



THE

# CHESAPEAKE CHEMIST

MARYLAND SECTION  
AMERICAN CHEMICAL SOCIETY

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SEPTEMBER, 1995

NUMBER 6



**HERBERT AARON**



**EGON MATIJEVIĆ**

## THE COLLEGE OF NOTRE DAME OF MARYLAND

From September of 1995 through June 1996, The College of Notre Dame of Maryland will celebrate its Centennial as the first Roman Catholic four year college for women in the United States. Guided by a vision to educate young women, the School Sisters of Notre Dame opened a preparatory school in 1873. The first college students began their course of study in September 1895 and on April 2, 1896 the State of Maryland granted the College an amendment to its charter that empowered the school to grant the bachelor, master and doctorate degrees.

Since its first bachelor's degrees were granted in 1899, the College of Notre Dame of Maryland has undergone many changes. Today the College enrolls more than 3,000 students and provides unique programming for every stage in a person's life. Young women of traditional college age study full time; women 25 and over enroll in the Continuing Education program; and employed men and women study on weekends and evenings in graduate and undergraduate degree programs. More than an academic community, the College of Notre Dame offers many resources to our region, including a Child's Place, an accredited kindergarten and pre-school, the English Language Institute offering language courses; the Women's Institute offering programs affecting the personal and professional lives of women; and the Renaissance Institute, an association of men and women "55 years old and better".

Today's dynamic Chemistry Department is rooted in a strong tradition. According to an early history of the Department, "The aim was to give all the students a thorough foundation and insight into the scientific methods." Sr. Mary Meletia Foley, the College's first Academic Dean, Sr. M. Florentine Riley, and the Reverend John Joseph Griffin of the Catholic University of America were instrumental in establishing the chemistry curriculum. All students were required to take two years of chemistry including General Chemistry, Organic Chemistry, and Quantitative Analysis which were unusual requirements for college women of that era.

The College's commitment to excellence was demonstrated in 1910 when College Hall was being built. Fr. Griffin flew to Europe to purchase state of the art science and laboratory equipment, making the new lab, "...the finest and most up-to-date in any Catholic college for women." In 1922, Chemistry became a major and in 1924, Physical Chemistry was offered. "To meet the demands of modern times, the course in Quantitative Analysis [was] expanded from one semester to a full year and Advanced Organic Chemistry and Qualitative Organic Analysis" were added.

### EAS INFORMATION AVAILABLE ONLINE

The Eastern Analytical Symposium has established a World Wide Web (WWW) site at <http://www.eas.org/-easweb>. This resource provides up-to-date details of the November 1995 meeting in Somerset, NJ, such as program information, announcements, and links to the sponsoring organizations' WWW sites.

Possible future uses for the site include hypertext links to exhibitors' home pages, and online conference registration. Dr. Michael Linhares of Pfizer Corporation, Vice-Chair of Publicity, said, "This technology allows us to reach a broader audience than direct mail alone, and provides a very effective way for our conferees to find out what's going on at EAS." EAS is the first major analytical chemistry conference to have its own home page.

For additional information, contact EAS Hotline at (302) 738-6218, the EAS Faxline at (302) 738-5275, EAS Online at [easweb@eas.org](mailto:easweb@eas.org), or the EAS Office at P.O. Box 633, Montchanin, DE 19710-0633.



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### THE CHESAPEAKE CHEMIST STAFF

Raymond C. Petersen.....Editor  
9329 Joey Drive  
Ellicott City, MD 21042  
(410) 465-8520

Bruce L. Solnick....Business Manager  
P. O. Box 2355, Lab. Adm.  
Baltimore, MD 21203  
225-6209

### SECTION OFFICERS

Shekar Munavalli.....Chairman  
700 Paige Circle  
Bel Air, MD 21014  
(410) 838-7565 (H)  
(410) 671-2819 (W)

Shirish Shah.....Chairman-elect  
College of Notre Dame  
4701 North Charles Street  
Baltimore, MD 21210  
(410) 532-5712

Mike Zapf.....Secretary  
McCormick & Co., Inc.  
202 Wight Avenue  
Hunt Valley, MD 21031  
771-7471

Jan Kolakowski.....Treasurer  
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Baldwin, MD 21013  
(410) 836-6712

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7201 Rossville Blvd.  
Baltimore, MD 21237  
(410) 780-6613

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## THE REMSEN AWARD

The Remsen Award was established in 1946 by the Maryland Section of the American Chemical Society to memorialize the career of Ira Remsen, first Professor of Chemistry and second president of the Johns Hopkins University. The award is presented annually and consists of an honorarium and a scroll commemorating Remsen's professional achievements as chemist, educator and administrator. The Remsen Memorial Lecturers are chemists of outstanding achievement, in keeping with Ira Remsen's long and devoted career as an exponent of the highest standards in chemistry. This year marks the golden anniversary of the award and of the fifty distinguished recipients to date, many have earned numerous other accolades, including a total of fourteen Nobel Prizes.

