

# The Tar Helium

Volume 22, Number 4

April 1992

## NORTH CAROLINA SECTION AMERICAN CHEMICAL SOCIETY

106<sup>th</sup> North Carolina Sectional Conference<sup>†</sup>

and

Workshop for  
High School Chemistry Teachers  
by Chemistry Team 6  
Woodrow Wilson Foundation

Saturday, April 4, 1992

University of North Carolina  
Chapel Hill, NC

<sup>†</sup>All awardees, speakers, presiders, projectionists and workers are guests of the Section at the luncheon which follows the meeting. Reservations have been made for them, but we appreciate being notified of cancellations. The luncheon costs \$8 for other attendees. Please make reservations no later than 4:00 p.m., Wednesday, April 1, 1992. You may make or cancel reservations at the following locations: In Chapel Hill call Becky Smith, 962-2172; in Durham, Carolyn Bean, 660-1506; in Raleigh, Joyce Dunn, 515-2545; in Fayetteville, Sandra Smith, 486-1571; Internet: switzer@chemdept.chem.ncsu.edu

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

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If you wish to receive announcements of Local Section ACS events by electronic mail, please submit your e-mail address to the Internet address given above for the Editor.

**Deadline**  
**September Publication**  
**Friday, August 10, 1992**

## Publication Policy

The *TarHelium* will be published four times a year and monthly meeting reminders will be published in the other months. During the academic year, a bimonthly *Calendar* will be included in either the *TarHelium* or announcement. 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 end of the first week of the month prior to publication, but may be earlier if monthly meetings are scheduled earlier.

**UNC:** Contact the Division of Continuing Education, Continuing Studies at 962-1134 or write: Continuing Studies CB 1020, Friday Center UNC-CH, Chapel Hill NC 27599-1020.

- CH 121 Synthesis of Polymers; 8:00-9:15 TTh; DeSimone
- CH 132 Protein Chemistry; 8:00-9:15 TTh; Pielak
- CH 135 Physical Chemistry of Biological Macromolecules; 10:00-10:50 MWF; Thompson
- CH 142 Analytical Research Techniques; 9:00-9:50 MWF; Wightman
- CH 148 Mass Spectrometry; 9:30-10:45 TTh; TBA
- CH 151 Theoretical Inorganic Chemistry; 8:00-8:50 MWF; Thompson
- CH 166 Advanced Organic Chemistry I; 9:30-10:45 TTh; Kropp
- CH 175 Mechanisms of Organic and Inorganic Reactions; 11:00-11:50 MWF; Templeton
- CH 184 Thermodynamics and Introduction to Statistical Thermodynamics; 9:00-9:50 MWF; Berkowitz
- CH 186 Introduction to Quantum Chemistry; 12:00-12:50 MWF; Johnson
- CH 190 Fundamentals of Materials Science; 10:00-10:50 MWF; TBA

**"new" Oneida Ad**

## Small Chemical Business Symposium

Dr. Edward Huffman, Jr., of Huffman Laboratories, Inc. will chair a symposium on "The Role and Future of Independent Testing Laboratories." The keynote speaker, Joe O'Neil, executive director of the American Council of Independent Laboratories, will give an overview of the independent laboratory business. The symposium is directed at both laboratory operators and users. Topics as diverse as environmental laboratory organizations, laboratory computerization, and effective utilization of laboratories will be presented. The following program is presented as part of the National American Chemical Society meeting in San Francisco on April 6, 1992.

## Graduate and Special Topic Course Offerings at Area Schools in Fall '92

**Duke:** Contact Ms. Earlene Beamon, Director of Graduate Studies Office, at 660-1546 for information about course offerings and registration. Core graduate courses, CH 201, CH 203, CH 205 and CH 207 each consist of three modules. CH 324 and CH 331 are both special topics courses.

