



THE

CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. LIII

NOVEMBER, 1997

NUMBER 8



STEVE HARVEY

The 34th annual Middle Atlantic Regional Meeting of the American Chemical Society will be hosted by the Maryland Section of the ACS. The meeting will be held at Towson University from May 30 to June 2, 2000. The General Chairperson of the meeting is Laurence Boucher of the Department of Chemistry, Towson University. Among the members of the Steering Committee and their subcommittee assignments are: Mike Zapf (Treasurer), Alvin Bober (Development), Shirish Shah (Awards), Mark Greenberg (Registration). In addition there will be subcommittees for Program, Publicity, Printing, Exhibits, Short Courses and Local Arrangements. All the subcommittees welcome volunteers; anyone interested should send an e-mail to LBOUCHER@TOWSON.EDU indicating the subcommittee on which they wish to serve. The Steering Committee is also interested in hearing suggestions from the members of the Program, especially a Conference Theme and Symposium Topics, as well as about Short Course/Workshop Topics, and Special Events.

PHOENIX AWARD

Dr. Mark S. Greenberg, chair of our National Chemistry Week (NCW) activities (and chair of Towson University's chemistry department) was informed (and informed us) that the Maryland Section had been nominated for the ACS Phoenix Award in the category of Best Activity with Teachers for the Chemical Bonding Day initiative that was part of the NCW celebration in November of 1996. The Phoenix is a national award for the best activity in a given category, and Dr. Greenberg likens it to an Emmy or an Oscar. NCW is an annual event celebrating the contributions of the chemistry profession and its individual members, be they in academia, research or industry, in improving the quality of life of all our citizens.

While a nomination is an honor, an award is the highest recognition of excellence. We know now that, at the September national meeting of the ACS in Las Vegas, the Maryland Section received the Phoenix Award for Best Activity with Teachers.

The Chemical Bonding Day event was developed and implemented by the Chemistry Alliance of Maryland under the guidance of its president, Frank R. Milio. The day's activities were coordinated by Linda Donato (Sparrows Point High School), Mike Freitag (Advanced Glass Systems, Inc.) and Joanne Adams (SCM Chemicals - Americas). They were able to place twenty-seven teachers from public and private schools into nine chemical companies for a day of on-the-job experience in an industrial setting. The day was more than a tour of facilities, producing interactions between teachers and industrial representatives which will continue and will be expected to have a positive impact on student learning. Some teachers are planning to have industry people spend a day in their classrooms.

Cooperation and support for this program was provided by the participating school district science supervisors and by the Chemical Industry Council of Maryland in addition to the Maryland Section of ACS. Participating teachers came from schools in Baltimore City and from Baltimore, Cecil, Harford, Howard, Montgomery, Queen Anne's and St. Mary's Counties.

Companies hosting these teachers for the day of interactive dialog and the learning of specific applications of chemistry in the real world included:

Air Products and Chemicals, Inc.	Colonial Metals, Inc.
Condea Vista Chemical Company	W. R. Grace & Co.
Maryland Chemical Company	Chemetals
McCormick & Co., Inc.	FMC Corp.
SCM Chemicals - Americas	

- thanks to Mark Greenberg for the report on this activity



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STEVE HARVEY

Steve Harvey is a research biologist at the U.S. Army Edgewood Research Development and Engineering Center. He received a B.S. from Towson State University and M.S. and Ph.D. degrees in genetics from Penn. State University. He spent three years as a post-doctoral fellow at the USDA Agricultural Research Service followed by another three year post-doctoral with Dr. Ala Chakrabarty before joining ERDEC in 1991. Since joining ERDEC he has served as principal investigator on a number of projects primarily concerned with the development of alternative technologies for destruction of the chemical stockpile.