Ira Remsen was born in New York City in 1846 and received his undergraduate degree at the "Free Academy," the City University of New York. He pursued advanced study in Europe and earned the Ph.D. degree at Gottingen. Remsen began his academic career at Williams College, but was soon invited to head the Department of Chemistry at the founding of the Johns Hopkins University in 1876 at the age of 30.

As chairman, he administered a successful undergraduate and graduate program of instruction. Remsen introduced for the first time here in America the concept of a chemistry laboratory for research and for instruction. He was highly regarded for his teaching ability; clarity and logic marked his lectures. Other innovations which Remsen introduced into American chemistry instruction were the journal club and the seminar. He founded the American Chemical Journal in 1879 and continued his teaching career until 1901 when he was appointed the institution's second president, a position he held for 12 years. He was also instrumental in the discovery of the sugar substitute saccharin.

He died at 81 years of age in 1927 at Carmel, CA and his ashes were placed in the chemistry laboratory of the Johns Hopkins University which was named Remsen Hall in his honor. Ira Remsen was for many years the outstanding figure in American chemistry. He personified the spirit of hard work, the desire to learn, and a love of chemistry.



THE 50th REMSEN AWARD

Timothy J. McNeese, Chairman of the Remsen Award Committee (left) and Shekar Munavalli, Chairman of the Maryland Section (right) present the plaque to Alfred G. Redfield on May 17, 1995.

Mark your calendars for May 22 - May 24, 1996!

ACS Middle Atlantic Regional Meeting (MARM) 1996  
will be held at  
Villanova University, Villanova, PA  
and will be hosted by  
the Philadelphia Section, ACS and Villanova University

To identify ways in which you can participate or assist, contact:  
Dr. Robert Giuliano, Villanova University  
phone: (610) 519-4840; email: giuliano@ucis.vill.edu

*Symposia topics include:*

Carothers' Symposia on Polymers and Novel Materials  
Symposium on Solid State Chemistry  
The Future of Organic Synthesis  
How to Surf the Internet  
Education in Chemistry  
Capillary Zone Electrophoresis  
Receptors, Supramolecular Assemblies and Nanostructures  
Student Chromatography Forum



BATTLEFIELD - Group at the Gettysburg National Military Park on May 21. Tour leaders Penski and Kolakowski are 2nd and 3rd from the right.

Egon Matijević was born in Croatia and received a Bachelor's degree in Chemical Engineering, a Ph.D. in Chemistry and a Doctorate in Physical Chemistry, all from the University of Zagreb. He has also been awarded three honorary Doctorates of Science. Professor Matijević has devoted much of his career to teaching chemistry at Clarkson University, and is remembered by many for his award-winning lectures which established a firm foundation in the field for numerous freshman classes. His research interests in colloid and surface science include the study of monodispersed particles, aerosols, colloid stability, particle adhesion, ceramic powders, corrosion of metals, pigments and soaps. The publication of over 500 papers and the successful completion of over 30 research contracts and grants attests to the productivity and contributions of his research group which have included research associates and visiting scientists from all parts of the world. Professor Matijević has received numerous awards in the field of colloid and surface science to include the Kendall Award, Langmuir Distinguished Lecturer Award, Thomas-Graham Award, and the Ralph K. Iler Award. Professor Matijević has mentored over 80 graduate students in the beginning of their careers in colloid chemistry.

#### MONODISPERSED INORGANIC AND POLYMER COLLOIDS A FASCINATING FIELD OF SCIENCE

The interest in fine particle science, especially of inorganic materials, has increased significantly in recent years, because of numerous applications such as in ceramic materials, pigments, coatings, catalysts, catalyst carriers, fillers, drug diagnostics, etc. These dispersions can also be used as good model systems for studies of coagulation, adhesion, corrosion, and other processes, which represent vexing problems of science and technology.

