

THE TarHelium



A Publication of the North Carolina Section of the American Chemical Society

Vol. 19 No. 1

Aug.-Sept. 1988

2nd Annual North Carolina Section ACS Symposium

CHEMISTRY AT SURFACES AND INTERFACES

NC Section Meeting
Symposium Tutorial
September 8, 1988

Symposium September 9-10, 1988

P.M. Gross Chemical Laboratory

Duke University

The September NC Section/ACS meeting will feature a tutorial led by local experts on the chemical aspects of surface science. This will be followed by a 1 1/2 day symposium which will focus on chemical perspectives of surface science and will feature twelve invited lectures on a variety of topics in areas of ultra high vacuum techniques, non-UHV surface science and imaging. In addition, a poster session will be held consisting of contributed papers in all aspects of surface chemistry.

Reservations are requested for the NC Section/ACS dinner on Thursday night. No preregistration or fees are required for the symposium.

TUTORIAL SPEAKERS

Gary E. McGuire, Microelectronics Center of North Carolina: *"UHV Surface Spectroscopy"* A general discussion of surfaces and surface characterization by UHV spectroscopic techniques such as XPS, AES, etc.

Phillip Russell, Department of Materials Science and Engineering, North Carolina State University: *"Surface Microscopy"* A general discussion of surface characterization using imaging techniques such as STM, AFM, FIM, etc.

Edmond F. Bowden, Chemistry Department, North Carolina State University: *"Non-UHV Surface Characterization"* Characterization of surfaces by non-UHV techniques with emphasis on electrochemistry, surface modification, and polymer thin films.

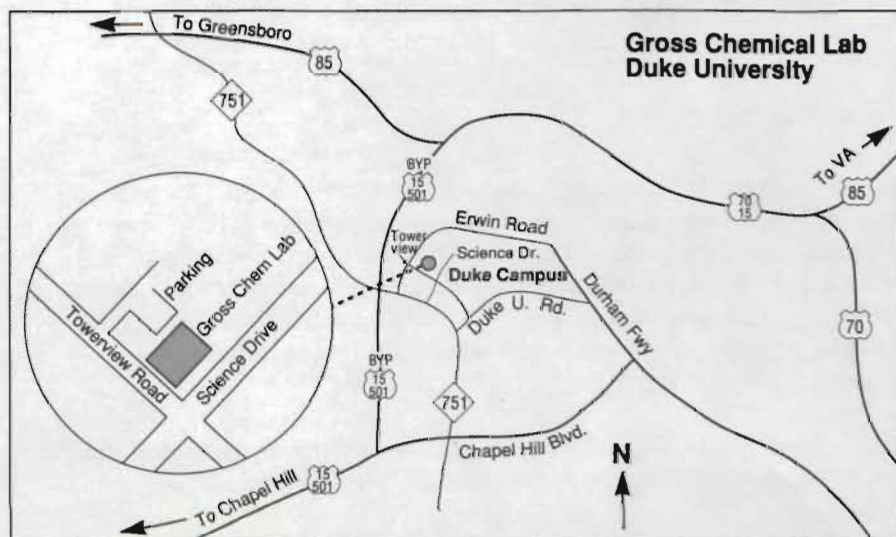
NC SECTION/ACS MEETING

Location: Duke University
Old Trinity Room West Union Bldg.

Time: 5:00-6:00 Social Hour
6:00 Dinner Old Trinity Room

For reservations, call Ms. Bean (Durham; 684-2414), Ms. Edwards (Chapel Hill; 962-2172), Ms. Dunn (Raleigh; 737-2545) or Ms. Smith (Fayetteville; 486-1000) before Tuesday, September 6.

7:30 Program Tutorial for Symposium on Chemistry at Surfaces and Interfaces (Room 107 Gross Chemical Lab)



