



THE **CHESAPEAKE
CHEMIST**

**MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY**

VOL. XXXIX

JAN - FEB, 1983

NUMBER 1 - 2



**CHARLES ROWELL
CHAIRMAN**



**NOLAN PHILLIPS
CHAIRMAN-ELECT**



**CHERYL MANGER
SECRETARY**



**HAROLD KLAPPER
TREASURER**

**MARYLAND SECTION - ACS
OFFICERS FOR 1983**

NSTA MEETING

The National Science Teachers Association held a regional meeting at the Baltimore Civic Center on November 11-13, 1982. The Maryland Section shared a booth with the ACS office of high school activities. Dave Daniels of ACS is shown with Mike Zapf of the Maryland Section. Robert Kreps and Henry Freimuth participated, contacting teachers from Baltimore City and the surrounding counties.



EXECUTIVE COMMITTEE MINUTES

The Executive Committee, Maryland Section, American Chemical Society, was called to order by the Chairman, Merle Eiss, at 7:35 P.M. on Wednesday, December 1, 1982, at the Knott Science Center, Notre Dame College. The following members were present: M. Eiss, H. Freimuth, A. Harmon, D. Hoster, D. Jones, K. Kirk, H. Klapper, C. Manger, T. McNeese, E. Penski, N. Phillips, J. Roach, D. Roswell, C. Rowell, E. Silversmith, L. Sweeting, J. Topping, M. Zapf.

The minutes of the meeting of September 8, 1982 were read and approved.

Treasurer. N. Phillips distributed treasurer's report. All bills should be sent in as soon as possible to close out year.

Committee Reports.

Awards and Nominations. E. Silversmith reported that we are seeking nominations for the E.M. Reid award.

Chemical Education. M. Eiss reported A. Bober has looked into video courses. He would like to give a Technical Writing course. L. Sweeting suggested course could attract students. A Bober should go ahead, set things up and get out publicity for technical writing course.

Program. C. Rowell: All in order until Remsen Award. L. Sweeting suggested we have a poster session at a meeting. M. Zapf will investigate cost of wireless F.M. microphone for the section.

House. In L. Cheong's absence, M. Eiss reported meeting attendance: November--180 at dinner, 200 at talk; October--74 at dinner, 90 at talk.

Membership. K. Kirk reported she has sent out 1 application for reinstatement, 10 applications for New Memberships. Only small percent going through K. Kirk. Also sent out 18 invitations for this month's meeting to new members. M. Eiss reported for H. Cohen that there are 1380 members in section.

...cont on p 7



THE CHESAPEAKE CHEMIST

VOL. XXXIX

JAN - FEB, 1983

NUMBER 1 - 2

THE CHESAPEAKE CHEMIST STAFF

Raymond C. Petersen.....Editor
9329 Joey Drive
Ellicott City, MD 21043
465-8520

Joseph Topping.....Associate Editor
Department of Chemistry
Towson State University
Towson, MD 21204
321-3056

Eli Freedman.....Contributing Editor

Alan Harmon.....Business Manager
McCormick & Co., Inc.
Hunt Valley, MD 21031
667-7480

SECTION OFFICERS

Charles Rowell.....Chairman
U.S. Naval Academy
Chemistry Department
Annapolis, MD 21401
267-2808

Nolan Phillips.....Chairman-elect
J. M. Huber Corp.
Havre de Grace, MD 21078
385-0159

Cheryl Manger.....Secretary
SCM Corp.
Baltimore, MD 21226
355-3600 ext 358

Harold Klapper.....Treasurer
3313 Terrapin Drive
Pikesville, MD 21208
653-3351

COUNCILORS

Donald Jones.....Western Maryland College
848-7000 ext 493 or 876-2055

David Roswell.....Loyola College
323-1010 ext 235

Charles Rowell....U. S. Naval Academy
267-2808

COMMITTEE CHAIRPEOPLE - 1982

Awards.....Ernest Silversmith
Morgan State University
Baltimore, MD 21239
444-3214

Chemical Education and Safety.....
655-5254 Alvin Bober

Program.....Charles Rowell

Archives.....Ernest Silversmith

House.....Paul Gabbert
Linh Cheong

Member Assistance.....Joseph Cogliano
W. R. Grace & Co.
988-9004

Public Relations.....Robert W. Kreps
Westinghouse Ocean Systems
765-5230

Membership.....Maria Kristine Kirk
4000 Mayberry Avenue
Baltimore, MD 21206
435-0100