- CH 201 Molecular Spectroscopy; 10:20-11:10 MWF
- CH 203 Quantum Chemistry; 11:30-12:20 MWF
- CH 205 Structure and Reaction Dynamics; 12:40-1:30 MWF
- CH 207 Principles of Thermodynamics, Kinetics and Diffraction; 9:10-10:00 MWF
- CH 324 Applications of Mass Spectrometry in Chemistry and Biochemistry; Time TBA; Dubay and Millington
- CH 331 Special Topics in Analytical Chemistry; Statistics and Signal Processing in Analytical Chemistry; Time TBA; Coury

**NCSU:** Contact Dr. Russ Linderman, Directory of Graduate Studies, at 515-3616 for information about course offerings and registration

- CH 501 Advanced Inorganic Chemistry I; 10:15-11:05 MWF; Schreiner
- CH 505 Physical Methods in Inorganic Chemistry; 12:25-01:15 MWF; Wertz
- CH 511 Advanced Analytical Chemistry I; 09:10-10:00 MWF; Hanck
- CH 521 Advanced Organic Chemistry I; 11:20-12:10 MWF; Bumgardner
- CH 527 Mass Spectrometry; 01:30-02:20 MWF; van Breemen
- CH 530 Advanced Physical Chemistry; 08:05-08:55 MWF; TBA
- CH 531 Chemical Thermodynamics I; 11:20-12:10 MWF; TBA
- CH 615 Chemical Separations; 09:50-11:05 TTh; Khaledi
- CH 627 Chemistry of Metal-Organic Compounds; 11:20-12:10 MWF; Linderman
- CH 695F Organic Fluorine Chemistry; 08:05-08:55 MWF; Bumgardner, Purrington
- CH 695Q Quantum Mechanics; 01:30-02:20 MWF; Caves

## Other



## Programs

**Magnetic Resonance Spectroscopy Discussion Group: Saturday, March 21** is a poster session from 9:00 a.m.-1:00 p.m. at the NIEHS South Campus Bldg. 101, 11 Alexander Dr.

**106<sup>th</sup> North Carolina Sectional Conference: Saturday, April 4**, is the Sectional Conference at the University of North Carolina. The program appears on pages 1 p - 12 p. Registration begins at 8:00 a.m. and the first papers at 8:20 a.m. Park in lot N2 between Venable and Peabody Halls or in lot S2, the Bell Tower lot. Enter the lobby of Venable Hall where a registration desk will be set up. All awardees, speakers, senior authors, presiders and attenders who have made reservations will have name tags at the registration table. Please pick the badge up before proceeding to the sessions. Please register to help us record your participation.

**Polymer Discussion Group: Thursday, April 16**, Sid Kalachandra, UNC Dental School will speak. The title of his talk is "Water Sorption and Dynamic Mechanical Properties of Polymer Based Composites--Dental Application." **Note:** the date has been changed from that announced at the March-April Calendar. The group meets at the NCSU Faculty Club. Social Hour - 5:30, Dinner - 6:30 (\$13/\$7) and Lecture - 7:30. Please make reservations with Kirk Abbey, 469-3443 ext. 367 by noon, Tuesday, April 14, 1992.

**Triangle Chromatography Discussion Group: Thursday, May 14** sponsors the 9<sup>th</sup> Triangle Chromatography Symposium & Instrument Exhibit, at the Jane S. McKimmon Center, North Carolina State University, Raleigh. See pages 11-13 for the program, list of exhibitors and registration form.

**From the Chairman:** Our NC section was second nationally in attracting new members in 1991. [We were second behind the New York Section which included the New York metropolitan area.] Congratulations to Larry Bowen and our Sectional membership committee for a job well done. We now have over 1800 members and are entitled to an additional councilor and alternate councilor. These officers will be appointed by the Section's Executive Committee will serve until December 31, 1992. The membership will then select two councilors and two alternate councilor during our Fall election. We are planning an outstanding program for this Fall which includes:

- September: Alton Banks from NCSU: use of video discs in General Chemistry
- October: Bob Voyksner from RTI: Mass Spectrometry Symposium
- November: Gary Martin Burroughs Wellcome: 2-D NMR, joint with MRS Group
- December: Distinguished Speaker