In order to quantify any data, it is essential to carry out experiments with well defined systems, consisting of particles uniform in size and shape and of known chemical composition.

Several techniques are discussed which yield monodispersed colloids of oxides, hydroxides, carbonates, sulfides, selenides, and phosphates of different metals (copper, cobalt, nickel, zinc, iron, aluminum, chromium, titanium, thorium, etc.). These "inorganic lattices" are used for the evaluation of their properties (optical, magnetic, electrokinetic, adsorptive, etc.) as a function of their compositional, structural, and morphological characteristics, as well as for the elucidation of the mechanisms of their formation.

In addition, finely dispersed solids of mixed composition, of coated particles, and of hollow spheres can now be prepared.

Finally, the generation of inorganic powders, colloid polymers, copolymers, and mixed inorganic/organic particles by a new aerosol technique is described.

1. E. Matijević, Uniform Colloid Dispersions - Achievements and Challenges, *Langmuir*, 10, 8-16 (1994).
2. E. Matijević, Preparation and Properties of Uniform Size Colloids, *Chem. Mater.*, 5, 412 (1993).
3. E. Matijević, Monodispersed Colloids: Art and Science, *Langmuir*, 2, 12 (1986).
4. E. Matijević, Production of Monodispersed Colloidal Particles, *Annu. Rev. Materials Sci.*, 15, 483 (1985).

## SEPTEMBER MEETING

DATE:

Wednesday, September 13, 1995

PLACE:

Doyle Building  
College of Notre Dame  
North Charles Street  
Baltimore

SCHEDULE:

6:00 pm Reception  
6:30 pm Herbert S. Aaron  
U.S. Army, Edgewood  
"Chemical Weapons of War"  
7:00 pm Dinner  
8:00 pm Egon Matijević  
Clarkson University  
"Monodispersed Inorganic  
and Polymer Colloids - A  
Fascinating Field of  
Science"

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

by September 6. Late reservations may be made by calling

(410) 532-5712

by September 8. An answering machine is available at this number.

Dinner price is \$16.00 per person, but spouses and retired chemists may attend for \$14.00; students may attend for \$8.00.

It is not necessary to be a member of the American Chemical Society to attend. You may attend the lectures without attending the dinner.

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#### EAS AWARDS PROGRAM CALL FOR NOMINATIONS

The Eastern Analytical Symposium is soliciting nominees for its 1996 Awards for Outstanding Achievements in: Fields of Analytical Chemistry, Near-Infrared Spectroscopy, Separation Science, and Magnetic Resonance. The deadline for receipt of nominations is September 30, 1995. These awards will be presented at the 1996 EAS in Somerset NJ, November 17-22, 1996.

A primary letter of nomination should be submitted by someone familiar with the nominee's work, and be of a length appropriate to the nominee's accomplishments. It should include a discussion of his or her work's significance, a list of publications, presentations, and awards, and a statement of the nominee's willingness to present an address at an EAS Award Symposium. Seconding letters are not required, but if submitted, they should supplement the information in the primary nomination. All nomination materials should be addressed to: Chairman, EAS Awards Committee, P.O. Box 633, Montchanin, DE 19710-0633.

For additional information, contact the EAS Hotline at (302) 738-6218, the EAS Faxline at (302) 738-5275, or the EAS Office at P.O. Box 633, Montchanin, DE 19710-0633.

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#### MARYLAND SECTION NOMINATIONS

Nominations for the following positions of the Maryland Section will be received until September 30, 1995: Chairman-elect, Secretary, Treasurer and two Councilors. The terms of Charles Rowell and Merle Eiss (Councilors) will expire at the end of 1995. Nominations should reach Shekar Munavalli, chairman of the Section, on or before September 30. (See page 3 for address).

## HERBERT S. AARON

Dr. Herbert Aaron was born and raised in Minneapolis, Minnesota. He received a B.A. in Chemistry from the University of Minnesota in 1949, and a Ph.D. from U.C.L.A. in 1953. His graduate studies were carried out in physical-organic chemistry, under the direction of Professor Saul Winstein. After graduating from U.C.L.A., he was employed by the E.I. duPont Co. at their Yerkes Research Laboratory in Buffalo, NY, before being drafted into the U.S. Army, and assigned to the chemical research and development laboratories at Edgewood Arsenal, MD. After separation from the Army in 1956, he accepted a civil service position in chemical research at the Edgewood laboratories, where he has spent his entire professional career. Dr. Aaron's publications have dealt mainly with the synthesis, chemistry and stereochemistry of organophosphorus compounds and of azabicyclic alcohol systems.