Publicity.....Donald Jones
Western Maryland College

Student Awards.....Donald Hoster
Community College of Baltimore
396-7991

Remsen Award.....Robert L. Caret
Towson State University

Finance.....Harold Klapper
653-3351

MEMBERS-AT-LARGE

John Roach Paul Gabbert
Timothy McNeese Alice Zeiger
Thomas Bitterworth

ALTERNATE COUNCILORS

Linda Sweeting Merle Eiss
Timothy McNeese

The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to the Editor. Send advertising copy and inquiries to the Business Manager. The Maryland Section is not responsible for opinions expressed herein. Editorials express the opinions only of their authors. The Editor is responsible for all unsigned material.

MARK ELERT

Mark Elert is a native of Detroit, Michigan. He did his undergraduate work at Michigan State University, and received his Ph.D. in 1977 from U. C. Berkeley. After spending two years on the chemistry faculty at UCLA, he assumed his present position as assistant professor at the U. S. Naval Academy in 1979.

Dr. Elert's research interests include both molecular and solidstate theoretical chemistry. He has worked in the areas of radiationless transition theory, predissociation dynamics, and the "local mode" theory of polyatomic vibrational states. For the last few years he has been involved in the study of the electronic structure and properties of electroactive polymers, especially polyacetylene.

ELECTRONIC STRUCTURE AND PROPERTIES OF POLYACETYLENE

Polyacetylene is the simplest example of a class of materials known as "electroactive" polymers which exhibit unusual electrical behavior. It was discovered several years ago that the conductivity of polyacetylene can be enhanced enormously by appropriate doping, to levels comparable to those of metals. Since that time there has been a great deal of interest in this material, with practical applications ranging from lightweight battery electrodes to photovoltaic cells under active development.

The novel properties of polyacetylene can be understood in terms of the electronic structure of the polymer. A model for the electronic structure will be presented which elucidates the major electrical and spectroscopic features of polyacetylene, and which can be extended to describe other electroactive polymers as well.

ANTON PETERLIN

Anton Peterlin, a native of Yugoslavia, received his Sc. D. degree in physics from Humboldt University in Berlin in 1938. He has served as professor of physics and head of the J. Stefan Institute at the University of Ljubljana, Yugoslavia and professor of physics and head of the Institute of Physics at the Technical University of Munich, Germany. From 1961-1973 he was director of the Camille Dreyfus Laboratory at the Research Triangle Institute and adjunct professor at Duke University. In 1973 he joined the National Bureau of Standards as a physicist and in 1975 he assumed his present position as assistant chief of the polymers division. Since 1975 he has also been a visiting professor at Case Western Reserve University.

Dr. Peterlin's numerous memberships include the Austrian, Slovenian, New York and Washington Academies of Sciences as well as Sigma Xi, the American Physical Society and the ACS. He is a member of the advisory boards of several journals and is an associate editor of *Makromolekulare Chemie* and editor of *Macromolecular Reviews*. His awards include the Bingham Medal (1970) of the Society of Rheology and the Ford Motor Company Prize (1972) of the American Physical Society.

In 1943 Dr. Peterlin published (with H. A. Stuart) a book on birefringence and he has published approximately 360 scientific papers in the areas of transport properties, thermodynamics, crystallization, morphology, nuclear and electron magnetic resonance, acoustic emission, fracture, crazing, x-ray scattering of polymer solids, rheological and optical properties of dilute polymer solutions and plastic deformation of crystalline polymers.

FEBRUARY MEETING

DATE:

Wednesday, February 23, 1983

PLACE:

Knott Science Center
The College of Notre Dame
of Maryland
North Charles Street
Baltimore

SPEAKERS AND TOPICS:

5:45 pm
Dr. Mark Elert
U. S. Naval Academy
"Electronic Structure and
Properties of Polyacetylene"

8:30 pm
Dr. Anton Peterlin
National Bureau of Standards
"Deformation of Semicrystal-
line Polymers"

COCKTAILS AND DINNER:

Doyle Building Dining Room
Cocktails 6:45
Dinner 7:30

Dinner price \$10.00 per person, but
retired chemists and students may
attend the dinner for \$8.00



DR. ANTON PETERLIN

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

Charles Rowell
Chemistry Department
U. S. Naval Academy
Annapolis, MD 21401

by February 14. Late reservations
may be made by calling Linh Cheong
(x 208) or Cheryl Manger (x 358) at

(301) 355-3600

by February 16.