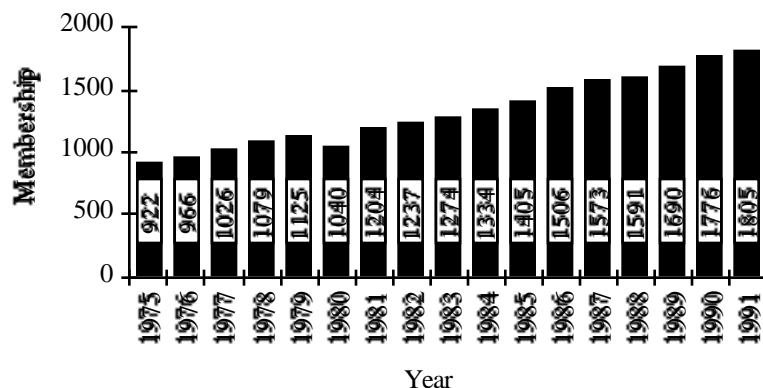
I encourage all members to make an effort to attend these functions and to support other Local Section activities. Have a good Spring and Summer, we'll be back with a TarHelium in the Fall. **C. M. Moreland**

**Membership Campaign 1992:** You can help us for 1992 by contacting any member of the committee if you have prospects for new members. Our section receives a commission for each new member, but only if the application form is marked as from the North Carolina Section.

### NCACS Membership Committee

George Brine, RTI	Michael Crimmins, UNC-CH
Robert Higgins, Fayetteville St.	Robert Izydore, NCCU
Larry Knecht, NCSSM	Reginald Shiflett, Meredith
Harold Teague, Pembroke State	Jeff Gold, Duke
Larry Bowen, NCSU (chair 515-2939)	

**Growth of NC Section ACS**



Special thanks to **Sue Roethel**, Local Sections Office in Washington, for providing the data for this bar graph.

## Exhibitors

**Air Products and Chemicals, Inc.**  
**Alcott Chromatography, Inc.**  
**Alltech Associates, Inc.**  
**Analtech, Inc.**  
**AT&T Analytical Instruments**  
**Balston, Inc.**  
**Baxter Scientific Products**  
**Beckman Instruments, Inc.**  
**Bio-Rad Laboratories**  
**Bodman**  
**CAMAG Scientific, Inc.**  
**Delta Technical Products**  
**Dionex Corporation**  
**Doe & Ingalls of NC, Inc.**  
**DraChrom**  
**EG&G Berthold**  
**FISONS Instruments**  
**Hewlett-Packard Company**  
**Hydro Service & Supplies, Inc.**  
**Isco, Inc.**  
**Krackeler Scientific, Inc.**  
**LDC Analytical**  
**LEAP Technologies**  
**MAC-MOD Analytical, Inc.**  
**Matheson Gas Products**  
**Millipore - Waters Chromatography**  
**Perkin-Elmer Corporation**  
**Polymer Laboratories, Inc.**  
**Radiomatic Instruments & Chemical Co., Inc.**  
**Raleigh Valve & Fitting Co.**  
**Shimadzu Scientific Instruments, Inc.**  
**Spectra-Physics Analytical**  
**Sun Brokers, Inc.**  
**Tekmar Company**  
**Thomson Instrument Company**  
**Varian Instruments**  
**YMC, Inc.**  
**Zymark Corporation**

**9th Triangle Chromatography  
Symposium & Instrument Exhibit**  
**Thursday, May 14, 1992**  
**Jane S. McKimmon Center**  
**North Carolina State University, Raleigh**

