

# The TarHelium

Volume 24, Number 8

April 1994

## MRSDG Poster Session

The Magnetic Resonance Spectroscopy Group will hold its annual Spring Poster Session on Tuesday, **April 5, 1994**, 6:00-10:00 p.m. at the Duke University Gross Chemistry Building. Light dinner and refreshments will be served. The event is open to all dues-paying members of the MRSDG. Dr. Steven C. Brown of Glaxo Research Institute will speak on "Structures of Peptide Nucleic Acid (PNA) Complexed to RNA, DNA, and PNA."

## Polymer Discussion Group

Thursday, **April 14, 1994**

S. P. Rao, 3M Graphic Research Lab

"Liquid Toners for Electronic Imaging"

NCSU Faculty Club

4200 Hillsborough St., Raleigh

5:30 p. m. Social Hour

6:30 p. m. Dinner<sup>†</sup> (members-guests:  
\$15; students \$8)

7:30 p. m. Lecture

<sup>†</sup>Reservations by noon, April 12: Walter Pawlowski (919) 543-2243 (IBM-RTP).

## The TarHelium

c/o William L. Switzer, Editor  
Department of Chemistry-8204  
North Carolina State University  
Raleigh NC 27695-8204

## Have a Good Summer

### 108<sup>th</sup> NC Section Conference

The 108<sup>th</sup> Conference of the North Carolina Section is Saturday, **April 16, 1994** at Duke University Chemistry. There will be both regular and poster sessions. Presenters will receive a meeting favor and will be the guest of the Section at a buffet luncheon. Program: pages 5-9 and Meeting Overview: page 11.

## ACS Local Section Meeting

**April 26, 1994:** Professor John A. Pople, will speak at a Local Section event on Tuesday evening, April 26. The meeting, which is sponsored jointly by the North Carolina and the Eastern North Carolina Sections of the ACS, will be carried *via* satellite to a viewing site at the ECU Medical School. Meeting details were not available at press time. Contact Michael Riebe, Chair Elect, 941-3608, or Bill Switzer 515-2945 for meeting details.

### 11<sup>th</sup> Annual TCDG Symposium and Instrument Exhibit

The Triangle Chromatography Discussion Group will hold its 11<sup>th</sup> Annual Exhibit, Symposium and Poster Session at the McKimmon Center in Raleigh on Thursday, **May 19, 1994**. Complete program and exhibitor list, p. 12.

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**Executive Committee:**

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**Voicemail Information Line:** (919) 541-7183 in the RTP

10-General ACS  
11-Polymer Discussion Group  
52-Magnetic Resonance Spectroscopy Discussion Group  
53-Mass Spectrometry Discussion Group  
54-Triangle Chromatography Discussion Group

**National ACS meetings:**

March 13-18, 1994, San Diego	August 20-25, 1995, Chicago
August 21-26, 1994, Washington	March 24-29, 1996, Seattle
April 2-7, 1995, Anaheim	August 25-30, 1996, Boston

**Deadline for Summer Publication: June 1, 1994****Dated Material - Please Deliver Promptly**

W. L. Switzer, Editor  
P. A. Flowers, Advertising

S. T. Purrington, Assistant Editor

*The TarHelium* is a publication of the North Carolina Section of the American Chemical Society. The views expressed herein are not necessarily those of the Section. Public lectures and seminars as well as announcements of interest to the ACS membership will be listed as deemed appropriate by the editor and as space permits. Short commentaries or contributed articles will also be considered. Also, we are happy to publicize, free of charge, any job openings for chemists. (We also accept paid advertisements for more extensive recruiting announcements.) The **Deadline** for each publication is usually the first of the month prior to publication.

Contributions for *The TarHelium*: Send to W. L. Switzer, Editor, Chemistry-8204, North Carolina State University, Raleigh NC 27695-8204. Phone: (919) 515-2945, Fax: (919) 515-5079 and Internet: bill\_switzer@ncsu.edu.

**Advertising:** All nine issues of the *TarHelium* will accept advertising. The cost is: \$25 per column-inch based on a 3.5 inch width; two-inch minimum. There is a 10% discount for advertising in four or more issues in a publication year which runs from September through April plus one issue in the summer. Contact Paul Flowers, Advertising Manager, Department of Physical Science, Pembroke State University, Pembroke NC 28372, Phone: (919) 521-6247 Fax: (919) 521-6649 and Internet: paul@nat.pembroke.edu.

Donations to the NC Section of the ACS help sustain Local Section activities. All contributions are tax deductible and greatly appreciated.

If you wish to change your membership status or *The TarHelium* mailing address, please submit your new address along with your old address in the form of a recent *C&EN* or *TarHelium* address label to:

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If you wish to receive job announcements and announcements of Local Section ACS events by electronic mail, please subscribe to the NCACS list. Send e-mail to: listserv@listserv.ncsu.edu. Include a one-line message saying: subscribe ncacs <your name>. To remove your name, send a message to the same address saying: unsubscribe ncacs. Other features of the list can be obtained by sending mail to the same address with the one-line message saying: info ncacs. Questions may be addressed to the *TarHelium* Editor.

On-line copies of recent issues of *The TarHelium* are now available on the Triangle FreeNet at the University of North Carolina, Chapel Hill. One may telnet to: tfnet.ils.unc.edu with login: frenet and password: guest. Issues are archived under:

4. Business/
  3. Professional organizations/
    1. ACS American Chemical Society/
      1. ACS TarHelium (newsletter)/

Alternatively one may reach the server by gopher. From the State of North Carolina:

University of North Carolina at Chapel Hill, Info system  
Other information services  
Triangle Free-Net development gopher  
Business  
Professional organizations  
ACS American Chemical Society  
ACS TarHelium (newsletter)

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## List Server Handles E-mail Distribution

The NC Section e-mail is now being distributed with the help of a list server at NCSU. Meeting and job announcements will be distributed by this service. Meeting reservations can be made, when appropriate, by replying to the meeting announcements. (A flaw in the initial set up which replied to all subscribers rather than to the sender has been corrected.) Subscriptions are free and ACS membership is not required. To subscribe: send e-mail to: listserv@listserv.ncsu.edu. Include a one-line message saying: subscribe ncacs <your name>. To remove your name, send a message to the same address saying: unsubscribe ncacs. Other features of the list can be obtained by sending mail to the same address with the one-line message saying: info ncacs. Questions may be addressed to the *TarHelium* Editor.