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

MARYLAND SECTION FUTURE PROGRAM

<u>Date</u>	<u>Location</u>	<u>Speakers</u>	<u>Topic</u>
March 30	College of Notre Dame	V. Frank Boyd Litton Bionetics	Pesticides - Chemistry and Politics
		Dorit Noether CHEMTECH	H ₂ O - a 360° View
April 20	U. S. Naval Academy	Nina Roscher American University	Careers in Chemistry
		Charles Braun Dartmouth College	
May 18 (tentative)			Remsen Award

JANUARY, FEBRUARY, 1983

The immediately recoverable elastic deformation is only a fraction of the total strain. The rest is partially recoverable plastic deformation. Even after long recovery the sample never returns to its starting state. At higher strain the plastic deformation changes the structure. Under uniaxial stretching the original lamellar material transforms into the microfibrillar structure. The transformation is discontinuous. But it occurs rather randomly so that the whole strained sample gradually transforms into the new structure. For a while the strained lamellar and the new microfibrillar structure co-exist. In linear polyethylene (PE) the transformation is completed at a draw ratio λ between 8 and 9.

The mechanical and transport properties change with the deformation. The influence of the elastic component can be studied only on the strained sample. The plastic deformation, however, remains even after the complete removal of the straining force. But it yields a sample that is not in equilibrium. Annealing with free ends lets the deformed sample at least partially return to the previous state. With fixed ends the shrinkage is completely prevented. In both cases the sample tries to reduce its deviation from equilibrium. In spite of that, after cooling to room temperature the sample tends to return towards the status before the annealing.

When did YOU
last attend a Maryland Section meeting?

ACS LAUNCHES SERIES OF TELECONFERENCE COURSES

The American Chemical Society's continuing education program will offer its first series of live teleconference courses taught by experts during March and April of 1983. Designed for chemists, chemical engineers and other technical professionals, the five courses will be transmitted nationwide by telephone conference call to participating sites. An "open microphone" at each end will allow interaction between students and their instructor. Slides and audio visual support materials at each location will further enhance the presentation.

Course topics include: "The Effective Manager," "Chemical Engineering for Chemists," "Basic High Performance Liquid Chromatography," "Introduction to Gas Chromatography," and "Advances in the Physical Chemistry of Polymers."

The one-hour sessions, transmitted over telephone lines, will be offered in afternoons and evenings over a one to four week period. Each course will consist of six to eight sessions. Afternoon courses will be offered from 1-4 p.m. Eastern Standard Time and evening courses will be given from 7-9 p.m., Eastern Standard Time.

Any group or organization in the United States or Canada is eligible to register as a site and may participate in as many courses as it chooses. Teleconferenced course fees range from \$795 to \$875 per site and are cost effective because any number of participants can attend at each site. The ACS recommends, however, that classes be kept to 40 participants.

Enrollment deadline for the courses is February 28, 1983. For detailed site registration information, course schedules and outlines, contact: Ms. Cyrelle Gerson, American Chemical Society, 1155 Sixteenth Street, N.W., Washington, D. C. 20036. Telephone: (202) 872-8728.

Cont from p 2...

Publicity. D. Jones has sent out notices for meetings.

High School Activity. M. Zapf suggested the section could sponsor two awards at the Baltimore Science Fair, March 26 and 27. We need a judge. The awards should zero in on Chemistry or biochemistry projects. At last meeting, 3 students and 3 teachers attended. It appeared to work well. M. Zapf, H. Freimuth and B. Kreps attended National Science Teachers Meeting. We will use photo of meeting in *Chesapeake Chemist*. L. Sweeting said many teachers are not eligible for ACS membership under guidelines. More should be encouraged to join as member or associate member. M. Zapf would like to include more teachers and students for Naval Academy Meeting. We can offer video courses of interest to high school teachers for continuing education.

Remsen Award. In B. Caret's absence, J. Topping reported G. Posner, M. Miller and R. Esmod committee. There are 35 previous nominees names plus 3 new ones in the file. The committee will have meeting within next 10 days.

Congressional Science Councilors. E. Penski described role of councilors. L. Sweeting will take over with B. Mikulski.