MORNING SESSION, Jim Raymer, Presiding

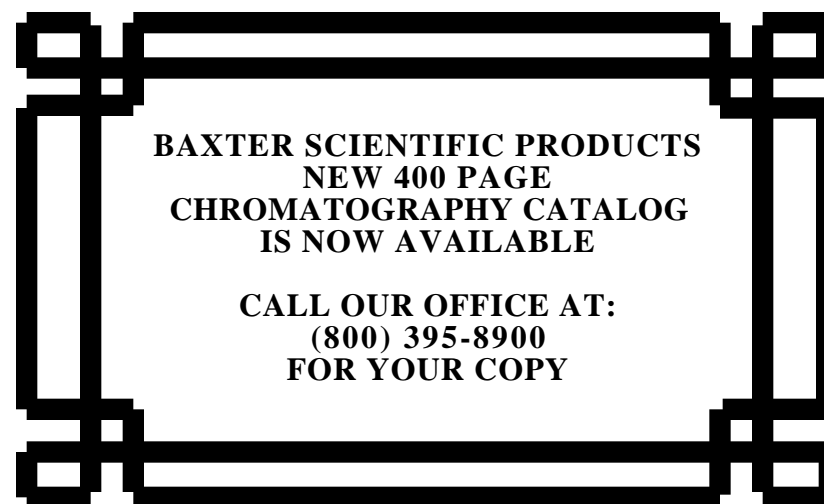
- 8:25 Introduction -- Jim Raymer, TCDG President
- 8:30 Konrad Grob, Kantonaes Labor, "On-Line Coupled LC-GC"
- 9:15 Refreshment Break -- Instrument Exhibit -- Poster Session
- 10:00 Joachim Pleil, Atmospheric Research and Exposure Assessment Laboratory, U.S. Environmental Protection Agency, "Volatile Organic Compounds in the Air We Breathe: Overview of Selected Projects for Measurement Methods Development"
- 10:45 Refreshment Break -- Instrument Exhibit -- Poster Session
- 11:15 Colin F. Poole, Department of Chemistry, Wayne State University "Thin-Layer Chromatography Today"
- 12:00 Luncheon at the McKimmon Center -- Instrument Exhibit --Poster Session