## Membership Committee Recognized

In 1993, 127 of the 186 local ACS sections received commissions paid for new and reinstated members. The NC Section received the highest commission of all local sections. In second place was Chicago, third was North Jersey, and fourth was Virginia. The Membership Committee Chair, Dr. Larry Bowen, NCSU, wishes to thank his committee for their efforts and to remind you that the Section receives this commission whenever a new or reinstated member designates the NC Section in the box labeled Local Section/Division Commission Claim. Applications for membership may be obtained from any membership committee member:

### CURRENT MEMBERSHIP COMMITTEE:

George Brine, RTI  
Michael Crimmins, UNC-CH  
Robert Higgins, Fayetteville State University  
Robert Izydore, NCCU  
Larry Knecht, NC School of Math and Science  
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Elemental Analysis

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## Area Seminars

- Apr 1 James F. Garvey, State University of New York, Buffalo, "Chemical Reactions Within Clusters and On Fullerenes", Duke  
Apr 5 MRSDG Poster Session at Duke (see front cover), MRSDG  
Apr 5 Brian Matthews, University of Oregon, "Galactosidases Large and Small: T4 Lysozyme and beta-Galactosidase", UNC-BC  
Apr 7 Mickey Myrick, University of South Carolina, "Flow-Injection Scanning Tunneling Microscopy", UNC-CH  
Apr 8 Theodore Kuwana, University of Kansas, "Carbon-Fiber and Ni-Alloy Detectors", Duke

- Apr 11 Dennis Evans, University of Delaware, "Recent Progress on EE Reactions in Electrochemistry", NCSU
- Apr 12 Frank Rusnak, Mayo Clinic Institute, "TBA", UNC-BC
- Apr 14 S. P. Rao, 3M Graphic Research Laboratory, "Liquid Toners for Electronic Imaging", Polymer
- Apr 14 Mike Therion, University of Pennsylvania, "The New Porphyrins", UNC-CH
- Apr 14 D. Workshop, Airdyne Research Laboratory, "Influence of Volatility on the Composition of Aerosols", UNC-CH
- Apr 16 108th NC Section Conference at Duke (see front cover and program insert)", ACS
- Apr 19 Judith Burstyn, University of Wisconsin, "Mechanism of Activation of Guanylyl Cyclase by Nitric Oxide", NCSU
- Apr 19 Paul Modrich, Duke University, "DNA Mismatch Repair and Genetic Stability in E. Coli and Human Cells", UNC-BC
- Apr 21 Judy Burstyn, University of Wisconsin, Madison, "Mechanism of Activation of Soluble Guanylyl Cyclase by Nitric Oxide", UNC-CH
- Apr 25 Bert Chenard, Pfizer Inc., "Medicinal Chemistry", NCSU, PLU
- Apr 26 John Pople, Northwestern University, "TBA", ACS
- Apr 26 Marie Filbin, Hunter College, "New Roles for Old Nyelin Proteins: MAG and Po", UNC-BC
- May 13 Gary L. Glish, University of North Carolina, Chapel Hill, "The Quadrupole Ion Trap: The Gas Phase Ion Source of the Nineties", Duke
- May 19 11th TCDG Symposium and Instrument Exhibit at the McKimmon Center NCSU (see p. 12), TCDG

ACS-American Chemical Society general meeting. Call Bill Switzer 515-2945 (NCSU). Voice Mail 541-7183, box 10

MRSDG-NMR discussion Group. Call Terry Oas 684-4363 (Duke), Voice Mail 541-7183, box 52

PDG-Polymer Discussion Group. Call Walter Pawlowski 543-2243 (IBM-RTP). Voice Mail 541-7183, box 11

TCDG-Triangle Chromatography Discussion Group. Call John Hines 541-6647 (RTI). Voice Mail 541-7183, box 54

Duke (Chemistry) Call Bonnie Turner at 660-1506.

NCSU (Chemistry) Call Joyce Weatherspoon at 515-2548.

UNC-CH (Chemistry) Call Becky Smith at 962-2172.

UNC-BC (Biochemistry) Call Lisa Phillipie 966-2852.

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## Job Openings

All job announcements are broadcast immediately upon receipt to the e-mail distribution list. If you wish to be included send your address to: bill\_switzer@ncsu.edu.

**Burroughs Wellcome:** Job Line at (919) 315-8347.

**EPA-RTP:** Job line (919) 541-3014. Updated every Friday.

**Glaxo:** Job Line (919) 248-2565.

**RTI:** Contact: Research Triangle Institute, Office of Human Resources, PO Box 12194, Research Triangle Park NC 27709-2194. Phone: (919) 541-6466. Analytical Chemist I G0077 76A BA/BS in Chemistry with experience or training in analytical instrumentation. Class 100 clean room and trace metal experience is preferred. Will operate Gas Furnace AA and ICP, prepare samples for instrumental analysis, work with spreadsheets. Analytical Chemist I G0078 76A BA/BS in Chemistry with experience or training in analytical instrumentation. Class 100 clean room and trace metal experience is preferred. Will operate Gas Furnace AA and ICP, prepare samples for instrumental analysis, work with spreadsheet. Chemist I F0431 63A BS/BA in Chemistry with training in organic synthesis. Will synthesize novel organic compounds. Chemist I F0432 63A BS/BA in Chemistry with training in organic synthesis. Will synthesize novel organic compounds. Chemist I/II F0427 64A BS/BA in Chemistry with emphasis in organic chemistry and training or experience in analytical methods. Will conduct studies of the metabolism of drugs and environmental chemicals and analyze biological fluids for these chemicals. Natural Products Scientist F0437 60A PhD with research experience in the isolation, structure determination, synthesis, or testing of natural products. Will lead natural products research; write successful grant/contract proposals; manage research projects and supervise laboratory staff. Postdoctoral Chemist F0426 63A PhD in Chemistry with experience in organic synthesis. Will synthesize novel organic compounds. Postdoctoral Chemist F0429 64A PhD in organic chemistry with experience or training in organic synthesis. Will conduct research to synthesize novel organic compounds. Postdoctoral Chemist F0430 63A PhD in Organic Chemistry with training in organic synthesis. Will conduct research to synthesize novel organic compounds. Postdoctoral Chemist F0433 60A PhD in Chemistry with training in organic chemistry. Will synthesize haptens and conjugates for catalytic antibody programs. Will involve some analytical (kinetics) work. Postdoctoral Chemist F0435 63A PhD in Organic Chemistry with research experience in organic synthesis. Will conduct research on the synthesis of novel organic compounds. Postdoctoral Chemist F0436 63A PhD in Chemistry with research experience in organic synthesis. Will synthesize novel organic compounds. Postdoctoral Chemist F0438 63A PhD in Chemistry with research experience in organic synthesis. Will synthesize novel organic compounds. Res. Forensic Analytical Tox. I/II F0440 64A PhD or equivalent in Chemistry, Toxicology, Pharmacology or related discipline with experience directing a drug testing laboratory or with training or experience as a NLCP laboratory inspector. Will review laboratory inspection reports, SOP's, laboratory data, determine laboratory certification status, administer remedial action. Research Associate I J0256 96A PhD in Chemical Engineering with experience in gas-solid catalysis, hydrocarbon conver-

sion. SO<sub>x</sub>/NO<sub>x</sub> control. Must have at least 2 years post-PhD experience. Will carry out laboratory experiments in gas-solid catalysis, write reports and technical publications based on results and contribute to proposals.

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6 1210 Ashbrooke Dr.

