <i>Air Products and Chemicals, Inc.</i>); Computational Methods in Environmental Chemistry; Environmental Chemistry of the Atmosphere: 2000 and Beyond; Environmental Chemistry of Water: 2000 and Beyond; General Papers	25.00 print 15.00 CD
39(2)	218, Fall, 1999 New Orleans	Perchlorate in the Environment; Analytical Challenges for Assessing Environmental Exposures to Children; Environmental Chemistry Awards; Environmental Issues on the Gulf Coast; Chiral Chemistry in the Environment; Waste: Remediation and Related Issues; Computer Software for Environmental Chemistry Education; General Papers	15.00 CD
39(1)	217, Spring, 1999 Anaheim	Persistent, Bioaccumulative, Toxic Chemicals; Natural Organic Matter and Disinfection By-Products: Characterization and Control in Drinking Water; Interfacial and Colloidal Phenomena in Aquatic Environments; ACS Award for Creative Advances in Environmental Science & Technology: Honoring James F. Pankow - Gas/Particle Partitioning: The State of Science (Sponsored by <i>Air Products and Chemicals, Inc.</i>); ACS Award for Creative Advances in Environmental Science & Technology: Honoring Terry F. Bidleman (Sponsored by <i>Air Products and Chemicals, Inc.</i>); Green Chemistry in Academia, Industry, and Government; Green Chemistry Education; Recent Advances in Environmental Chemical Sensors and Biosensors; General Papers	25.00 print 15.00 CD
38(2)	216, Fall, 1998 Boston	Humic Substance-Mediated Environmental Reactions; Environmental Impact of Fossil Fuel Utilization; Risk Assessments of Radioactive/Chemical Contamination; Intentional Environmental Tracers; Environmental Chemistry Awards; Advances in the Analysis of Environmental Endocrine Disruptors; Research and Education Challenges in Environmental Chemistry; General Papers	20.00
38(1)	215, Spring, 1998 Dallas	Waste Treatment Processes; Environmental Applications of Geographic Information Systems (GIS); ACS Award for Creative Advances in Environmental Science and Technology in Honor of Mario J. Molina (Sponsored by <i>Air Products and Chemicals, Inc.</i>); The Presidential Green Chemistry Challenge; Tributyltin Compounds in the Aquatic Environment; General Papers	20.00
37(2)	214, Fall, 1997 Las Vegas	Isolation, Fractionation, Characterization, and Reactivity of Environmental Colloids; Soil Contaminant Remediation Issues; Mechanisms and Effects of Resistant Sorption Processes of Organic Compounds in Natural Particles; Student Awards Symposium; Environmental Programs in Nevada; General Papers	20.00