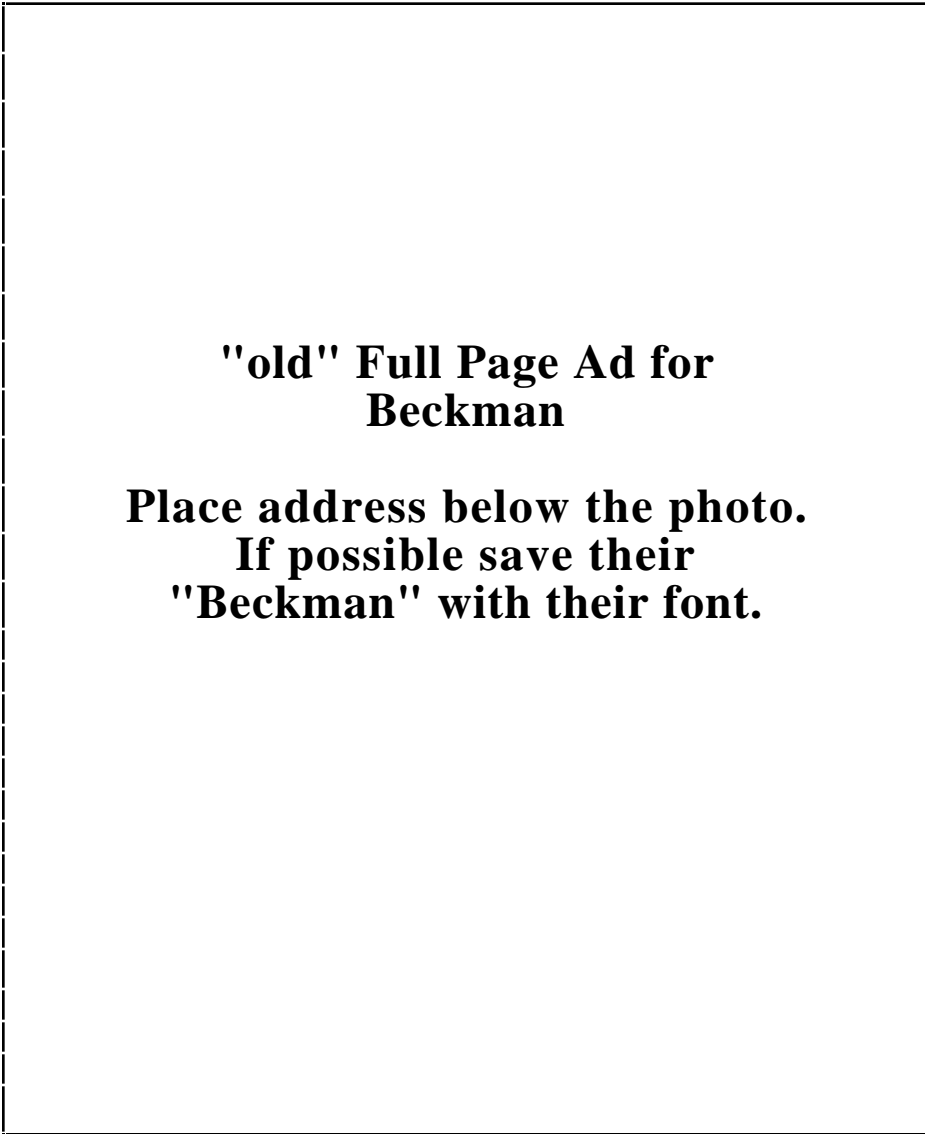
AFTERNOON SESSION, Lou Jones, Presiding

- 1:30 Thomas Doyle, Center for Drug Evaluation and Research, U.S. Food and Drug Administration "Analytical Criteria for Chiral HPLC: Where We are Now"
- 2:15 Refreshment Break -- Instrument Exhibit -- Poster Session
- 3:00 Morteza Khaledi, Department of Chemistry, North Carolina State University "Optimization Strategies for Method Development in Capillary Electrophoresis"
- 3:45 DRAWING -- Refreshment Break -- Instrument Exhibit -- Poster Session
- 4:15 David Compton, Bio-Rad, Digilab Division "Gas Chromatography/Infrared Spectroscopy: A Renaissance?"

**Where would you go** if you had questions about a major purchase of NMR instrumentation or questions about what seems like an intractable separation in liquid chromatography or what if you wondered about how to characterize a certain polymer or wanted to know if mass spectrometry might be a possible technique for characterizing a certain natural product. A source of support might be a topical discussion group. A discussion group offers a way to network with other professionals in your specialty. The NC Section now has four topical discussion groups. Probably, the best way to become involved is by attending one of the meetings which are normally publicized in the *Calendar* (sorry, but we miss some times because information does not reach the editor in time.) Alternatively, contact one of officers listed below:

- Magnetic Resonance Spectroscopy Discussion Group; Don Davis (NIEHS) - 541-1986
- Polymer Discussion Group; Kirk Abbey (Lord Corporation) - 469-3443 x367
- Triangle Area Mass Spectrometry Discussion Group; Robert Voyksner (RTI) - 541-6697 or George Dubay (Duke) - 660-1532
- Triangle Chromatography Discussion Group; Jim Raymer (RTI) - 541-5924





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(201) 818-8900 (NJ)**

## **Registration**

### **9th TCDG Symposium & Instrument Exhibit**

Name: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

City, State and Zip: \_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

Return by May 6, 1992 to:

Dr. Bruce Winston/Cindy Allen  
AOTCS92  
Box 7401  
North Carolina State University  
Raleigh NC 27695-7401

Phone: (919) 515-2261

Registration Fees Include Lunch:

- Advanced Registration:  
\$20 (\$7.50 students)
- On-Site Registration:  
\$25 (\$10.00 students)
- Exhibit Only Registration is free.



**"new" Huffman AD**

## LABORATORY ANALYSTS

Applied Analytical Industries, Inc., a leading provider of services to the pharmaceutical industry, is continuing to expand its operations, creating several laboratory opportunities for technical professionals.

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**"Speaking of Safety"**, is a free publication for teachers (K-12) who are interested in safety. This publication, which appears three times a year, is the Newsletter of the Laboratory Safety Workshop. For a free subscription, call George Wahl at (919) 515-2941 or send your name and address to him at the Department of Chemistry-8204, North Carolina State University, Raleigh NC 27695-8204.