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## HS Chemistry Teachers Newsletter

The February/March issue of the High School Chemistry Teaches Newsletter was recently published by the High School Committee of the NC Section. A number of activities for high school teacher were reported. Highlights included announcements of: 1) the Second Annual "High School Teacher of the Year" award offered by the Section, 2) the annual Professional Development Awards for HS Chemistry teachers in the Section, 3) summer workshops at the NCSSM for high school chemistry teachers, 4) Local Section participation in the National and International Chemistry Olympiads, 5) standing offers of the Section to pay annual dues for affiliate membership in the ACS Division of Chemical Education and to become an affiliate member of the Local Section at no charge, 6) an offer of a free subscription to "Speaking of Safety" published by the Laboratory Safety Workshop at Curry College as well as an offer of a half-day workshop on Lab Safety given by George Wahl of NCSU, 7) the Free Lab Equipment Center at NCSSM (contributions to the Center can be made through Larry Knecht at the NCSSM (286-3366), 8) the Rural Science Initiative Program at the NCSSM funded by the Kathleen Price and Joseph M. Bryan Foundation, 9) Institute of Chemical Education (ICE) publications, materials and

workshop for teachers, 10) activities of the North Carolina Student Academy of Sciences, whose Executive Director is Myra Halpin, NCSSM, 1219 Broad St., Durham NC 27705, 286-3366, 11) the Project SEED program of the ACS which offers summer research opportunities to economically disadvantaged high school students, 12) activities of the Science House at NCSU, which now includes a Chemistry on the Road show, 13) the 1998 SERM scheduled for the NC Section, 14) the 108<sup>th</sup> Local Section Conference held at Duke on April 16, 15) the Operation Chemistry Program which will train a team of leaders to hold workshops in for science teachers in grades 4-8, 16) the ChemCom Summer Workshops for Teachers one of which will be held at the University of North Carolina, Chapel Hill, 17) ChemSource Materials for teachers of introductory chemistry courses, and 18) books of interest to high school chemistry teachers and students. Any one interested in the High School Chemistry Teachers newsletter may contact its editor, Laurance A. Knecht at the NC School of Science and Math, 1219 Broad St., Durham NC 27705.

Huffman Laboratories, Inc. - p.

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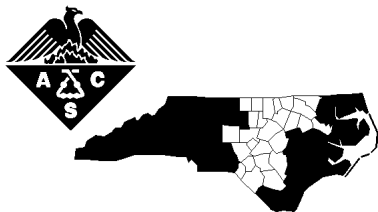
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## Area News

**Applied Analytical Industries:** *The BT Catalyst*, a publication of the NC Biotechnology Center, reported in its February issue that a Wilmington-based pharmaceutical testing and de-

## 108<sup>th</sup> Sectional Conference

### NORTH CAROLINA SECTION AMERICAN CHEMICAL SOCIETY



**Saturday, April 16, 1994**

**Gross Chemical Laboratory  
Duke University  
Durham, NC**

velopment company was scheduled to occupy a facility in Durham in February. The company plans to hire about 75 new employees to staff its new facility. Applied Analytical Industries has leased all of Quadrangle One, a 30,000-square-foot laboratory and office building in Durham. The company plans to remodel part of the building before beginning its operation there.

**Glaxo:** Robert A. Ingram has been appointed chief executive officer of Glaxo Inc., effective March 1, 1994, succeeding Charles A. Sanders, MD, who will retire from the position of CEO but will continue as the companies chairman. As president and CEO, Ingram will assume full responsibility for Glaxo's strategic business planning and day-to-day operations. Sanders relinquished the chief executive's position in order to devote full time to national health care policy and industry-wide issues, where he has assumed an increasingly influential role in discussions of health care reform.

"With changes in the economy, the marketplace and the political environment, the pharmaceutical industry clearly has its work cut out for it in the years ahead," Ingram said. "Under Dr. Sanders' leadership, Glaxo has become one of the best positioned companies to respond to the new environment and to continue meeting medical needs. I'm excited about building on this company's remarkable record of success in providing innovative and cost-effective products, and in communicating their value to physicians and patients." Ingram, joined Glaxo Inc. in 1990 and has held a series of increasingly responsible executive positions, most recently as president and chief operation officer. Before joining Glaxo, he was president of Merck Frosst Canada Inc. He also has held various executive positions at Merrell Dow Pharmaceuticals.

In his new position Sanders, will spearhead Glaxo's political involvement in health care issues. A cardiologist and former director of Massachusetts General Hospital, he will work with thought-leaders in government and industry to focus attention on the ability of research-based pharmaceutical companies to (continued p. 9)

## Reservations

The meeting is open to the public; however, reservations are required for the luncheon. The luncheon will be catered by the New China Inn and features a selection of meat and vegetarian entrées. All awardees, speakers, presidors, projectionists and workers are guests of the Section at the luncheon. Reservations have been made and luncheon tickets sent to all guests, except the awardees. Please send cancellations, however. The luncheon costs \$10 for other members and guests but \$5 for students and high school teachers. Please make reservations no later than 5:00 p. m., Wednesday, April 13. You may make or cancel reservations at the following locations: In Chapel Hill call Becky Smith, 962-2172; in Durham, Bonnie Turner, 660-1506; in Raleigh, Joyce Dunn, 515-2546; in Fayetteville, Sandra Smith, 486-1571; or by e-mail at Internet: bill\_switzer@ncsu.edu

## Registration

A registration table will be set up in the first floor lobby of the Gross Laboratory. If you are not registered, please stop by and sign in to help us keep meeting statistics. Name tags, luncheon tickets and souvenir coupons were sent to all speakers, presidors

and workers, but if there is a problem, please check at the registration table. Awardees may pick up the luncheon tickets at this table. Coupons for the souvenir T-shirt may be redeemed at this table. During the lunch hour following the awards ceremony, unclaimed shirts will be sold at cost. For those who have made reservations, please buy your luncheon ticket at this table also.

## Acknowledgments

**Program Chair:** William L. Switzer, North Carolina State University; **Arrangements:** George Dubay, Duke University and Michael T. Riebe, Glaxo; **Poster Session:** Louis A. Coury, Duke University; **Awards:** James L. Chao, IBM and Michael T. Crimmins-Chair, University of North Carolina, Chapel Hill

## Analytical I

Gross Chemical Laboratory-Room 103  
Edmond F. Bowden, Presiding  
North Carolina State University

- 8:40 "Electrochemical Characterization of Cytochrome *c*/Alkanethiolate/Gold Monolayer Structures," R. A. Clark and E. F. Bowden, North Carolina State University
- 9:00 "Characterization of the Incipient Electrochemical Oxidation of Highly Oriented Pyrolytic Graphite in Various Aqueous Electrolytes," K. W. Hathcock<sup>1</sup>, J. C. Brumfield<sup>1</sup>, C. A. Goss,<sup>2</sup> E. A. Irene<sup>1</sup> and R. W. Murray<sup>1</sup>, <sup>1</sup>University of North Carolina, Chapel Hill and <sup>2</sup>Burroughs-Wellcome Co.
- 9:20 "Voltammetric Studies of Counterion Transport in Polyelectrolyte Solutions. 1. Poly(Styrenesulfonic Acid)," M. Ciszowska and J. G. Osteryoung, North Carolina State University
- 10:20 "Voltammetric Studies of Counterion Transport in Polyelectrolyte Solutions. 2. Chondroitin Sulfate," C. A. Scordilis-Kelley and J. G. Osteryoung, North Carolina State University
- 10:00 Coffee Break and Poster Session in Lobby

## Analytical II

Gross Chemical Laboratory-Room 103  
Robert A. Osteryoung Presiding  
North Carolina State University

- 10:20 "Monitoring Single-Cell Signaling Using Concurrent Electrochemical and Fluorescent Detection," J. M. Finnegan and R. M. Wightman, University of North Carolina, Chapel Hill
- 10:40 "Impedance of Electroinactive Thiol-Derivative Films on Gold," T. M. Nahir and E. F. Bowden, North Carolina State University
- 11:00 "Novel Electrochemical Measurements of Dynamic Events at Single Chromaffin Cells," P. S. Cahill and R. M. Wightman, University of North Carolina, Chapel Hill
- 11:20 "Square-wave Voltammetric Study for the Electrochemical Reduction of Methyl Red," G. Xu, J. O'Dea and J. G. Osteryoung, North Carolina State University
- 11:40 "Ni-W Alloy Formation," N. Isaev and J. G. Osteryoung, North Carolina State University
- 12:10 Awards Room 107 followed by lunch