HYDROLYSIS AND BIODEGRADATION OF THE VESICANT AGENT HT A DETAILED COMPARISON OF TWO POTENTIAL APPROACHES

HT is a mixture of 60 wt % 2,2'-dichlorodiethyl sulfide (H) and 40 wt % bis-(2-(2-chloroethylthio)ethyl)ether (T). It is a powerful vesicant that was produced for use as a chemical warfare agent. Since HT reacts with water to form primarily the alcoholic compounds thiodiglycol (TDG) and bis-(2-(2-hydroxyethylthio)ethyl)ether (T-OH), the efficacy of a combined hydrolysis/biodegradation approach was investigated. The half-lives of H and T in a 3.8% HT/water reaction at 90 C were measured at 1.4 and 1.6 minutes, respectively. The concentrations of both compounds were reduced to less than 1 ppm within about 30 minutes in a well-agitated reactor. TDG is known to be readily biodegradable, but the biodegradability of the T-OH product has not previously been reported. Studies with acidic (HBr) hydrolysis of T-OH showed the T-OH could gradually be converted to TDG. Accordingly, a comparative study was conducted to determine the relative biodegradability of the hydrolysis products obtained with and without the acidic hydrolysis step. HT was hydrolyzed (1) in water, and (2) in water followed by acidic hydrolysis in dilute HBr to break the ether linkage. Products of these two reactions were separately used as feed for aerobic Sequencing Batch Reactors seeded with activated sludge. The bioreactors were operated under essentially identical conditions for a period of 86 days at various hydraulic residence times. Bioreactor performances were compared in terms of organic carbon removal, aquatic toxicity and chemical composition of the effluent, mixed liquor and effluent suspended solids, loading, specific oxygen uptake rate and effluent nitrogen levels. Both processes were generally effective in degrading and detoxifying the feed. However, the water hydrolysis process offered better overall bioreactor operation and stability with a more favorable mass balance and a simpler process as compared to the process which included the additional HBr hydrolysis step.

EASTERN ANALYTICAL SYMPOSIUM LUNCHTIME COLLOQUIA

Since 1995, EAS has offered lunchtime colloquia which focus on technical issues of interest to the general public. The popularity of the programs in 1995 and 1996 has resulted in a continuation of this program for 1997.

The 1997 EAS will feature two lunchtime colloquia. Dr. Richard N. Zare, Marguerite Blake Wilbur Professor of Chemistry at Stanford University, will speak on Monday, November 17, 1997 on his experiences as the lead investigator of the Martian rocks project. On Wednesday, November 19, 1997, Agent James Kallstrom of the Federal Bureau of Investigation will discuss aspects of the investigation of the July 1996 crash of TWA Flight 800.

The Eastern Analytical Symposium will be held November 16-21 at the Garden State Convention Center and the Double Tree Hotel in Somerset, NJ.

NOVEMBER MEETING

DATE AND PLACE:

Wednesday, November 19, 1997
Richlin Ballroom, Comfort Inn
1700 Van Bibber Road
Edgewood, Maryland

Dinner reservations should be made by mailing checks, payable to Maryland Section of ACS, to

Dr. Shirish Shah
College of Notre Dame
4701 North Charles Street
Baltimore, MD 21210

SCHEDULE:

6:00 Social Hour
(Cash Bar)

by November 12. Late reservations may be made by calling

7:00 Buffet Dinner

(410) 532-5712

8:30 Steve Harvey
U. S. Army
Edgewood R D & E Center
"Hydrolysis and Biodegradation of the Vesicant Agent HT: A Detailed Comparison of Two Potential Approaches"

by November 14; answering machine is available at this number.

Dinner price is \$20.00 per person, but spouses and retired chemists may attend for \$18.00; students may attend for \$10.00.

Menu: chicken marsala, flounder almandine, garden fresh tossed salad, parsnip new potatoes, vegetable medley, apple pie a la mode, beverages.

This meeting is joint with Sigma Xi. You need not be a member of Sigma Xi or ACS to attend. You may attend the lecture without attending the dinner.

DIRECTIONS: Take exit 77A off I-95 and proceed south on MD Rt 24 toward Edgewood. At the first traffic light turn left onto Van Bibber Road. The Richlin Ballroom and Comfort Inn will be on the left.

ACS CONGRESSIONAL FELLOWSHIP

The ACS Office of Legislative and Government Affairs is seeking applicants for its Congressional Fellowship Program for the 1998-99 term. The Program places an ACS member in a congressional office to:

- gain first-hand knowledge of the operation of the legislative branch;
- make scientific and technical expertise available to the government; and
- forge links between the scientific and government communities.