## "old" Galbraith Ad

**Teacher Workshop at Sectional Conference:** For the second year, the Section is hosting a workshop for high school chemistry teachers. This year it is being presented by Chemistry Team 6 of the Woodrow Wilson National Fellowship Foundation. They leaders will present an hour of selected successful demonstrations, experiments and strategies for high school teachers. These curricular materials are designed to bring a little "life" into the traditional introductory high school chemistry course. During the summer, this team presents four one-week workshops for chemistry teachers around the U.S. The team members are all high school chemistry teachers and include:

**Mark Case**, who teaches at Emmaus HS in Emmaus PA. He has received the Eastern Pennsylvania Teacher of the Year Award.

**John Hugo**, who teaches at Carmen-Ainsworth High School in Flint MI. He was the 1990 Nominee for the Presidential Science Award from Michigan. He is a member of the Flint Area Chemistry Teachers Association.

**Linda Stroud**, who is one of our own from Broughton High School in Raleigh. She received the 1991 Presidential Award for Excellence in Science Teaching from North Carolina. She is the 1992 President Elect of the North Carolina Science Teachers Association and is Chairman of the High School Committee of the NC Section of the ACS.

**Clarice Wenz**, who teaches at Goose Creek High School in South Carolina where she was Teacher of the Year and she has also received a Sigma Xi award for excellence in teaching chemistry. She is a member of the ACS.

**Waste Minimization:** One of the most effective ways of minimizing both hazardous wastes and student chemical accidents is by converting General, Organic or Inorganic Chemistry laboratories entirely or in part to "micro-scale." To learn more about this approach which is sweeping the country, several summer workshops offer hands-on experiences. One is the **7<sup>th</sup> Annual NSF Summer Institute on Microscale Organic Laboratory Techniques**, June 15-19. The application deadline is March 23<sup>rd</sup>, which may have passed before you receive this. However, contact Dr. Dana May, Bowdoin College, Brunswick, ME 04011, (207) 725-3218, if you are interested. The emphasis this year is Two Year Community College faculty. If accepted, room, board and text are free. You pay for travel. Another event is **Microscale '92** which focuses on General Chemistry Microscale Experiments. It is held, August 10-14; contact Dr. John Penn, West Virginia University, Morgantown, WV 26506-6045, (304) 293-3068. Tuition, room, board and text are \$600. A limited number of scholarships are available. May 15 deadline.

**"old" Micron Ad**

**"old" BOMEM Ad**

**Design of Safe Chemical Laboratories** is the title of an ACS pamphlet that was just revised by a sub-committee of the National ACS Safety Committee chaired by Local Section Member, Doug Walters of NIEHS. Dr. George Wahl of NCSU is also a member of this committee. This listing of references should be of interest to anyone designing or renovating a laboratory. Single copies are free from ACS at (800) 227-5558. (While you have them on the line, ask for a free, single copy of **SAFETY in Academic Chemical Laboratory, 5<sup>th</sup> Edition.**)



**Workshop for  
High School Chemistry Teachers**

**by**

**Chemistry Team 6  
Woodrow Wilson Foundation**

**10:45 a.m., Venable 268**

**Mark Case**, Emmaus HS in Emmaus, PA

**John Hugo**, Carmen-Ainsworth High School in Flint, MI

**Linda Stroud**, Broughton High School in Raleigh, NC

**Clarice Wenz**, Goose Creek High School in Goose Creek, SC

**50 Year Members**

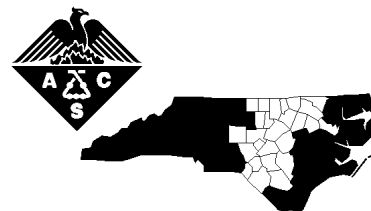
**Thomas A. Bell  
Herman Bogaty  
J. Kenneth Boggs  
Adrian Cubberley  
Robert E. Clayton  
Charles Dickson  
William T. Dye Jr.  
Leon Freedman  
Irving S. Goldstein  
Howard A. Schneider  
Gertrude Spremulli**