### CHEMICAL WEAPONS OF WAR

The evolution of chemical warfare agents from those that were used in World War I to the more lethal agents that are found in today's military stockpiles will be described. Currently, it is the goal of the Chemical Weapons Convention (CWC) Treaty, which was formulated under the auspices of the United Nations, to eliminate these military stockpiles, and, in addition, prevent the development, production, stockpiling and use of all toxic chemical weapons of war. The types of chemicals that are specifically subject to its control will be presented and discussed.

### 1996 NATIONAL TECHNICIAN OF THE YEAR AWARD CALL FOR NOMINATIONS

The National Technician of the Year Award will be presented to a chemical technician who has demonstrated an extremely high degree of professionalism as a chemical technician. Criteria used to judge the award include job skills, safety and housekeeping, relationship with co-workers, publications and presentations, reliability, communication skills, and additional professional and community activities. Nominees must have worked for a minimum of five years as a chemical technician. The award will consist of a trip to the 211th ACS National Meeting in New Orleans, Louisiana for the winner and their spouse. A plaque commemorating the award will be presented at the CTA/TECH National Technician of the Year Award Banquet in New Orleans on Monday, March 25, 1996.

Letters of nomination must be received by Susan Schermes, Monsanto-EHL, 645 South Newstead Avenue, St. Louis, MO 63110 no later than October 15, 1995. Nominations, including seconding letters, must not exceed six pages. The nominating letters should address each of the criteria above. A current work address must be provided for each nominee and the nominator.

For more information contact Susan Schermes at (314) 694-7958, FAX (314) 694-7938.

### ANALYTICAL CHEMISTRY WORKSHOP

Chemists from Procter and Gamble will present a one-day workshop dealing with real-life applications of Analytical Chemistry at Morgan State University on Thursday, October 19, 1995. This workshop has been given at many places (including Morgan State) over a period of years, and it has gotten rave reviews. The workshop is sponsored by Morgan's Student Affiliate of the ACS, and is designed for undergraduates. One or more courses in Analytical Chemistry are helpful but not essential. Students from all two- and four-year colleges within the Maryland Section are invited. There is no charge, and lunch will be provided courtesy of the Maryland Section of the ACS. For further information, or to register students for the workshop, call Louise Hellwig or Ernie Silversmith of Morgan State; both are at 319-3214.

### To The Editor:

I attended the 9 March 1995 meeting of The Chemistry Alliance of Maryland at the Curtis Bay Works of GRACE Davison. The title of the topics discussed was "What Are the Needs and Expectations of Business and Industry From its Future Work Force?" The speakers were Rick Lassahn of Baltimore Gas and Electric Co., George Bowers of GRACE Davison, and Mike Griffith of AAI Corporation. All of the speakers were associated with production plants and not research or development laboratories.

While I cannot say how typical their comments are for industry, they seemed to agree with each other and their comments were interesting. When hiring, they place a strong emphasis on work history, even if it is volunteer work. They like friendly, positive people who are strongly motivated, easy to train, good values, etc. George Bowers listed the following needs in student graduates: ambitious, educated, reliability, honesty, flexibility, creativity, decisiveness, team player, poised, personal integrity, safety consciousness, interpersonal, and goal oriented. The speakers pointed out that in the critical areas of safety and the environment there is a need on doing the job right the first time. Mistakes can be extremely costly.

They find that nearly all of the chemists that they hire have a very adequate background in chemistry. On the other hand they accept the fact that nearly everyone that they hire will need some training in areas such as information management, statistics, communications, quality control, and engineering economics. They like computer knowledgeable people, but they do not like people who only do computer work. Finally, of course, they need people who can be trained to stay abreast of new technologies and requirements.

It seems to me that in the technical areas, increasingly extremely high standard for worker performance and behavior is being demanded and is essential. On the other hand, in the liberal arts and behavioral sciences, a more liberal "do your own thing" attitude is being encouraged. Accuracy, logic, and reliability appear to be in the process of being de-emphasized to encourage individuality and creativity. This is a dichotomy in our educational process and social attitudes that requires serious consideration.