Applications are due January 1, 1998 and must include a letter of intent, a resume, and two letters of reference. The letter of intent should be two pages in length explaining your reasons for applying and your background in science and public policy, as well as what you would seek to accomplish as a Fellow. The letters of reference are to be sent directly to ACS. ACS provides a stipend in the high \$40,000s and an additional allowance for relocation expenses. Support from other sources, such as a present employer, may be allowed. The position is available in the fall of 1998.

Application materials should be sent to: Congressional Fellowship Program, Office of Legislative and Government Affairs, American Chemical Society, 1155 16th Street, NW, Washington, DC 20036

For more information, contact Margaret Carey, 202/872-4467 or m_carey@acs.org.

GLENN E. AND BARBARA HODSDON ULLYOT SCHOLARSHIP

The Chemical Heritage Foundation (CHF) announces the availability of the Glenn E. and Barbara Hodsdon Ulyot Scholarship Fund. The goal of the Ulyot Scholarship is to advance public understanding of the importance of the chemical sciences to the public welfare.

The third annual Ulyot scholarship, which will be awarded for summer 1998, offers a stipend of \$3,500 plus modest travel and research support. The purpose of the stipend is to support a minimum of four weeks research on the heritage of the chemical sciences utilizing the resources of CHF's Othmer Library of Chemical History in Philadelphia, other area libraries, and associated resources.

Interested applicants should send their curriculum vitae, a one-page description of their proposed research, an outline of a specific product as an outcome of the scholarship, and the telephone numbers or e-mail addresses of two references. The proposal should demonstrate how the resources of the Othmer Library are relevant to the applicant's project. Applications must be received by January 30, 1998 and should be sent to Leo Slater, Chemical Heritage Foundation, 315 Chestnut Street, Philadelphia, PA 19106. Telephone (215) 925-2178, extension 224, fax: (215) 925-1954.

The Othmer Library houses primary sources from the sixteenth century through the mid-twentieth century, with emphasis on the last 100 years. The Library maintains a wide array of reference books and secondary literature on the history of the chemical sciences and technologies; personal papers of outstanding chemists and industrialists; and the archives of professional organizations. The core of the Library -- over 40,000 volumes that span the era from the Civil War through World War II -- forms an unrivaled resource for the history of American chemical business and technology.

The Chemical Heritage Foundation was established in 1982 by joint action of the American Chemical Society and the American Institute of Chemical Engineers. The Foundation seeks to advance the heritage of the chemical sciences by collecting and disseminating information about historical resources; encouraging research, scholarship, and popular writing; publishing resource guides and historical materials; conducting oral histories; creating traveling exhibits; and taking other appropriate steps to promote the achievements of chemical scientists and the chemical process industries.

ATTILA PAVLATH SELECTED AS AIC CHEMICAL PIONEER

The American Institute of Chemists (AIC) has selected Dr. Attila Pavlath to receive the prestigious Chemical Pioneer Award. The award was established in 1966 to recognize chemists, chemical engineers, and their associates whose work has had a major impact on the progress of chemistry.

Dr. Pavlath is the current Chair-Elect of the Division of Professional Relations and a member of the ACS Board of Directors. He began his career working with fluorinated organic compounds in Hungary and continued it at the Stouffer Chemical Company. During the energy crisis, he proposed and led the study of agricultural products as an energy source, at the U.S. Department of Agriculture's Western Regional Research Center in Albany, California, where he is a Research Scientist. This work involved the combination of mass spectrometry, thermoanalysis, and catalytic studies to develop methods of preparation of chemicals generally made from hydrocarbons.

The Johns Hopkins University

1997 Fall Chemistry Colloquium Schedule

Remsen Hall 233, Tuesdays, 4:15 pm

For more information contact Rosalie Elder, 410-516-7432

Nov. 11	Prof. Stephen J. Lippard Massachusetts Institute of Technology	Non-heme iron and the biological oxidation of methane
Nov. 18	Prof. Ludwik Adamowicz University of Arizona	Born-Oppenheimer and non-Born-Oppenheimer quantum-mechanical calculations on atomic and molecular anions
Nov. 25	Prof. Janice Reutt-Robey University of Maryland, College Park	Dynamic view of self-diffusion and surface chemistry
Dec. 2	Prof. David I. Schuster New York University	Synthesis and properties of functionalized fullerenes
Dec. 9	Prof. John L. Markley University of Wisconsin	Iron-sulfur proteins: NMR spectroscopy and quantum mechanical calculations