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37(1)	213, Spring, 1997 San Francisco	Redox Reactions in Natural and Engineered Aqueous Systems; Global Climate Change: Uncertainties and Research Needs; Environmental Application of Biosensors; Green Chemistry/Environmentally Sustainable Manufacture as a Competitive Advantage; Field Testing of Innovative Subsurface Remediation Technologies, ACS Award for Creative Advances in Environmental Science and Technology in Honor of Charles E. Kolb: Atmospheric Chemistry as a Science and a Service; Degradation of Chemicals with Significant Environmental Impact; Environmental Fate and Effects of Gasoline Oxygenates; General Papers	20.00
36(2)	212, Fall, 1996 Orlando	Application of Molecular Markers to Environmental Geochemistry; Fundamentals of Membrane Separation Processes in Aquatic Systems; Environmental Chemistry Resources on the Internet; Student Awards Symposium; General Papers	20.00
36(1)	211, Spring, 1996 New Orleans	Development and Applications of Immunoassays for Environmental Analysis; Environmental Restoration of Bays and Estuaries; ACS Award for Creative Advances in Environmental Science and Technology: Honoring Donald H. Stedman; Petroleum Contamination in the Environment: Assessment and Remediation; General Papers	20.00
35(2)	210, Fall, 1995 Chicago	Molecular Modeling and Environmental Computational Chemistry; Spectroscopy of Atmospheric Aerosols; Chlorine and Chlorine Compounds in the Paper Industry; Aqueous Oxidants and Photooxidants: Mechanisms and Process Kinetics (A Symposium in Honor of Jurg Hoigne); Mechanistic Environmental Photochemistry; Student Awards; Disinfection By-Products and NOM Precursors: Chemistry, Characterization, Control; General Papers	12.00
35(1)	209, Spring, 1995 Anaheim	Cloud and Aerosol Atmospheric Chemistry; Chemistry of Herbicide Metabolites in Surface and Ground Water; Urban Atmospheric Chemistry; Influence of Coupled Chemical-Biological Processes on Transport and Remediation of Contaminant in the Subsurface; Colloidal and Interfacial Phenomena in Aquatic Environments; Contaminant Remediation with Zero-Valent Metals; General Papers	12.00
34(2)	208, Fall, 1994 Washington, DC	Design for Environment: The Environmental Paradigm for the Twenty-first Century (<i>A Memorial to Kenneth G. Hancock</i>); Implementations of Current Environmental Regulations on Petroleum and Fuel Industries: Technology and Policy Issues; The Environmental Fate of Pharmaceuticals and Other Complex Organic Molecules; Groundwater Contamination and Control: The State of the Art; Municipal Solid Waste: Problems and Solutions; Student Awards Symposium; Advances in Replacements for Ozone Depleting Compounds; Environmental Risk Decision Making: Values, Perceptions and Ethics; General Papers.	12.00
34(1)	207, Spring, 1994 San Diego	Scientific and Regulatory Issues Associated with Sediment Contamination; Earth in the Balance: Global Environment, Energy, Technology Transfer and Policy Issues for Industrial and Developing Nations; Remediation of Hazardous Waste Sites; Human Health Perspectives on Exposure to Chemicals at Hazardous Waste Sites; Physical-Chemical Processes Controlling Contaminant Mobility in Aquatic Environments; Solving Problems in Environmental Chemistry using Stable Isotope Labeled Compounds; ACS Award for Creative Advances in Environmental Science and Technology; Honoring Steven J. Eisenreich; Surfactant-Enhanced Remediation of Subsurface Contamination: Emerging Technologies; Atmospheric Chemistry of Biogenic Hydrocarbons; Environmental Successes in the Chemical Industry; General Papers	12.00
33(2)	206, Fall, 1993 Chicago	Advances in Environmental Analytical Chemistry; Disinfection By-Products in Water Treatment: The Chemistry of Their Formation and Control; Environmental Successes in the Chemical Industry; Student Awards Symposium; Redefining the MDL; Policy and Technical Implications; Alternate Synthetic Design for Pollution Prevention; General Papers	12.00
33(1)	205, Spring, 1993 Denver	NMR Spectroscopy in Environmental Science and Technology; Electromagnetic Fields and Environmental Health Effects; 1993 ACS Award for Creative Advances in Environmental Science and Technology: Recent Advances in Atmospheric Chemistry; Alternative Fuels and the Environment; Applications of Supercritical Fluid Extraction; Continuous Flow Liquid-Liquid Extraction and Other Methods for Isolating Trace Organic Pollutants in Water; Environmental Successes in the Chemical Industry; General Papers	12.00
Division of Environmental Chemistry: Back Volumes of Preprints of Extended Abstracts			\$ U.S.