Chesapeake Chemist. Items for February issue must be in by 12th of December. Alan Harmon: Distributed balance sheet for publications cost. Average operating cost per issue about \$470.00. Advertisers are cutting back space. The cost for publishing without advertising may be nearly \$4000/year. J. Topping: Rates should be published in *Chemist*. Advertisers should be notified if their material is received too late. E. Silversmith moved we allocate as much as necessary to continue *Chemist* in 1983. The Motion was seconded and approved. An official complaint has been lodged with the Post Office about late delivery of the *Chemist*. E. Penski and H. Klapper suggested a first class mailing to 200 or so members who are most interested in attending meetings. This is too expensive to pursue, however. Recommendation to Ray Petersen: Move deadlines up and get out *Chemist* earlier.

Maxm: J. Topping reported that B. Caret has recontacted Convention Center and will meet with officials there soon.

Finance. H. Klapper has preliminary budget for 1983. Awards category should be increased. We have a projected loss of \$4,000 for 1983. J. Topping suggested we try listing local sales representatives and members in return for small donation.

Archives. E. Silversmith has received items from H. Freimuth to be included in archives.

New Business. N. Phillips attended large section leadership program. He distributed demographics of the section and of all the society. We should perhaps set up a membership committee to approach new attendees about membership. We may also make use of the National Society's lecture tours. A meeting may be held at the Aquarium. Nolan is currently researching speakers for the 1983-84 program and taking suggestions. Nolan discussed ways to possibly increase section membership. C. Rowell: Will put effort into section membership and high school activity for 1983.

Next Executive Committee Meeting: February 2.

The meeting was adjourned at 9:27 P.M.

Respectfully submitted,

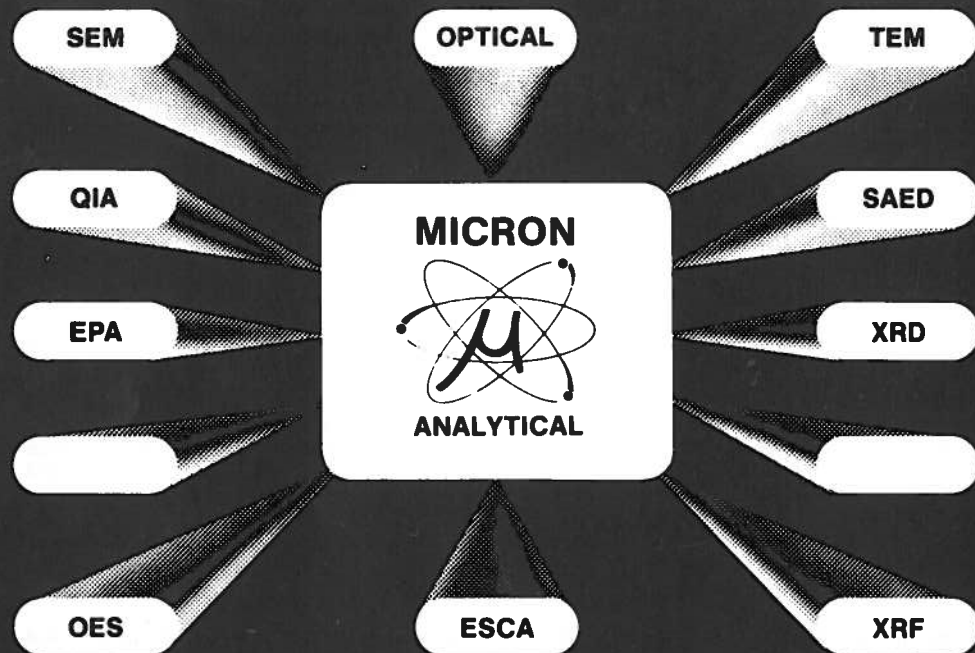
Cheryl L. Manger
Secretary

0117980X 02/83 ZR 301
DR YALE HOWARD CAPLAN
3411 PHILIPS DR
PIKESVILLE MD 21208

1

Nonprofit Org.
U. S. Postage
PAID
Baltimore, Md.
Permit No. 2917

PLEASE DO NOT DELAY — DATED NOTICE INSIDE



INTEGRATED ANALYTICAL SERVICES
P.O. BOX 3536 WILM. DEL 19807
PHONE 302-998-1184

MICROANALYSES

Analysis for all elements
Trace analyses and molecular weights

GALBRAITH LABORATORIES, INC.

P.O. Box 4187 • Knoxville, TN 37921

(615) 546-1335