Frank Milio, President of the Chemistry Alliance of Maryland has said that "The purpose of the alliance is to build on basic mutual concepts that will lead the improvement of chemical education in our state. It is incumbent on all of us who teach the same subject, in the same geographical area, to share a collective responsibility for teaching and learning. In addition, it is known that undergraduate chemistry curricula are developed and implemented mostly by people who have never been out of school nor have gone beyond the 'towers of academia.' Thus by construction, undergraduates taking chemistry courses gain little if any knowledge from those with firsthand experience in the chemical industry. Obviously people in industry and commerce also have a precious stake in this total picture and must provide the needed support and feedback as to how their educational training equipped them to function in their careers. Confronted with these interlocking problems, we have concluded that a trilogy of interactions is vital to the fulfillment of our mission. Through the diversity of our membership, including secondary school teachers, college and university facilities, and people from industry, this alliance can develop the dialogue and activities to improve the quality of education for our students and better prepare the chemists needed for the future."

For those of you interested in the "Chemistry Alliance of Maryland," either Prof. Frank R. Milio of Towson State U. (410) 830-3111 or Mr. Michael L. Freitag of GRACE Davison (410) 354-8183 may be contacted.

*Elwin C. Penski*

COUNCIL MEETING MINUTES  
NATIONAL MEETING APRIL 5, 1995, ANAHEIM, CA

The Council Meeting convened at 8:00 a.m. Three councilors, Eiss, Jones, Rowell, and one alternate, Penski, represented Maryland. Attendance at the Anaheim meeting was over 10,000, including 1,000 students.

Four nominees were presented to Council for 1996 President-elect. The Council selected PAUL S. ANDERSON & ETHAN C. GALLOWAY to run in the next election.

Board Chairman Paul Walter reported that the Board will provide up to \$1,000,000/year for the next five years for under-represented minorities in chemistry--American Indians, African Americans, and Hispanic Americans. The Board also created a task force to look at the Publications Division and its governance to determine if they are appropriately structured for the future. A Task Force was also appointed to look into ways to help members who are unemployed.

John Crum, ACS Executive Director, outlined steps being taken to improve service to members such as ACS staff training and development, a database of all ACS products and services, and offering ACS services to members on-line as an alternative to telephone and mail. The Director's office has completed the ACS Services Guide which is a comprehensive listing of all ACS services, activities and information.

A new ACS Employment Assistance Program has been approved and funded by the Board of Directors and will be available soon. The program includes:

1. Computerized Job Database--online listings of job postings. Database access will be through the Internet.
2. A dedicated 800 phone number to directly access Career Services.
3. Expanded Career Services for Graduate Students. Ten additional workshops will be held in 1995.
4. A booklet on Alternative Careers is being written to stimulate members to think outside the "research" box when seeking employment.
5. Increased career services publicity in C&EN.
6. Expanded professional opportunities in the Data Bank to include opportunities for consultants and volunteers.
7. Expanded opportunities for a one-year trial for unemployed members to take short courses at no charge on a space-available basis.

ACS Composition Services has substantially reduced the time required to produce a journal article from a submitted manuscript. This ability to speed articles into print will help ACS to continue to attract the best papers at the cutting edges of chemistry.

The Budget and Finance Committee announced that member dues for 1996, approved by Council, will be \$99 per year.

As a trial, for the first time at a National ACS meeting day-care was offered to members with small children.

Changes are coming for the local section annual reports that are submitted to National ACS in order to receive due allocation. Hopefully the reports will be simplified and easier for the Section to submit.

The ACS is looking for Health Care Insurance which will be offered to members.

The meeting was adjourned at 10:30 a.m.

Respectfully submitted,  
Merle I. Eiss

THE CHESAPEAKE CHEMIST

UNDERSTANDING CHEMICAL HAZARDS: A GUIDE FOR STUDENTS

The American Chemical Society (ACS) is pleased to announce the publication of *Understanding Chemical Hazards: A Guide for Students*. The Task Force on Occupational Health and Safety (OHS), which operates under the purview of the ACS Committees on Environmental Improvement and on Chemical Safety, developed the booklet. The Task Force hopes to increase the awareness of undergraduate chemical science students about working safely with chemicals and to assist institutions in preparing their students to have good safety habits. Task Force members believe that science graduates entering the workplace must know how to work safely with chemicals in order to minimize the potential for chemical accidents. Academic institutions are instrumental in preparing students; their graduates take these practices into the workplace.