**NORTH CAROLINA SECTION  
AMERICAN CHEMICAL SOCIETY**

**106<sup>th</sup> Sectional Conference  
North Carolina Section, ACS**

**and**

**Workshop for  
High School Chemistry Teachers  
by Chemistry Team 6  
Woodrow Wilson Foundation**



**Saturday, April 4, 1992**

**University of North Carolina  
Chapel Hill, NC**

**Registration: Lobby of Venable Hall**

# Analytical I

Venable 308  
G. R. Dubay, Presiding  
Duke University

- 8:20 "In-situ Atomic Force Microscopic Imaging of Electrochemical Formation of Thin Films," J. C. Brumfield, C. A. Goss and R. W. Murray, University of North Carolina
- 8:40 "Electrochemical Measurements of the Effects of Ultrasound on Glassy Carbon," H. Zhang, C. R. Smith and L. A. Coury, Jr., Duke University
- 9:00 "Voltammetric Study of Proton Transport in Dilute Acid Solutions," S. E. Morris and J. G. Osteryoung, North Carolina State University
- 9:20 "Kinetic Studies of Electron Transfer Reactions Between Synthetic Electron Transfer Mediators and Sulfite Oxidase," L. Yang<sup>†</sup>, L. A. Coury, Jr.<sup>††</sup> and R. W. Murray<sup>†</sup>, University of North Carolina<sup>†</sup> and Current address Duke University<sup>††</sup>
- 9:40 "Electrocatalytic Enzyme Reactions with Substituted Catechols as Electron Transfer Mediators," T. J. Moore and L. A. Coury, Jr., Duke University
- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:20 "Kinetics of Reduction of Absorbed Reactants in Square Wave Voltammetry," J. J. O'Dea, M. Seralathan and J. G. Osteryoung, North Carolina State University
- 10:40 "Ultralow Temperature Electrochemistry of Electroactive Alkane Thiol Monolayers," L. M. Tender, L. S. Curtin, S. R. Peck and R. W. Murray, University of North Carolina
- 11:00 "Effects of Cavitation on Electrochemical Processes," C. R. Smith, H. Zhang and L. A. Coury, Jr., Duke University
- 11:20 "Flow Injection Analysis with Voltammetric Detection," L. Mahoney, J. O'Dea and J. G. Osteryoung, North Carolina State University
- 11:40 "An Electrochemical Investigation of the Proximity Effect at a Silver-Coated High Temperature Superconductor," J. N. Richardson, S. R. Peck, L. S. Curtin and R. W. Murray, University of North Carolina
- 12:10 **Awards Program in Venable 207**

# Poster

Outside Venable 221-224  
E. T. Samulski, Coordinator  
University of North Carolina

- 10:00 - Lunch
- 111 "Cytosine Deamination as a Probe of DNA Secondary Structure," S. R. Barry and B. R. Shaw, Duke University
- 112 "The Mechanism of Hydride Addition to Electrophilic [TpW(CO)<sub>2</sub>(NAr)](PF<sub>6</sub>) Nitrene Complexes," L. Luan, M. Brookhart and J. L. Templeton, University of North Carolina
- 113 "Reactions of Cationic Nitrile Complexes with Nucleophiles," S. G. Feng, P. S. White and J. L. Templeton, University of North Carolina
- 114 "Amido Complexes as Precursors to Nitrene Complexes," S. G. Feng, P. S. White and J. L. Templeton, University of North Carolina
- 115 "B-10 Enriched Boro-peptides," W. Powell, A. Sood and B. Spielvogel, Boron Biologicals, Inc.
- 116 "X-Ray Crystallographic Structures of Porphyrins Halogenated at Pyrrole - Positions and Generation of High-Valent Iron Complexes," D. Mandon<sup>†</sup>, J. Fischer<sup>†</sup>, R. Weiss<sup>††</sup>, K. Jayaraj<sup>†</sup>, R. N. Austin<sup>†</sup>, A. Gold<sup>†</sup>, P. S. White<sup>†</sup>, O. Brigaud<sup>†</sup>, P. Battioni<sup>†</sup>, D. Mansuy<sup>†††</sup> and W.E. Hatfield<sup>†</sup>, University of North Carolina<sup>†</sup>, University of Strasbourg<sup>††</sup>, and University of Paris<sup>†††</sup>
- 117 "Investigation of High Dielectric Polymers," I. Magder and W. E. Hatfield, University of North Carolina
- 118 "Synthetic Approaches to Heterocyclic Aromatic Poly(ether ketone)s," S. Berndt, J. Politis, V. V. Sheares and J. M. DeSimone, University of North Carolina
- 119 "Polymerization of Silylene-based Aryl Chlorides via Nickel Coupling Methods," D. Thompson and J. M. DeSimone, University of North Carolina
- 120 "Surface Mediated Halogenation of Alkenes, Alkynes and Arenes," M. M. Baillargeon and P. J. Kropp, University of North Carolina
- 12:10 **Awards Program in Venable 207**