## Analytical III

Gross Chemical Laboratory-Room 103  
Paul A. Flowers, Presiding  
Pembroke State University

- 1:20 "Selective Measurement of Epinephrine and Norepinephrine at Single Chromaffin Cells Using Fast Scan Cyclic Voltammetry," K. Pihel and R. M. Wightman, University of North Carolina, Chapel Hill
- 1:40 "Computational and Experimental Aspects of Copper Anodization," J. T. Orr and J. G. Osteryoung, North Carolina State University

- 2:00 "Ultraslow Diffusion: Molecule Scale Depletion Layers Around Electrodes," M. M. W. Poupart, K. Hassett, Z. Porat, C. Velazquez and R. W. Murray, University of North Carolina, Chapel Hill
- 2:20 "ROESY NMR of Basic Room-Temperature Chloroaluminate Molten Salts," R. A. Mantz, P. C. Trulove, R. A. Osteryoung and R. T. Carlin, North Carolina State University

### Analytical IV

Gross Chemical Laboratory-Room 104  
William F. Gutknecht, Presiding  
Research Triangle

- 8:20 "Fabrication of a Bicomponent, Electrochromic Film Assembly," R. M. Leasure, W. Ou, R. W. Linton and T. J. Meyer, University of North Carolina, Chapel Hill
- 8:40 "Molecular Dissociation Mechanisms in a Pulsed Corona Discharge," S. P. Shofran<sup>1</sup>, C. B. Boss<sup>1</sup>, P. A. Lawless<sup>2</sup> and G. Ramsey<sup>3</sup>, <sup>1</sup>North Carolina State University, <sup>2</sup>Center for Aerosol Technology, Research Triangle Institute, <sup>3</sup>US Environmental Protection Agency
- 9:00 "Direct Solid Sampling by Microwave Plasma," W. L. Coker, III and C. B. Boss, North Carolina State University
- 9:20 "Formation and Characterization of Molecular Nanotube Aggregates," G. Li and L. B. McGown, Duke University
- 9:40 Coffee Break and Poster Session in Lobby

### Analytical V

Gross Chemical Laboratory-Room 104  
Karin A. Mede, Presiding  
Rhône Poulenc Ag Company

- 10:00 "Study of Selectivity Enhancement in Non-aqueous Capillary Electrophoresis," B. Ye and M. G. Khaledi, North Carolina State University
- 10:20 "Improvement of Resolution in Chiral Separations of Pharmaceutical Compounds by Dextrin-Mediated Capillary Electrophoresis," C. Quang and M. G. Khaledi, North Carolina State University
- 10:40 "Chiral Drug Analysis by HPLC with High-Sensitivity Optical Rotation Detection," C. A. Goss, D. C. Wilson and W. E. Weiser, Burroughs Wellcome Company
- 11:00 "A Study of the Activity of Enzymes Adsorbed in Hydrophobic Interaction Chromatography Systems," A. J. Aschman and C. H. Lochmüller, Duke University
- 11:20 "Mixed Micellar Electrokinetic Chromatography of Steroids," J. Bumgarner and M. G. Khaledi, North Carolina State University
- 11:40 "Stationary Phase Effect on Retention Behavior of Phenols in Micellar Liquid Chromatography: Fluorooctyl vs. C-18," S. Yang and M. G. Khaledi, North Carolina State University
- 12:10 Awards Room 107 followed by lunch

### Biochemistry and Medicinal Chemistry

Gross Chemical Laboratory-Room 105  
Gary J. Pielak, Presiding

- University of North Carolina, Chapel Hill
- 10:40 "Fluorinated Anesthetics as *In Vivo* NMR Probes of Lipophilic Environments," C. T. Burt, M. F. Roberts, and R. R. Moore, CTB Consultants, Apex
- 11:00 "Lead Inhibition of Isocitrate Dehydrogenase," R. Henkens and T. Johnston, Duke University
- 11:20 "Thienoyl and Thiazolyl Analogues of 5-Deazaacyclo Tetrahydrofolic Acid," S. J. Hodson, E. C. Bigham, G. K. Smith, D. S. Duch and R. Ferone, Burroughs Wellcome Company
- 11:40 "Phenylaminotetralins as Sigma Ligands," A. M. Myers, S. D. Wyrick, R. G. Booth, C. E. Owens, N. Choksie and A. Hussain, University of North Carolina, Chapel Hill
- 12:10 Awards Room 107 followed by lunch

### Inorganic I

Gross Chemical Laboratory-Room 110  
William E. Hatfield, Presiding  
University of North Carolina, Chapel Hill

- 8:20 "Reactions Involving Organoindium and Trimethylsilyl Pnictide Compounds: Synthetic Pathways to the Novel 13-15 Compounds  $R_3M \cdot E(SiMe_3)_3$  (R =  $Me_3SiCH_2$ , M = In or Ga, E = P) and  $Ga[As(SiMe_3)_2]_3$ ," R. A. Baldwin<sup>1</sup>, R. L. Wells<sup>1</sup>, S. R. Aubuchon<sup>1</sup>, P. S. White<sup>2</sup>, M. S. Lube<sup>1</sup> and M. F. Self<sup>1</sup>, <sup>1</sup>Duke University and <sup>2</sup>University of North Carolina-Chapel Hill
- 8:40 "Thermodynamics and Kinetics of Iron (III) Exchange from Deferriferrioxamine B to Benzohydroxamic Acid in Aqueous Micellar Solutions," E. G. Olmstead, Jr., I. Batinić-Haberle, I. Spasojević, S. W. Harman and A. L. Crumbliss, Duke University
- 9:00 "Synthesis, Characterization, and Thermal Decomposition Studies of Aluminum-Phosphorus Adducts: X-Ray Crystal Structures of  $X_3Al \cdot P(SiMe_3)_3 \cdot C_7H_8$  (X = Cl, Br) and  $i-Bu_2(Br)Al \cdot P(SiMe_3)_3$ ," J. A. Laske<sup>1</sup>, R. L. Wells<sup>1</sup>, A. T. McPhail<sup>1</sup> and P. S. White<sup>2</sup>, <sup>1</sup>Duke University and <sup>2</sup>University of North Carolina-Chapel Hill
- 9:20 "Host-Guest Interaction: Ferrioxamine B Association with Crown Ethers and Lariat Crown Ethers," I. Batinić-Haberle, I. Spasojević and A. L. Crumbliss, Duke University
- 9:40 "Preparation and Thermal Analysis of Single-Source Precursors to 13-15 Compound Semiconductors," S. R. Aubuchon and R. L. Wells, Duke University
- 10:00 "A New Method for Solution Phase Synthesis of III-V Nanocrystals," S. S. Kher and R. L. Wells, Duke University
- 10:20 Coffee Break and Poster Session in Lobby
- 12:10 Awards Room 107 followed by lunch

### Inorganic II

Gross Chemical Laboratory-Room 111  
Charles R. Cornman, Presiding  
North Carolina State University