Given the importance of chemical safety in the workplace and the need for future laboratory technicians and scientists to adhere to prudent practices, this handbook is a must for all students taking courses that involve the use of chemicals. The Society hopes that this document will provide a rich resource for academic institutions and their laboratory instructors who wish to raise their students' awareness about chemical health and safety laboratories.

Individuals may receive one copy free of charge. Send a self-addressed label to American Chemical Society, Department of Government Relations and Science Policy, 1155 Sixteenth Street, N.W., Room 330, Washington, DC 20036. Non-profit organizations may receive up to ten copies free of charge. Additional copies may be obtained for a nominal fee. Requests should be mailed to the address noted above. For details on how to purchase multiple copies, please call (202) 872-8725.

When did YOU  
last attend a Maryland Section meeting?

CONGRESS & CHEMISTRY

Underneath the coffee ring on today's newspaper, you read about taxes, budget reform, and less government. You can either wonder what it means to your future as a chemical professional or you can work within this time of dramatic congressional change. By signing up to join the ACS Federal Funding Networks, you will have timely, critical information about the status of NSF and NIH in the federal policy arena at your fingertips. In this free service from the ACS, bulletins will be sent to you by fax or e-mail that detail the budget and policy battles over NSF and NIH to provide you the information you need to communicate effectively with your Representatives in Congress.

Why get involved? Two reasons: The future and the present. Looking into the future, the recent budget resolutions in the House and the Senate project NSF to have 19.5% less real dollar purchasing power in the year 2002 when compared to today. NIH will fare even worse. In the present, you can make a difference. Common sense dictates that E+R=O, or Event + Response = Outcome. If you don't register your response to congressional actions that affect your future, you will not be part of the outcome.

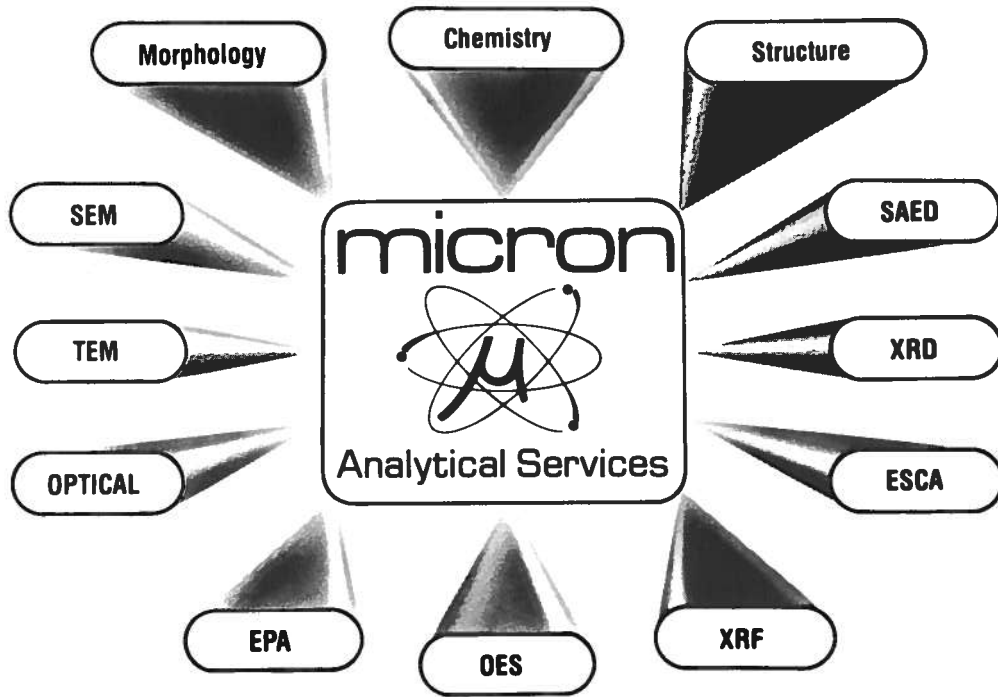
Make a difference. Join the ACS Federal Funding Networks today. The information is free; its content is invaluable. Contact the ACS Federal Funding Networks by telephone at (202) 452-2127, or via e-mail at NSFNET@acs.org or NIHNET@acs.org. We look forward to hearing from you.

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