32(2)	204, Fall, 1992 Washington, DC	Molecular Biological Tools in Environmental Chemistry, Biology and Engineering; Lead Poisoning in Children: Exposure, Abatement and Program Issues; Environmental Success in the Chemical Industry; Assessing the State of the Environment; Student Awards; Environmental Chemistry of Dyes; General Papers	10.00
32(1)	203, Spring, 1992 San Francisco	Environmental Aspects of Surface and Aquatic Photochemistry; Solid Phase Extraction in Environmental and Clinical Chemistry; Oxidation-Reduction Transformations of Inorganic and Organic Species in the Environment; Environmental Successes in the Chemical Industry; Receptor Models for Airborne Particles: In Honor of G.E. Gordon, Recipient of the 1992 ACS Award for Creative Advances in Environmental Chemistry; Aquatic Chemistry (Honoring W. Stumm); Environmental Epidemiology: Detecting and Quantifying Effects of Environmental Chemicals on Human Health; Environmental Chemistry of Sustainable Agriculture; Environmental Chemistry and Toxicity of Surfactants; General Papers	10.00
31(2)	202, Fall, 1991 New York	Chemistry and Microstructure of Solidified Waste Forms; Soil Gas Analysis-Environmental Containments; The Quantitative Ranking of Environmental Problems According to Risk-What Must We Yet Know to Accomplish This Task?; EPA's Hazard Ranking System and Decision Methodology-What is the Basis of EPA's Listing of Sites for Superfund?; Remedial Action Plan-Program for the Great Lakes; Special Topics and General Papers	10.00
31(1)	201, Spring, 1991 Atlanta	Acid Rain Mitigation-Liming Technologies and Environmental Considerations; Biotechnology for Wastewater Treatment; Environmental Chemistry of Lakes and Reservoirs; Organics in the Environment; Pollution Prevention and Process Analytical Chemistry; Shallow Aquifer Chemistry; Wetland Chemistry; Southern Oxidants Study; General Papers	10.00
30(2)	200, Fall, 1990 Washington, DC	Energy and the Environment; Effective and Safe Waste Management: Interfacing Sciences and Engineering with Monitoring and Risk Analysis; Integrated Pest Management: Environmentally Sound Agriculture for the 90's; Disinfection By-Products; Impact of Future Legislation on Disposal of Municipal Wastewater Sludges; Measurement of Airborne Compounds: Sampling, Analysis, and Data Interpretation; General Papers.	10.00
30(1)	199, Spring, 1990 Boston	Luminescence Applications in Geochemistry and Hydrology; Chemical Kinetics and the Environment; Environmental Chemistry of Small Watersheds; Organic Substances and Sediments in Water (Pedagogical Symposium; Humic and Other Natural Substances; Aquatic Particle-Organic Chemical Interactions: Characterization and Contaminant Geochemistry; Fate and Transport; Interfacial and Organic-Inorganic Processes; Analytical; Soils and Sediments-Sorption Interaction with Soils, Sediments, and Dissolved Organic Matter; Soils and Sediment-Biodegradation of Organic Contaminants in Soils and Sediments; Biological Processes; Biotransformation, Bioavailability, Bioaccumulation and Bioturbation); General Papers and Poster Session	10.00

SYMPOSIA, SPECIAL TOPICS AND ORGANIZERS

GENERAL PAPERS

ALLAN M. FORD is currently retired living in Florida. He retired as Director of the Gulf Coast Hazardous Substance Research Center and as Director of the Texas Hazardous Waste Research Center at the end of 1996. The combined Centers sponsored environmental research at nine Gulf Coast universities. Dr. Ford worked for the former Monsanto Company from 1972 until his retirement at the end of January 1993 where he served as Director of the company's Environmental Sciences Center. Dr. Ford received his Bachelor's Degree in Chemistry from Iowa State University and his Ph.D. in Analytical Chemistry from Kansas State University. He served in numerous capacities within the St. Louis Section of the ACS including chairman and councilor. He also chaired the Sabine-Neches Section of the ACS. On a national level he has served in nearly 20 assignments including Chair of the Committee on Environmental Improvement. He currently chairs the ACS Task Force on Environmental Research Funding. He is also a member of AAAS, SCS, IAWQ, SETAC and AIChE.

ISSUES IN THE ANALYSIS OF ENVIRONMENTAL ENDOCRINE DISRUPTORS

The 2nd Symposium on "Issues in the Analysis of Environmental Endocrine Disruptors", sponsored by the Division of Environmental Chemistry, will be an opportunity for further scientific dialogue regarding environmental aspects of EDCs. Papers that deal with real case studies of EDCs, new and emerging analytical and screening methods that take advantage of state-of-the-art technologies, as well as, effects of EDCs and updates on regulations and policy issues will be presented.