SYMPOSIUM: CHEMISTRY at SURFACES and INTERFACES

Room 107
P.M. Gross Chemical Laboratory
Duke University

Friday, September 9, 1988

- | | | |
|-------|----------------------------------|---|
| 8:00 | Registration | |
| 8:15 | Introductory Remarks | |
| 8:30 | Cynthia M. Friend, Harvard | "Mechanistic and Structural Surface Chemistry" |
| 9:20 | Gabor A. Somorjai, UC-Berkeley | "The Surface Science of Organic Monolayers on Transition Metal Surfaces" |
| 10:10 | Coffee Break | |
| 10:30 | John Y. Yates, Jr., Pittsburgh | "Imaging Chemical Bond Directions at Single Crystal Surfaces" |
| 11:20 | J. Michael White, U.T.-Austin | "Secondary Ion Mass Spectrometry as a Tool for Surface Kinetics" |
| 12:10 | Lunch | von Cannon Hall Bryan University Center |
| 1:45 | Kenneth B. Eisenthal, Columbia | "Picosecond Studies of Equilibrium and Dynamic Processes at the Liquid Vapor Interface" |
| 2:35 | Fred H. Pollak, Brooklyn College | "Raman Spectroscopy Characterization of Semiconductor Surfaces/Interfaces" |
| 3:25 | Coffee Break | |
| 3:45 | Adam Heller, AT&T | "Modification of Redox Enzymes by Tunneling Relays: Direct Biosensors and Electrosynthesis of Biochemicals" |

4:35 Allen J. Bard, U.T.-Austin

"Ultra High Resolution
Electrochemistry Scanning
Tunneling and Electro- chemical
Microscopy"

5:25 Poster Viewing (with refreshments) – Lobby

Saturday, September 10

8:30 David L. Allara, Penn State

"Chemical Interactions at
Organic Interfaces"

9:20 Jerry Tersoff, IBM Watson Labs

"Geometry, Chemistry and
Electronic Structure in Scanning
Tunneling Microscopy"

10:10 Coffee Break

10:30 Shirley Chiang, IBM San Jose

"Scanning Tunneling
Microscopy of Adsorbates on
Surfaces"

11:20 Gary L. Kellogg, Sandia Labs

"Surface Chemistry at the
Atomic Level"

12:10 Closing remarks

ACS CONGRESSIONAL FELLOWSHIP

Available Fall 1989

The Fellowship places an ACS member in a staff position in Congress to :

- Gain firsthand knowledge of the operation of the legislative branch of the federal government.
- Make scientific and technical expertise available to the government, and
- Forge links between the scientific and governmental communities.

Applications due December 1, 1988.

For more information contact:

Meredith Bears, Dept. of Government Relations and Science Policy ACS, 1155
Sixteenth St. NW, Wash. D.C. 20036 (202) 872-4467

***Applications consist of a letter of intent, resume and two letters of reference.
Arrangements should be made to send the letters of reference directly to ACS.
Candidates should contact ACS prior to submitting an application to determine the
type of information needed in the letter of intent.

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**FROM BASICS
TO STATE-OF-THE-ART**

The deadlines for the remaining issues of the quarterly *TarHelium* will be:
Oct. 1
Jan. 15
Mar. 15

Announcements for events and meetings that the quarterly issues cannot cover in a timely manner will be sent to members in a separate single page mailing. This issue is our first foray into the world of Desktop Publishing. We (the editorial we) welcome comments and suggestions for future issues.

NOMINATIONS FOR LOCAL SECTION OFFICERS

The Nominations Committee has selected the following North Carolina section members for consideration in the November election:

Chairman-Elect

Robert Shaw (ARO)

Donald Preiss (NCSU)

Councilor

Kathryn MacLeod, (Mallinckrodt)

Treasurer

Reginald Shiflett (Meredith)

Joan Bursey (Radian)

Alternate Councilor

Robert Izydore (NCCU)

The candidates' biographies and the ballot will be in the next issue of the *TarHelium*.

**SYMPOSIUM: RECENT ADVANCES IN POLYMER SYNTHESIS
CHARACTERIZATION AND PROPERTIES**

HONORING

PROFESSOR VIVIAN T. STANNETT

On His Retirement from North Carolina State University

**AND IN CELEBRATION OF THE FOUNDING OF THE POLYMER GROUP,
NORTH CAROLINA SECTION
OF THE
AMERICAN CHEMICAL SOCIETY**

September 8-9, 1988

**McKimmon Center
North Carolina State University**

Honorary Chairmen:

**Professor Herman Mark
Professor Charles G. Overberger**

Organizers:

**Richard D. Gilbert
Raymond E. Fornes
Donald M. Preiss
Joel Williams**

PROGRAM

Thursday September 8, 1988

Registration 8:00-8:30am

Morning Session:

Raymond E. Fornes, Chairman

- | | | |
|-------|---|---|
| 8:30 | Welcome and | Introduction |
| 8:45 | Conrad Schuerch, SUNY | "Cis and Trans Ring-Opening Polymerization of Anhydrosugars" |
| 9:05 | George B. Butler, U. of Florida | "The Role of Donor-Acceptor Complexes in Alternating Copolymerization" |
| 9:25 | K. O'Driscoll, U. of Waterloo | "Recent Developments in Free Radical Polymerization Kinetics" |
| 9:45 | Bernard J. Lyons, Raychem Corp. | "Crosslinking and Chain Scission Yields in Aliphatic and Alkyl-Aromatic Polyamides" |
| 10:05 | William J. Bailey, U. of Maryland | "Free Radical Ring-Opening Polymerization" |
| 10:25 | Break | |
| 10:40 | Morton Litt, Case Western Reserve. | "Synthesis, Surface and Interfacial Properties of Block Polymers of Poly(N-acylethyleneimines)" |
| 11:00 | Jerome P. Lando, Case Western Reserve | "Polymerizable Amphiphiles" |
| 11:20 | Eli M. Pearce and T. Kwei, Polytechnic University | "Further Studies on Polymer Compatibility Through Hydrogen Bonding" |
| 11:40 | Discussion | |
| 12:05 | Lunch | |

Afternoon Session:

Joel Williams, Chairman

- | | | |
|------|---|---|
| 1:00 | Herman Mark, Polytechnic University | "Fibers of the Future" |
| 1:20 | Roger Porter, U. of Massachusetts | "On the Ultimate Properties of Semicrystalline Thermoplastics" |
| 1:40 | William J. Macknight,
U. of Massachusetts | "Newer Developments in Ionomers" |
| 2:00 | Richard S. Stein, U. of Massachusetts | "Some Optical Probes of the Amorphous Solid State" |
| 2:20 | C.E. Rogers, Case Western Reserve | "The Effect of Modes of Sorption on Membrane Transport Processes" |
| 2:40 | Break | |
| 2:55 | Eric Baer, Case Western Reserve | "Higher Hierarchical Structures in Soft Connective Tissue: Lessons from Biology" |
| 3:15 | Herbert Morawetz, Polytechnic U. | "Some Recent Polymer Studies by Fluorescence Techniques" |
| 3:35 | Edward T. Samulski,
UNC - Chapel Hill | "Deuterium NMR Studies of Organized Polymer Phases" |
| 3:55 | Bruce G. Frushour, Monsanto | "Structure and Melting Behaviour of Polyacrylonitrile Copolymers" |
| 4:15 | A.S. Abhiraman, Georgia Tech | "Crystallization in Orientable Polymers: Kinetics and Morphological Consequences" |
| 4:35 | Alan Gent, University of Akron | "Self-Diffusion in Polymers" |
| 4:55 | H. Yasuda, U. of Missouri - Rolla | "Vacuum Deposition Polymerization and Characteristics of Polymers" |
| 5:15 | N. Morosoff, Research Triangle Inst. | "Plasma Polymerization as Room Temperature Cryochemistry" |
| 5:35 | Discussion | |
| 6:30 | Reception | |
| 7:30 | Banquet - Master of Ceremonies - Donald M. Preiss | |

Friday, September 9, 1988

Registration 8:00-8:30am

Morning Session:

Howard Clark, Chairman


- | | | |
|-------|---|--|
| 8:30 | John W. Vanderhoff, Lehigh U. | "Preparation and Characterization of Uniform Non-Spherical Latex Particles" |
| 8:50 | Andrew Klein, Lehigh U. | "Structured Latexes" |
| 9:10 | Harry R. Allcock, Penn State | "The Macromolecular Substitution Route to Inorganic-Organic Polymers" |
| 9:30 | C.P. Spencer and G.C. Berry, Carnegie-Mellon University | "Kinetics of Polymerization of a Rod-like polymer (PBT) in Nematic and Isotropic Solutions" |
| 9:50 | J.C. Salamone, U. of Lowell | "Cationic/ Anionic Monomers and Polymers" |
| 10:10 | Break | |
| 10:25 | Richard Ambrose, Lord Corporation | "Synthesis and Properties of Block Polymers Containing Polar and Non-Polar Segments" |
| 10:45 | Kenneth Wood, NCSU | "Aspects of Free Cationic Copolymerization of Styrene Derivatives" |
| 11:05 | S. Kalachandra, D.T. Turner and D.P. Singh UNC, Chapel Hill | "Glass Transitions of Polymers Made from Slurries of Poly(ethyl) Methacrylate and Methyl Methacrylate" |
| 11:25 | C.L. Chen and J.S. Gratzl, NCSU | "Characterization of Lignins by ¹³ C-NMR Spectroscopy" |
| 11:45 | Discussion | |
| 12:00 | Lunch | |