- 9:40 Coffee Break and Poster Session in Lobby



- 10:00 "Electronic and Structural Properties of Electron Deficient Intermediates Generated from a Severely Distorted Halogenated Porphyrin," R. N. Austin, K. Jayaraj, A. Gold, J. Terner, R. Weiss, D. Mandon, P. Oschenbein, A. Trautwein and E. Bill, University of North Carolina, Chapel Hill
- 10:20 "Studies of 13-15 Systems: Direct Preparation of Semiconductor Precursors and Materials," M. S. Lube<sup>1</sup>, R. A. Baldwin<sup>1</sup>, R. L. Wells<sup>1</sup>, S. R. Aubuchon<sup>1</sup>, P. S. White<sup>2</sup> and S. S. Kher<sup>1</sup>, <sup>1</sup>Duke University and <sup>2</sup>University of North Carolina-Chapel Hill
- 10:40 "Electrocatalytic Properties of an Iron Porphyrin Immobilized in Carrageenan Hydrogel," D. C. Cooke and A. L. Crumbliss, Duke University
- 11:00 "The Synthesis and Characterization of Possible Single-Source Precursors to Binary and Ternary Groups 13-15 Materials," L. J. Jones III, R. L. Wells and A. T. McPhail, Duke University
- 11:20 "Dependence of Acetohydroxamatoiron (III) Formation and Dissociation Kinetics on the Identity of the Background Electrolyte Anion," L. P. Cogswell, III, M. T. Caudle and A. L. Crumbliss, Duke University
- 11:40 "Synthesis and EPR of V<sup>IV</sup>-Amide Complexes," C. R. Cornman, E. P. Zovinka, Y. D. Boyajian, T. T. Sutherland and P. Singh, North Carolina State University
- 12:10 Awards Room 107 followed by lunch
- 11:00 "Chemisorption Studies of CH<sub>3</sub>S on Ni(III)," H. Yang<sup>1</sup>, T. C. Caves<sup>1</sup>, J. L. Whitten<sup>1</sup> and D. R. Huntley<sup>2</sup>, <sup>1</sup>North Carolina State University and <sup>2</sup>Oak Ridge National Laboratory
- 11:20 "Reaction of Formyl with Ni(100) Surface," H. Yang, North Carolina State University
- 11:40 "Kinetics of Complexation of Cr(III) by EDTA," J. Davis and H. H. Carmichael, North Carolina State University
- 12:10 Awards Room 107 followed by lunch

## Organic

Gross Chemical Laboratory-Room 105

Robert A. Izydore, Presiding

North Carolina Central University

- 8:40 "Kinetic Studies of Alkenyl Glycosides Reacting with Electrophiles (Part I)," R. Rodebaugh and B. O. Fraser-Reid, Duke University
- 9:00 "Kinetic Studies of Alkenyl Glycosides Reacting with Electrophiles (Part II)," B. Wilson and B. O. Fraser-Reid, Duke University
- 9:20 "Novel Oxidative Cleavage of Tetraalkylstannanes Using Ozone," M. Jaber and R. J. Linderman, North Carolina State University
- 9:40 "Synthesis and Reactivity of 2-Alkyl-3,3-Difluoroketones," B. G. Shofran and C. L. Bumgardner, North Carolina State University
- 10:00 "Stereoselective Additions to Acyclic Oxocarbenium Ions," S. Chen and R. J. Linderman, North Carolina State University
- 10:20 Coffee Break and Poster Session in Lobby
- 12:10 Awards Room 107 followed by lunch

## Physical

Gross Chemical Laboratory-Room 110

Jerry L. Whitten, Presiding

North Carolina State University

- 10:20 Coffee Break and Poster Session in Lobby
- 10:40 "*Ab Initio* and Molecular Dynamics Studies of NMR Chemical Shielding in Liquid Water," D. B. Chesnut and B. E. Rusiloski, Duke University

## Polymer

Gross Chemical Laboratory-Room 228

C. Maurice Balik, Presiding

North Carolina State University

- 9:20 "Utilization of Step-Scan FT-IR Photoacoustic Phase Spectra for Depth Profiling of Lamellar Polymers," E. Y. Jiang<sup>1</sup>, J. L. Chao<sup>2</sup> and R. A. Palmer<sup>1</sup>, <sup>1</sup>Duke University; and <sup>2</sup>IBM Corporation
- 9:40 "Living Alternating Copolymerization of Styrenic Monomers and Carbon Monoxide using a Palladium Catalyst," S. Tahiliani, M. S. Brookhart and J. M. DeSimone, University of North Carolina, Chapel Hill
- 10:00 "Preparation of High Strength/High Modulus Regenerated Cellulose Fibers from Lyotropic Mesophases," X. Hu, R. D. Gilbert and R. E. Fornes, North Carolina State University
- 10:20 Coffee Break and Poster Session in Lobby
- 10:40 "The Use of Dimensionless Groups to Describe the Equilibrium Uptake of Ionic Dyes and Other Ions by Charged Polymers," M. S. Arora and R. McGregor, North Carolina State University
- 11:00 "Ring-Opening Methathesis Polymerizations in Carbon Dioxide and Carbon Dioxide/Cosolvent Mixtures," C. D. Mistele, J. M. DeSimone and H. H. Thorp, University of North Carolina, Chapel Hill
- 11:20 "Effect of Salts on Aqueous Solutions of Hydroxypropyl Cellulose and its Blends with other Polymers," B.-C. Wang and M. H. Theil, North Carolina State University
- 11:40 Viscosity Study of Fluoropolymer-CO<sub>2</sub> Solutions," J. B. McClain, Z. Guan, J. M. DeSimone and E. T. Samulski, University of North Carolina, Chapel Hill
- 12:10 Awards Room 107 followed by lunch