A Special Session will be included in the symposium, "Pharmaceuticals and Personal Care Products in the Environment - An Emerging Concern". This special session (the first ever sponsored by the Division of Environmental Chemistry) focuses on an emerging environmental pollution issue --- pharmaceuticals and personal care products (PPCPs) and their presence in the aquatic environment. Papers for this special session will cover many aspects --- from occurrence and fate, to effects and mitigation.

LARRY H. KEITH is a Vice President and Senior Corporate Fellow at WPI, a non-profit institute affiliated with Virginia Tech in Blacksburg, VA. He is author of 170 books and technical articles on toxic chemicals and environmental pollution. A Ph.D. chemist, he is past Chairman of the Division of Environmental Chemistry, current editor of the Division's newsletter, and also its Web Master. He has helped to organize three symposia on endocrine disrupting chemicals at national meetings and published a 1200 page book on properties of these chemicals with John Wiley Publishers. He began his career at the U.S. EPA Research Laboratory in Athens, GA and also worked for 21 years at Radian International prior to Joining WPI.

LARRY L. NEEDHAM is Chief of the Analytical Toxicology Branch at the National Center for Environmental Health of the Centers for Disease Control and Prevention. He has held this position for 14 of his 23 years at CDC. The mission of the Branch is to develop and apply analytical methods for measuring the internal dose levels of environmental toxicants in humans. These toxicants include polychlorinated dibenzo-p-dioxins, furans, and biphenyls; persistent pesticides; nonpersistent pesticides; polyaromatic hydrocarbons; phthalate esters; phytoestrogens; and various marine toxins. Dr. Needham has served in consulting roles on several occasions with the World Health Organization, the United Nations Environment Programme, various Federal agencies, and states. He is the author or coauthor of over 200 peer reviewed publications. Dr. Needham serves on the editorial board of the International Society of Environmental Medicine. He has been on the International Advisory Committee for the series of Dioxin meetings since 1991. He is also a member of the ACS' Committee on Environmental Improvement and serves as chair of the Risk Assessment and Toxicology Subcommittee. He received his B.S. in 1964 from Middle Tennessee State University and Ph.D. in organic chemistry from the University of Georgia in 1968. Dr. Needham has been previously employed by Auburn University and General Electric Company.

TAMMY L. JONES-LEPP is a Research Chemist for the Office of Research and Development of the U.S. Environmental Protection Agency. She has been at the EPA since 1978. Ms. Jones- Lepp has authored or co-authored over 20 publications and several book chapters. She has organized and co-organized two endocrine disruptor symposia at National ACS meetings. Ms. Jones-Lepp's immediate research interests relate to the detection, speciation, and identification of organotins and select pharmaceuticals and personal care products (PPCPs) by electrospray-ion trap mass spectrometry and the application of these results to environmental monitoring. Her long-term research objectives are the relevance of the fate and transport of organotins and PPCPs in the environment and extrapolating the environmental data to the resultant exposure and effects on humans.

SPECIALTY CHEMICALS IN THE ENVIRONMENT

Specialty chemical suppliers provide composition, physical property, and chemical reactivity information that allows customers to select chemicals that are well suited for their intended function. This same information can be profitably employed to predict the partitioning, speciation, and transformation behavior of specialty chemicals in environmental media. The symposium highlights new research pertaining to the analysis of specialty chemicals, strategies for documenting pathways and rates of environmental transformations, relevant biological endpoints, and ways of selecting chemicals with desirable life cycle properties.

ALAN T. STONE is a professor of environmental chemistry in the Whiting School of Engineering at the Johns Hopkins University. He completed his B.S. in Chemistry from the University of Maryland, College Park, and M.S. and Ph.D. degrees in Environmental Engineering Science under the direction of Prof. James J. Morgan at the California Institute of Technology. His research focuses upon metal ion-organic interactions, both in solution and at mineral/water interfaces. In the fall of 1999, he served as a guest professor at the University of Karlsruhe, Germany, where he lectured on "Inorganic Chemistry and Physical Organic Chemistry Applications in Water Science."