- | | | |
|------|--|--|
| 1:00 | R. McGregor, NCSU. | "Studies of Molecular Motions of Penetrant Molecules in Solid Polymers" |
| 1:20 | R.T. Chem, NCSU | "Modified Aromatic Polyethers and Polyesters as Membrane Materials for Gas Separation" |
| 1:40 | J. Preston, W. Krigbaum and Y. Jadhov
Research Triangle Institute and Duke. | "Rigid and Flexible Block Copolyamides" |
| 2:00 | J.A. Cuculo, M.H. Theil and K.S. Yang
NCSU | "Cellulose Liquid Crystals in the NH ₃ /NH ₄ SCN System" |
| 2:20 | E.P. Stahel, NCSU | "Some Kinetic Modeling of the Heterogeneous Polymerization of Low Temperature Vinyl Chloride" |
| 2:40 | Break | |
| 2:55 | M. Balik, NCSU | "Effects of Acidic Deposition on Latex Paint Systems" |
| 3:15 | H. Hopfenberg, NCSU | "Transport Phenomena in Natural and Synthetic Polymeric Glasses: An Eighty Million Year Excursion" |
| 3:35 | Jim Moore,
Rensselaer Polytechnic Institute | "Resist Sensitivity Enhancement by Radiation Modification" |
| 3:55 | Concluding Remarks | |

REGISTRATION

A block of rooms at the Mission Valley Inn has been set aside for Symposium Attendees (single \$47.00 and double \$52.00/night). The Inn is located at the corner of Western Boulevard and Avent Ferry Road ca. 1 mile east of the McKimmon Center. The phone number is 919-828-3173. Mention the name of the Symposium if you make a reservation there.

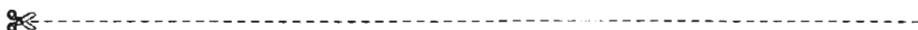
*Spouses, etc. are welcome.

Please use the registration form on the facing page 

SERVICE AWARDS COMMITTEE

Call for Recommendations

The Service Awards Committee is seeking recommendations for recognition by the Local Section for service to the Section, Society or Profession of Chemistry. Please send recommendations to the committee Chairman, Dr. Robert Izydore, Department of Chemistry, North Carolina Central University, Durham, NC 27707. An informal list of accomplishments would be useful for our consideration.



REGISTRATION FORM

Registration Fee \$25.00 _____
(Includes coffee breaks and Lunches for each day)

Social Hour and Dinner* \$15.00 _____
Thursday Evening

TOTAL _____

Please return with remittance** to:

Richard D. Gilbert
Box 8302
North Carolina State U.
Raleigh, NC. 27695-8302

**Please make checks to North Carolina State University

Please return your registration no later than August 31, 1988.

FUTURE PROGRAMS

North Carolina Section of the American Chemical Society

- Thursday
September 8 Tutorial for Symposium on Chemistry at Surfaces and Interfaces (for details, see this issue)
- Tuesday
October 24 Lawrence F. Dahl, Univ. of Wisconsin
"Small-to-Gigantic Transition Metal Clusters: Isolobal Analogues of Unusual Organic Species and Models of Ligand Sites in Chemisorption on Metal Surfaces"
NCCU, Chemistry Dept., Durham
- Tuesday
November 15 Dr. Thomas Whitesides, Eastman Kodak Co.
"The Inside Story of Color Photography"
UNC-Chapel Hill, Venable Hall, Chapel Hill
- Tuesday
December 13 Irwin Fridovich, Duke University
"Molecular Oxygen: Biological Threat and Defenses"
Meredith College, Chemistry Dept., Raleigh
- Thursday
January 12 Howard Clark, Duke University
TBA
Faculty Club, NCSU, Raleigh

**All lectures are currently set to begin at 7:30pm.

Polymer Group
North Carolina Section of the American Chemical Society

Speaker: Various
Program: Polymer Symposium in Honor of Vivian Stannett
See article about symposium in this issue.
Location: McKimmon Center, NCSU
Date: Sept. 8,9