## Poster

Lobby Gross Chemical Laboratory

Louis A. Coury, Coordinator

Duke University

9:40-Noon

- 101 "Characterization of Nanocrystalline GaAs," C. R. S. Hagan, L. A. Coury, Jr., R. L. Wells, S. S. Kher and S. R. Aubuchon, Duke University
- 102 "Kinetic Energy Release Effects on Resolution in Linked Scans Performed on Double-focusing Mass Spectrometers," R. W. Vachet and G. L. Glish, University of North Carolina, Chapel Hill
- 103 "Interfacial Hotspots: Electrochemical Temperature Measurements During Sonication and Formation of Microarray Electrodes," N. A. Madigan, C. R. S. Hagan, and L. A. Coury, Jr., Duke University
- 104 "Eigenvector Based Retention Index System for RP-HPLC," C. E. Reese and C. H. Lochmüller, Duke University
- 105 "Chemically-Amplified Enzyme Sensors for Pharmaceuticals," T. J. Moore<sup>1</sup>, G. G. Nam<sup>2</sup>, and L. A. Coury, Jr.<sup>1</sup>, <sup>1</sup>Duke University and <sup>2</sup>Glaxo
- 106 "Wash-out Dynamics From Silica Pores Using Poor Solvents," L. Huang and C. H. Lochmüller, Duke University
- 107 "Probing Ion Structures and Reaction Pathways by MSn and Ion/Molecule Reactions," T. Lin and G. L. Glish, University of North Carolina, Chapel Hill
- 108 "Ultrasonic Deposition of Copper Particles on Electrode Surfaces," J. M. Fortune, C. R. S. Hagan and L. A. Coury, Jr., Duke University
- 109 Studies of Sub-Molecular Liquid Crystal Dynamics by use of Time-Resolved and Phase-Resolved Step-Scan FT-IR Spectroscopy," R. W. Jacobson<sup>1</sup>, M. C. Garcí<sup>1</sup>, J. L. Chao<sup>2</sup>, and R. A. Palmer<sup>1</sup>, <sup>1</sup>Duke University and <sup>2</sup>IBM Corporation
- 110 "Binding of a Soluble Truncated form of moFc RII to Membrane-bound IgG as Measured by Total Internal Reflection Fluorescence Microscopy," D. Gesty-Palmer and N. L. Thompson, University of North Carolina, Chapel Hill
- 111 "Synthesis and Evaluation of New Hypolipidemic Agents," I. H. Hall and Y. Huang, University of North Carolina, Chapel Hill
- 112 "Osmolytes and Protein Amide Proton Exchange," A. J. Saunders and G. J. Pielak, University of North Carolina, Chapel Hill
- 113 "Preparative-Scale, Continuous, Free-Flow Isoelectric Focusing in Open Channels Using Thermally-Engendered pH Gradients," C. H. Lochmüller and M. A. M. Moebus, Duke University
- 114 "Amine Borane Inhibitors of Topoisomerase II," M. C. Miller, III and I. H. Hall, University of North Carolina, Chapel Hill
- 115 "Determining the Requirements for the Pairing of Two -Helices," J. Beasley and G. J. Pielak, University of North Carolina, Chapel Hill
- 116 "Chemical Modifications of Bovine Prothrombin Fragment 1 and the Synthesis of Factor X Peptide," A. D. King and R. G. Hiskey, University of North Carolina, Chapel Hill
- 117 "Protein Stability and Natural Sequence Variation: The Thermal Stability of Cytochromes *c* with Substitutions at the Interface Between the N- and C-Terminal Helices," D. S. Cohen, D. S. Auld, J. R. Beasley, S. F. Betz, D. F. Doyle, Z. L. Fredericks, S. Hilgen-Willis, A. J. Saunders and G. J. Pielak, University of North Carolina, Chapel Hill
- 118 "Telomerization of Fluoroolefins in Supercritical Carbon Dioxide," J. R. Combes, Z. Guan, T. J. Romack and J. M. DeSimone, University of North Carolina, Chapel Hill
- 119 "Separation of Macromolecules by Non-exclusion HPLC," C. Jiang and C. H. Lochmüller, Duke University
- 120 "Molecular Reorientation Dynamics in Polymer Films Studied by Phase-Resolved Step-Scan FT-IR Spectro-

- scopy," A. Fujii<sup>1</sup>, J. L. Chao<sup>2</sup>, and R. A. Palmer<sup>1</sup>,  
<sup>1</sup>Duke University and <sup>2</sup>IBM Corporation
- 121 "Prediction of Retention Behavior in Reversed-Phase Liquid Chromatography Using Factor Analytical Modeling," S-H Hsu and C. H. Lochmüller, Duke University
- 122 "NMR Methods for Detecting and Quantitating Metabolites in Tissues of Rats Exposed to <sup>13</sup>C-Labeled Xenobiotics," S-Y Cheng<sup>1</sup>, C. D. Brown<sup>2</sup>, T. R. Fennell<sup>2</sup> and S. C. J. Sumner<sup>2</sup>, <sup>1</sup>North Carolina State University and <sup>2</sup>Chemical Industry Institute of Toxicology
- 123 "Reduction of Cationic Tungsten Nitrene Complexes," K. Powell, J. L. Templeton and M. S. Brookhart, University of North Carolina, Chapel Hill
- 124 "EPR Spectroscopic Studies of First Coordination Sphere of Vanadyl Complexes," K. Geiser, C. R. Cornman, E. Zovinka, Y. Boyajian, P. Singh and S. Rowley, North Carolina State University
- 125 "Chiral Tungsten Alkyne Complexes for Non-Linear Optics," S. A. O'Reilly, P. S. White and J. L. Templeton, University of North Carolina, Chapel Hill
- 126 "Solution Studies of Beryllium with Citric Acid," C. D. Caldwell<sup>1</sup>, L. M. Wilkes<sup>2</sup>, D. C. Crans<sup>3</sup>, H. Chen<sup>3</sup>, Duke University, <sup>2</sup>University of Southern Colorado and <sup>3</sup>Colorado State University
- 127 "Synthesis of Tungsten (II) Imine Complexes," L. Wagner, P. S. White and J. L. Templeton, University of North Carolina, Chapel Hill
- 128 "Cyclization of Tungsten (II) Bound Alkynes," M. Wells, P. S. White, J. L. Templeton and J. L. Templeton, University of North Carolina, Chapel Hill
- 129 "Asymmetric Catalytic Routes to Novel Amino Acid Derivatives," J. R. Lee, J. P. Martinez and M. J. Burk, Duke University
- 130 "Synthesis and Characterization of New Galvinoxyl Radical Derivatives," A. Boal and D. A. Shultz, North Carolina State University
- 131 "Energetics of Formation of Conjugate Carbenium Ions, Radicals and Carbanions of Some "Amphihydric" Compounds in Solution," A. E. Meekhof, R. A. Flowers, II and E. M. Arnett, Duke University
- 132 "Synthesis and Characterization of Galvinoxyl-substituted Alkanethiols," G. N. Tew and D. A. Shultz, North Carolina State University
- 133 "Stereochemistry of Reduction Benzoin Ethyl Ether," S. Cukla and S. G. Levine, North Carolina State University
- 134 "Synthesis and Characterization of Galvinoxyl-substituted Salen Ligands," D. D. Driscoll and D. A. Shultz, North Carolina State University
- 135 "Trifluoromethyl Vinyl Ketone," M. M. Hayworth and S. T. Purrington, North Carolina State University
- 136 "Transition Metal Catalyzed Diels-Alder Reactions," D. Mundt, P. S. White and J. L. Templeton, University of North Carolina, Chapel Hill
- 137 "The Pinacol Reaction of a Fluorinated Compound," J. J. Fisher and S. T. Purrington, North Carolina State University
- 138 "Synthesis and Characterization of Organic Polymers with Paramagnetic Repeat Units," M. Hollomon and D. A. Shultz, North Carolina State University
- 139 "Chemistry Outreach Through The Science House at NCSU," T. Boyette, W. L. Switzer, D. G. Haase, A. J. Banks, J. C. Park, M. C. Brown and J. B. Powell, C. F. Lytle and M. Smith, North Carolina State University
- 12:10 Awards Room 107 followed by lunch

(continued from p. 4)

provide solution to the nation's health care challenges. He also will continue to work closely with Ingram, whom he characterized as one of the most talented and highly regarded leaders in the industry. "We're clearly facing a time of unprecedented challenges," Sanders said, "and from the standpoint of experience, management skills and a sharply defined sense of focus, no one is better equipped to guide Glaxo to a new levels of success."

**NCSU:** A total of 30 US patents were issued to researchers at NCSU in 1993, a record that could rank NCSU among the "top ten" in numbers of patents issued by national research institutes for the year. **Dr. Daniel L. Comins**, NCSU Chemistry, received nine patents, eight of which deal with synthesis of the antitumor alkaloid, camptothecin, shown to be effective in treating solid tumors. Because of the scarcity of camptothecin's natural source, novel and practical high-yield methods for its synthesis are needed. Comins said, "If it, or a related compound, goes to market, our synthetic method will be an efficient way to make large amounts of the anticancer drugs."

**Organon Teknika:** A new compact, fully-automated blood culture testing system will be available from Organon Teknika Corporation in the first quarter of 1994. The BacT/Alert®-120 microbial detection system offers the same testing functionality of the full-size BacT/Alert® system. The cost-effective, bench-top cabinet design is ideal for smaller-volume laboratories.