University of Maryland Baltimore County Department of Chemistry and Biochemistry and Howard Hughes Medical Institute Fall 1997 Seminar Schedule

November 4	Dr. James Williamson "RNA Folding and Recognition"	Department of Chemistry Massachusetts Institute of Technology
November 18	Dr. David K. Geiger "New Tricks from an Old Ligand - Phenanthrolines with Tethers"	Department of Chemistry SUNY - College at Geneseo
November 25	Dr. Bradley Smith "Molecular and Anion Recognition Using Organoboron Receptors"	Department of Chemistry and Biochemistry University of Notre Dame
December 2	Dr. Miguel Garcia-Garibay "Control of Organic Photoreactivity by Crystals"	Department of Chemistry and Biochemistry University of California at Los Angeles
December 9	Dr. Jacques Fresco "Organization and Evolution of the Genetic Code".	Department of Molecular Biology Princeton University

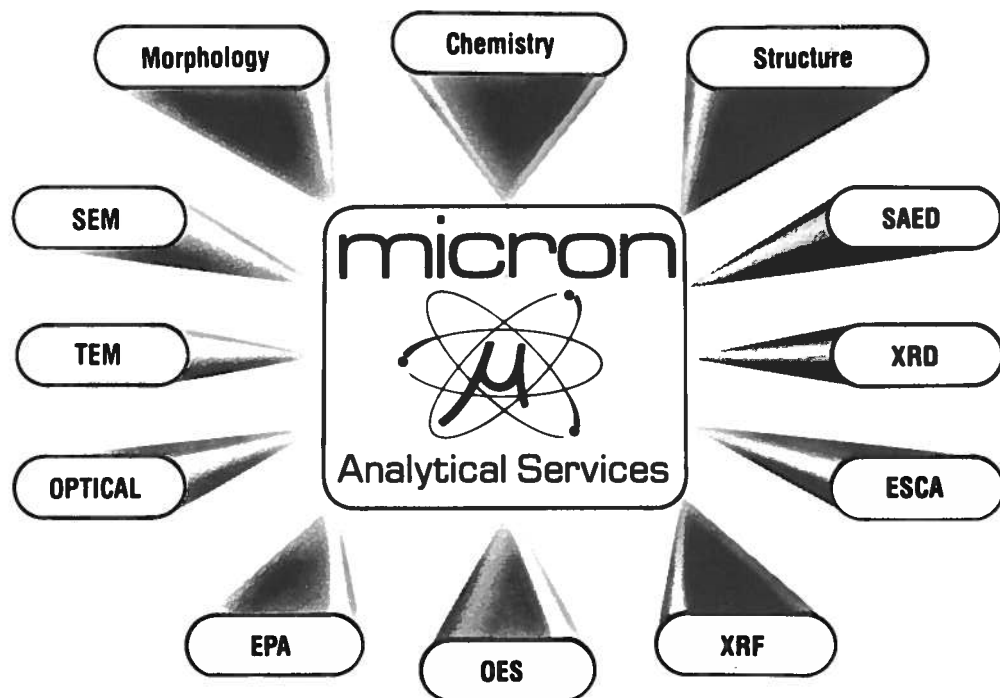
Seminars to be held at 3:30 p.m. in Biological Sciences Rm 403 (refreshments at 3:15 p.m.). For information contact Dr. Lisa Kelly (410)455-2507 or Dr. Bradley Arnold (410)455-2503.

*NOTE: Wednesday seminar, time and place to be announced.

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NOMINATIONS! AWARDS! RECOGNITION!

Confused by all the awards, nominations and recognitions we have been reporting in recent months? So were we. Let us try to summarize.

In September we reported that our Section would receive a Special Recognition for Outstanding Public Relations Program (selected by the ACS Council Committee on Public Relations).

At the Phoenix Awards Celebration in Las Vegas we received one of two honorable mentions in the Public Outreach category.

As reported in detail in this issue, the NCW Chemical Bonding Day activity earned the Phoenix Award for Best Activity with Teachers.

We did not repeat our 1995 triumph for best local section activities for our size section, but we were one of a small number finally considered for the award, which went to the St. Louis Section.