Speaker: Dr. Bill Fleming, IBM
Program: Solid State NMR of Polymers
Location: NC State Faculty Club
Date: Oct. 13

Speaker: Dr. Krishan Seghal, Union Carbide
Program: Role of Polymer-Liquid Surface Interactions in
the Cleaning of Surface Mounted Assemblies
Location: NC State Faculty Club
Date: Nov. 10

Speaker: Dr. N. Morosoff, RTI
Program: Plasma Polymerization
Location: NC State Faculty Club
Date: Dec. 8

Speaker: Dr. Howard Clarke, Duke
Program: Artificial Materials in Arteries
Location: NC State Faculty Club
Date: Jan. 12*

Speaker: Dr. E.T. Samulski, UNC
Program: Polymer Liquid Crystals; Lyotropic and Thermotropic
Location: NC State Faculty Club
Date: Feb. 9

Speaker: Dr. Angus Kingon, NCSU
Program: The Chemistry of High Temperature Super-conductors
Location: NC State Faculty Club
Date: Mar. 9

Speaker: Dr. David Terrell, U.Mass
Program: Geneticall -controlled Synthesis of New
Polymeric Materials
Location: NC State Faculty Club
Date: Apr. 13

Speaker: Dr. M.P. Zussman, Dupont
Program: Fluoropolymer Laminates for the Electronic Industry
Location: NC State Faculty Club
Date: May 16**

For additional details, contact Dr. K. Dawes (program chairman) at Raychem Corp.
(557-8431)

* Joint Meeting with the ACS

** Joint Meeting with the SPE

New ACS Program Targets Public Policy Development

Worker safety and health—waste disposal—technological education—R&D funding...These are just some of the important issues concerning the public today. Anxious to address these issues, state legislatures are moving forward to ensure economic stability and environmental safety for their people. In many cases, it is the states that are establishing policies and setting precedents on national issues—not the federal government.

Since the ACS and its members have become increasingly aware of these changing trends, the ACS Board of Directors moved to ensure that the Society is positioned to respond to state and local government policymakers in need of technical advice pertaining to the chemical sciences. A new program for State and Local Government Affairs (SLGA) was established early this year.

The initial goal of the program is to establish networks among ACS members, state government officials and organizations that interact with the states. The local ACS sections are an integral part of this network and will be informed of issues for their involvement through newsletters, notices and personal contacts. A pilot study using twelve states has been selected in order to identify important trends. However, all states will be monitored for activities on key issues that are likely to have the greatest impact on the chemical sciences and its practitioners. A computerized legislative tracking service is being used to assist program staff with monitoring activities. ACS members are encouraged to participate in the SLGA program, to use it as a resource for identifying issues and establishing contacts with government policymakers and citizen groups.

The willingness of chemists and chemical engineers to become involved in science policy development will help to ensure that "sound science" will form the basis for legislation. A brochure highlighting the SLGA program is available upon request from:

Michele M. Boisse
Staff Associate SLGA
ACS-GRASP
1155 16th St. NW
Wash. D.C. 20036 (202) 872-4391.

To obtain a list of Official Public Policy Statements that have been issued during 1988 please contact Ms. Nancy Mullens, ACS, 1155 16th St. NW Suite 330 Wash. D.C. 20036 (202) 872-4479.

Chemical Career Insights – 1988

A Chemical career conference for undergraduate and graduate students and their faculty.

Friday November 4

University of North Carolina, Union
Auditorium, Chapel Hill, NC

Industrial and government chemists will present an all-day program to describe

- What it's like to work as a chemist
- Traditional and nontraditional careers for chemists
- How to interview for a job
- What employers look for in new employees
- Making the transition from academe to industry

Join us, beginning at 8:30 am, for a day of talks and discussions about your career.

Sponsored by the Younger Chemists Committee of the American Chemical Society and the University of North Carolina. Supplemental support provided by area companies.

Registration fee \$4.00. A luncheon and two coffee breaks will be provided at no extra charge. To register, complete the coupon below and mail with your check to the address below. Please make check payable to North Carolina Section ACS. Advance registration is recommended; attendance may be limited by lecture hall seating capacity.

Mail to:

Jill T. Rickman
CB #3290
Chemistry Dept.
UNC-CH
Chapel Hill, NC 27599

Name _____

Address _____

School _____

Major _____

Grad Yr. _____ Degree _____

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