**Rhône-Poulenc:** The Sunday, March 12 issue of the *Raleigh New and Observer* reported that Thomas M. Dille, president of Rhône-Poulenc Ag Co. since 1986 was promoted to senior executive vice president of the domestic parent of the French-owned company. Charles W. Jongeward, previously senior vice president of commercial operations at the Research Triennial Park facility, took over Dille's responsibilities. Jongeward is now General Manager and Chief Operation Officer. In his new position, Jongeward will manage commercial and administrative functions for the parent company based in Princeton NJ. He will be part of a management team that oversees the worldwide Agro Sector business for the company.

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## ACS Sponsors Smithsonian Exhibit

From aspirin to the atom, science has dramatically changed the way Americans have lived over the last 125 years. "Science in American Life," a major permanent exhibition charting many of these changes, opens at the Smithsonian's National Museum of American History in Washington, DC, on April 27.

Four years in the planning by more than 75 museum staff members, the 12,000-square-foot exhibit and its "Hands On Science Center" are made possible by a \$5.3 million grant from the American Chemical Society.

The exhibition begins in the 1870s with the opening of the first research labs in US universities. Visitors are then guided through numerous historical moments selected by the museum as significant "intersections" of science and society in American life.

They will see how Americans in the early 1900s looked to science as the key to a better future; how World War II mobilized US scientists to perfect radar, boost the production of penicillin and build the atomic bomb; how plastics and pesticides joined suburban living in the 1950s; and how biotechnology research today may be crucial to cleaning up the environment and treating diseases.

Developed by a team of curators, educators, writers, designers and scientific consultants, the exhibition is based on the theme that in modern America, society and science are inseparable--that science has grown into a complex enterprise interwoven with all aspects of life.

"We hope that visitors who see this exhibit will have a greater understanding of the roles science and technology play in their lives," said Chief Curator Arthur P. Molella, who chairs the mu-

seum's department of history of science and technology. "The better informed people are, the better they can assess the difficult choices of the future."

The exhibition features more than 900 artifacts, 600 historical photos and graphics and 20 computer and mechanical interactives to show how science--its achievements as well as its controversies--has shaped American culture and how Americans have shaped science. Among the many attractions is a family fallout shelter from Fort Wayne, IN; several re-creations of pioneering laboratories; and a life-size kitchen, living room and lawn modeled on a tract home built in Albuquerque, NM in the 1950s.

A major goal of the "Science in American Life" team was to highlight the often overlooked roles that minorities and women have played in science. For instance, an opening section features the early history of Hampton University in Virginia. Its mission was to help former slaves and American Indians adjust to free society; the practical value of science was stressed, especially for agriculture.

The educational "Hands On Science Center" allows visitors to examine the exhibit's science and history messages by doing more than 25 activities such as water-sample testing, exploring DNA fingerprinting and detecting radioactivity in common household objects. "The Smithsonian has never before offered an exhibit with a science center like this," said its developer, Dina Rosenthal. The facility is equipped with gas, running water, electricity and air ducts so that visitors may perform "wet or messy" experiments.

Museum-goers begin their journey through "Science in American Life" by meeting 12 "hosts"--10 scientists and two children, represented by life-size photographs and recorded voices--who give a personal, contemporary perspective to the historical material found ahead. "These real people preview the issues of the show," Molella said. "The hosts bring the past into the present." Several of the scientists reappear in the exhibit, among them Harvard University chemist Cynthia M. Friend, who relates how Ellen Swallow Richards (1842-1911), a Massachusetts Institute of Technology sanitary scientist, provided a precedent for Friend's own career.

The first 9,000 square feet of the show are arranged chronologically, presenting key "intersections" of science and society since the 1870s through varied case studies contained in six sections: Laboratory Science Comes to America, 1876-1920; Science for Progress, 1920-1940; Mobilizing Science for War, 1940-1960; Better than Nature, 1950-1970; Science in the Public Eye, 1970 to the present; and Looking Ahead.

Among the milestones examined in the case studies are the development of synthetics from coal tar (including aspirin and saccharin); the work of the USDA's volunteer "Poison Squad," who from 1902 to 1904 tested the safety of food; the mass production of penicillin; the wide use of new consumer goods after World War II; the publication of Rachel Carson's *Silent Spring*, which sparked a new era of environmental awareness; and the siting and Congress' recent rejection of the Superconducting Super Collider project in Texas.

Besides linking key scientific developments to changes in American society, the exhibit documents "the shifts in American attitudes toward the idea of scientific and technological progress," Molella said, noting concerns over the tragic 1986 explosion of the space shuttle *Challenger* and ethical and safety considera-

tions raised by genetic engineering developments. "Judging the benefits and hazards of science and technology is no longer left to scientists," he said. "Science is a matter of public debate."

Additional highlights found in the case-study section of the exhibition include:

- a period setting, featuring a sound-and-light presentation, that re-creates a pioneering chemical laboratory opened in 1876 at Johns Hopkins University in Baltimore
- an interactive model showing how an atomic chain reaction works
- original artifacts and photos showing science as a promoter and entertainer at the 1939 World's Fair
- posters, videos and actual equipment recalling the mobilization of science for World War II and the atomic bomb Manhattan Project
- a phrenological skull and tests used in experimental psychology and intelligence testing before World War I
- a Mexican yam of the type used for developing steroids in the birth-control pill and items relating to the rise of the women's movement in the 1960s
- political cartoons inspired by the growth of environmental awareness

"Science in American Life" concludes with the area called "Looking Ahead," which focuses on the science of biotechnology and public attitudes about it. Here, through objects, graphics, mechanical and video interactives (including 3-D modeling), the exhibit explores ways that shifting public needs, interests and values will shape science and society in the years ahead.

Topics such as gene-based medical research (cancer, AIDS, diabetes and other diseases), solid-waste disposal alternatives ("the garbage dilemma") and genetic engineering for improving tomatoes and other foods are considered. "The point here is to encourage visitors to learn basic science and to confront the practical and ethical issues behind the science and technology," said museum specialist Howard Morrison, who developed this area. For instance, visitors are challenged to consider questions such as: "Who will decide the future course of science and technology? How will we benefit? What will it cost? Who will pay the bills?"

The exhibition concludes with a polling station where visitors are asked to respond to questions similar to those above relating to the theme that in America, science and society are inseparable. They can then compare their own responses to those of others.

An interactive video disc and interdisciplinary education materials related to the exhibition have been developed for middle school classrooms by the National Museum of American History. These materials are funded by a generous grant from Occidental Chemical Corporation.

The National Museum of American History, a bureau of the Smithsonian Institution, is located at 14th Street and Constitution Avenue NW. Museum hours are from 10 a.m. to 5:30 p.m. daily, except Dec. 25. Admission is free.

## Contract and Grants

**NC Biotechnology Center:** Two high schools, a community college and seven colleges and universities have received grants

totaling \$425,501 for the NC Biotechnology Center to improve their biotechnology teaching and training activities. The grants were awarded through the Center's Education Enhancement Grants Program. Recipients in the Section include: the NC School of Science and Math and Pembroke State University. In addition, six minority universities received grants totaling \$960,000 to improve minority participation in biotechnology. Recipients in the NC Section include: Fayetteville State University, NC Central University and Pembroke State University.