**EXPLORING THE ENVIRONMENTAL ISSUES OF MOBILE, RECALCITRANT COMPOUNDS IN GASOLINE
(Cosponsored with the Division of Fuel Chemistry and the Division of Geochemistry)**

This symposium will discuss the latest information on mobile, recalcitrant compounds in gasoline and the newly emerging compounds being developed for use in gasoline and other vehicular fuels. Oxygenates such as MTBE, TAME, ETBE, DIPE, TBA, etc., are highly soluble and very mobile in water, and are persistent in the environment. Their use has led to concerns about the release of these compounds to groundwater, surface water, and the atmosphere. Numerous studies have been undertaken to understand the behavior of these compounds in the environment and mitigate their effects. The results of ongoing research in areas such as properties, occurrence, fate and transport, remediation approaches, regulatory issues, etc., of fuel oxygenates and additives will be presented in this symposium.

DONNA L. DROGOS, P.E., is a Civil Engineer in the Santa Clara Valley Water District's Leaking Underground Storage Tank Local Oversight Program where she provides regulatory oversight for fuel leak cases within Santa Clara County. Ms. Drogos led the development of the District's model letter for performing MTBE investigations and analyses for fuel oxygenates. Currently, her work is focused on assessing the potential threat posed by fuel oxygenates to the water resources of Santa Clara County. She is also Chair of the Northern California MTBE & Fuel Oxygenates Committee. Ms. Drogos holds a Bachelor's of Science degree from the University of California at Berkeley and is a Registered Civil Engineer in the State of California. She has 11 years of civil and environmental engineering experience.

ART F. DIAZ currently holds a part-time teaching position in the Department of Chemical and Materials Engineering, San Jose State University. He received his Ph.D. from UCLA in Chemistry and spent 20 years at the IBM (Almaden) Research Center, San Jose California, retiring in 1995. Dr. Diaz's research interests are in the areas of polymers, electrochemistry and chemicals in the environment.

**ACS AWARD FOR CREATIVE ADVANCES IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY:
HONORING DR. R.K.M. JAYANTY
(Sponsored by Air Products and Chemicals, Inc.)**

This symposium recognizes the achievements of Dr. Radhakrishna M. Jayanty. Dr. Jayanty will receive the ACS Award for Creative Advances in Environmental Science and Technology for his unique and valuable contribution to atmospheric sciences and outstanding research and development of measurement methods for the volatile organic compounds in ambient air, industrial sources, and hazardous waste emissions, which are widely used in pollution control programs worldwide.

RUTH A. HATHAWAY serves as the Business Office Manager for the Division of Environmental Chemistry of the American Chemical Society. Mrs. Hathaway is a consultant with Hathaway Consulting and a part time instructor in the Department of Chemistry at Southeast Missouri State University. Prior to her consulting work, she was the quality control/quality assurance director for an environmental lab and the laboratory director for a transformer manufacturer. She received her B.S. in Chemistry from Huntington College and did graduate work in Medicinal Chemistry at Purdue University. She is an active member of the Divisions of Environmental Chemistry and Chemical Health and Safety. She serves on the ACS Divisional Activities Committee and is on the Board for the National Registry for Certified Chemists.

ERIC D. WINEGAR is currently principal of Applied Measurement Science, a small consulting enterprise focusing on using innovative measurement tools for air quality measurements of all types, including real-time and on-site analysis techniques. He previously was Director of Research and Technical Services at Air Toxics Limited, an air analysis laboratory, and worked at Radian Corporation for several years. Dr. Winegar has a Ph.D. in environmental and physical chemistry from UC Davis,

working under Dr. Thomas A. Cahill of the Air Quality Group. He is a director of the local chapter of the Air and Waste Management Association, and has been the chair of several local conferences and national technical sessions. Currently, Dr. Winegar is focusing his attentions on techniques for low-level measurements of reduced sulfur compounds and on utilizing the burgeoning wireless technologies in combination with the internet for transmittal of real-time data from on-site instruments to interested parties.

COMPUTATIONAL METHODS IN ENVIRONMENTAL CHEMISTRY
(Cosponsored with the Division of Computers in Chemistry and the Division of Geochemistry)

Rapidly evolving progress in computer hardware and software has promoted the application of sophisticated chemical models to complex environmental problems. This symposium will showcase the application of computational methods, including molecular modeling of pollutant properties and reactions, kinetic simulations of complex reactions, and aqueous equilibrium modeling.

STEVE E. CABANISS is an Associate Professor of Environmental and Analytical Chemistry at Kent State University in Kent, OH, where he teaches aqueous equilibria, chemical data analysis and environmental chemistry. His research includes molecular spectroscopy, measurements of metal speciation, and computational models of metal ion and organic pollutant behavior in natural systems. Current interests in computational chemistry include predicting/reconciling the structure and properties of humic substances and the sources of uncertainty and error in model calculations of trace element speciation. Dr. Cabaniss co-chaired (with K. Namboodiri) a symposium on Computational Methods in Environmental Chemistry at the Fall, 1995 ACS meeting.

ENVIRONMENTAL CHEMISTRY OF THE ATMOSPHERE: 2000 AND BEYOND

During the late 1900's many regulatory mandates were passed regarding the air quality. This symposium will not only be an opportunity to reflect at what progress has been made towards cleaner air, but also to discuss current research, current and future regulatory action and look at what else must be done. Should regulations be tighten? If so, what must we do to meet these challenges? What new methods, techniques, and/or equipment must be developed? Or can existing methods, techniques, and equipment be revised and changed to meet these needs?

RUTH A. HATHAWAY (see above).

ROGER L. TANNER is Principal Scientist in the Atmospheric Sciences Department at TVA's Environmental Research Center in Muscle Shoals, AL. He is the author of over 75 scientific articles and book chapters focusing on a wide range of topics in the measurement science and chemistry of the earth's atmosphere. He has been at TVA since 1995 and previously worked at the Desert Research Institute and Brookhaven National Laboratory. He is a 35-year member of the American Chemical Society and has served on review committees of the U.S. EPA, EPRI, and IUPAC.

ENVIRONMENTAL CHEMISTRY OF WATER: 2000 AND BEYOND

This symposium will look at the challenges and opportunities ahead in environmental chemistry, with a focus on aqueous systems. A vision of where we might be headed is crucial so that we might recognize the good and bad steps along the way, while at the same time trying to be open to the unexpected. Although environmental chemistry has made great strides and developed a more theoretical and mechanistic foundation, there are still many gaps in our knowledge. There are also many discontinuities in the path from understanding molecules in the environment to public policy issues and population health questions. Presentations will first look at atmospheric aqueous solutions, then down to groundwater systems and the water/particle interface, emphasizing the need for multi-media approaches. The importance of analytical techniques and looking at specific components and investigative and modeling approaches is addressed next. Finally, the symposium will address specific problems, applications and solutions.

ALAN W. ELZERMAN is a Professor and Chair of the Department of Environmental Engineering and Science at Clemson University, as well as Director of the School of the Environment. After obtaining a PhD in Water Chemistry at the University of Wisconsin-Madison, he did postdocs at the Woods Hole Oceanographic Institution and then AERE-Harwell, England. Joining Clemson in 1978, his major teaching activities have been in environmental chemistry, environmental engineering, and in the Environmental Science and Policy Program. Research projects and publications have been primarily in the areas of analysis of chemicals in environmental samples, acid rain, sorption kinetics and sources and fates of hydrophobic compounds such as PCBs and PAHs. Current research focuses on processes affecting the transport of radionuclides in aquifers. Dr. Elzerman has served in numerous capacities in the Division of Environmental Chemistry, including being a past Chair of the Division and a current Councilor, and is also currently a member of the ACS Joint Committee on Publications.

ROBERT W. PADDOCK is a Senior Researcher at the Great Lakes WATER Institute, University of Wisconsin-Milwaukee. He received his BS in Oceanography and BA in chemistry from California State University-Humboldt and his MS in Water Chemistry from the University of Wisconsin. He has been active in numerous research areas related to water quality, including sediment-water interactions, hydrothermal vent water chemistry, coastal water quality monitoring, and remote instrumentation and sampling.

Presented before the
DIVISION OF ENVIRONMENTAL CHEMISTRY
 American Chemical Society
 219th National Meeting
 San Francisco, CA

March 26-30, 2000

GENERAL PAPERS

A.M. Ford, Presiding

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