**Electric Power Research Institute:** "An Experimental Exploration of the Structure-Property Relations which Delimit Transport in Stiff Chain Glassy Material," **B. D. Freeman** and **H. B. Hopfenberg**, NCSU

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### Four Day Workshop at MCNC

**INTRODUCTION TO GAUSSIAN: THEORY AND PRACTICE**, April 26-29, 1994, The North Carolina Supercomputing Center and Gaussian Inc., MCNC, North Carolina Supercomputing Center, 3021 Cornwallis Road, Research Triangle Park, NC 27709-2889

#### INSTRUCTORS:

Dr. Michael J. Frisch	Lorentzian, Inc.
Prof. H. Bernard Schlegel	Wayne State University
Prof. John A. Pople	Northwestern University
Dr. Douglas J. Fox	Gaussian, Inc.

See February *TarHelium* for program details.

### New Director of Industry Relations

Dr. Manuel Panar has been appointed Director of Industry Relations of the ACS. Dr. Panar, who spent 30 years in research management with E.I. du Pont de Nemours & Co. Inc. in Wilmington, Del., retired from du Pont on November 30. He most recently served as executive director and vice chair of the company's Committee on Educational Aid.

Dr. Panar assumed his position at ACS on Jan. 24. He has been an ACS member since 1956.

Prior to serving on du Pont's Committee on Educational Aid, Dr. Panar was Director of Central Analytical Science and Corporate Information Science for the company. His du Pont career began in 1964, and most of it was concerned with research, with a focus on polymers. He held a number of positions in this capacity, including Research Manager of Materials Science and of Polymer Synthesis.

Dr. Panar earned his BS degree from the University of Alberta (Edmonton) in 1957 and his Ph.D. from the California Institute of Technology (Pasadena) in 1961. He did post-doctoral work at Harvard University (Cambridge, Mass.) in 1961-62.

## Internet Training for Rural Teachers

Creating Connections, a project of the Annenberg/CPB Math and Science Project, US West Foundation and the Boulder Valley Schools is pleased to offer rural math and science teachers (K-12) an opportunity for Internet training and support. The ultimate goal is to support the educational reform effort in rural math and science classrooms nationwide. Participating teachers will attend a two-day hands-on workshop (this summer) and receive curriculum and training support for two years. All teachers who teach or facilitate math and science education are encouraged to apply for this opportunity. Interested teachers must complete a short application which includes a letter of support from an administrator. \*\*Applications must be postmarked on or before Friday, April 29, 1994.\*\* Stipends and limited travel grants are available. For more information or an application, please write, call or e-mail:

Kelly Valdez

Creating Connections  
Nederland High School  
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## 108th Section Conference at a Glance

	Room in Gross Chemical Laboratory						
Time	103	104	105	110	111	228	Lobby
8:00	Registration: Lobby of Gross Chemical Laboratory						
8:20		Analytical IV		Inorganic I			
8:40	Analytical I	Analytical IV	Organic	Inorganic I			
9:00	Analytical I	Analytical IV	Organic	Inorganic I		Polymer	
9:20	Analytical I	Analytical IV	Organic	Inorganic I		Polymer	
9:40	Analytical I	Coffee Break	Organic	Inorganic I	Coffee Break	Polymer	Poster
10:00	Coffee Break	Analytical IV	Organic	Inorganic I	Inorganic II	Polymer	Poster
10:20	Analytical II	Analytical IV	Coffee Break	Coffee Break	Inorganic II	Coffee Break	Poster
10:40	Analytical II	Analytical IV	Biochem/Med	Physical	Inorganic II	Polymer	Poster
11:00	Analytical II	Analytical IV	Biochem/Med	Physical	Inorganic II	Polymer	Poster
11:20	Analytical II	Analytical IV	Biochem/Med	Physical	Inorganic II	Polymer	Poster
11:40	Analytical II	Analytical IV	Biochem/Med	Physical	Inorganic II	Polymer	Poster
12:10	Awards Ceremony Room 107						
12:30	Lunch						
1:20	Analytical III						
1:40	Analytical III						
2:00	Analytical III						
2:20	Analytical III						

## 11<sup>th</sup> Symposium and Instrument Exhibit

The Triangle Chromatography Discussion Group is sponsoring the 11<sup>th</sup> Annual Chromatography Symposium and Instrument Exhibition. The meeting will be held at the McKimmon Center on the Campus of North Carolina State University.

For information, contact: Judi Price (919) 541-8852.

### Program

MORNING SESSION -- Meeting Room  
John Hines, Presiding

- 8:25 Introduction -- John Hines, TCDG President
- 8:30 Dr. James W. Jorgenson, Department of Chemistry, University of North Carolina, Chapel Hill, North Carolina
- "Comprehensive Liquid Chromatography-Capillary Electrophoresis for Separation of Complex Mixtures"
- 9:15 Refreshment Break--Instrument Exhibit--Poster Session
- 10:00 Dr. Jeffrey D. Brewster, USDA, Philadelphia, Pennsylvania
- "Biosensors for Detection of Chemical Residues in Foods"
- 10:45 Refreshment Break--Instrument Exhibit--Poster Session
- 11:15 Dr. Irving W. Wainer, Montreal General Hospital, Montreal, Canada
- "Molecular Biochromatography: A New Direction for Liquid Chromatography Utilizing Immobilizing Biopolymers"
- 12:00 Luncheon at the McKimmon Center--Instrument Exhibit --Poster Session

AFTERNOON SESSION -- Meeting Room  
Pat Tormey, Presiding

- 1:30 Dr. Robert L. Grob, Villanova University (Retired), Villanova, Pennsylvania
- "Capillary Gas Chromatography: Overview and Applications"
- 2:15 Refreshment Break--Instrument Exhibit--Poster Session
- 3:00 Dr. John R. Barr, Center for Disease Control, Atlanta, Georgia
- "Peptide Mapping and Quantification of Apolipoprotein A-1 by LC/MS and Isotope Dilution FAB-MS"
- 3:45 DRAWING--Refreshment Break--Instrument Exhibit
- 4:15 Margaret Mills, United States Geological Survey, Lawrence, Kansas
- "Solid Phase Extraction: Review of a Sample Preparation Tool"

### Exhibitors

Alcott Chromatography, Inc.  
Alltech Associates, Inc.  
Balston Laboratory Gas Generation Systems  
Baxter Scientific Products  
Beckman Instruments  
Bio-Rad Laboratories  
Bioanalytical Systems, Inc.  
Bioscan, Inc.  
BIOTAGE, Inc.  
BOWMAN  
Camag Scientific, Inc.  
CMS  
Delta Technical Products Company  
Dionex Corporation  
Doe & Ingalls of NC, Inc.  
DraChrom  
EM Separations Technology  
ESA, Inc.  
Fisher Scientific  
Fisons Instruments  
Hamilton Company  
Hewlett Packard  
Hitachi Instruments, Inc.  
Hydro Service & Supplies, Inc.  
Isco, Inc.  
JASCO  
Kozoman Instruments  
Krackeler Scientific, Inc.  
LEAP Technologies  
LINC Quantum Analytics  
Mac-Mod Analytical, Inc.  
Matheson Gas Products  
MetaChem Technologies, Inc.  
Michrom BioResources, Inc.  
Packard Instrument Company  
Perkin-Elmer Corporation  
Pierce Chemical Company  
Rainin Instrument Co., Inc.  
Raleigh Valve & Fitting Co.  
Shimadzu Scientific Instruments  
Southern Testing & Research Laboratories, Inc.  
Thomson Instrument Company  
Varian Instruments  
Waters Chromatography  
Whatman  
YMC, Inc.  
Zymark Corporation