## Poster

Venable Hall  
E. T. Samulski, Coordinator  
University of North Carolina

10:00 - Lunch

- 101 "Evaluation of Protein Drug Separation on a PBD-coated Alumina Column," A. L. Wade and B. A. Whittaker, Becton Dickinson & Co.
- 102 "Three-Dimensional Visualization of Secondary Ion Images," J.-J. Lee, W.-J. Lin, J. L. Hunter, Jr. and R. W. Linton, University of North Carolina
- 103 "The Role of Cytochrome P450 Isozymes in the Enhancement of Carbon Tetrachloride Hepatotoxicity by Methanol," J. W. Allis, J. E. Simmons, B. L. Robinson, A. McDonald and D. E. House, US Environmental Protection Agency
- 104 "Interaction of Inorganic Hg Salts with Model and Red Cell Membranes. Importance of Lipid Binding Sites," M. Delnomdedieu<sup>†</sup> and J. W. Allis<sup>††</sup>, University of North Carolina<sup>†</sup> and US Environmental Protection Agency<sup>††</sup>
- 105 "Requirements for Helical Pairing Examined by Random Mutagenesis in the C-terminal Helix of Cytochrome c," Z. L. Fredericks and G. J. Pielak, University of North Carolina
- 106 "Thermal and Chemical Denaturation of a Novel Disulfide-Bonded Variant of Yeast iso-1-cytochrome c," S. F. Betz and G. J. Pielak, University of North Carolina
- 107 "*In Vitro*, the F82H Variant of Cytochrome c Behaves like Cytochrome c'," S. E. Hilgen and G. J. Pielak, University of North Carolina
- 108 "Direct Measurement of the Weak Interactions Between a Panel of Monoclonal IgG1 Antibodies and Mouse Fc RII Receptor in the Absence and Presence of Hapten Using TIRFM," H. V. Hsieh, C. L. Poglitsch and N. L. Thompson, University of North Carolina
- 109 "Molecular Dynamics Simulations on a de Novo Coiled-Coil Protein," J. E. Rozzelle, B. W. Erickson and A. Tropsha, University of North Carolina,
- 110 "Free-Energy Analysis of the Relative Stability of I and I' Turns," Y. Yan, A. Tropsha, J. Hermans, and B. W. Erickson, University of North Carolina

12:10 **Awards Program in Venable 207**

## Analytical II

Venable 310  
M. G. Khaledi, Presiding  
North Carolina State University

- 8:40 "Operational and Analytical Characteristics of a Low Power N<sub>2</sub> Microwave Induced Plasma," M. P. Dziewatkoski and C. B. Boss, North Carolina State University
- 9:00 "Surface Analysis of Polycyclic Aromatic Hydrocarbons on Coal Fly Ash by Ion Microscopy," T. Fister<sup>†</sup>, R. W. Linton<sup>†</sup>, J. Chakel<sup>††</sup>, F. Radicati<sup>††</sup> and R. Odom<sup>††</sup>, University of North Carolina<sup>†</sup> and Charles Evans & Associates, Redwood City, CA<sup>††</sup>
- 9:20 "Analytical Measurements Using the Radial Evanescent Electric Field of a Surface Wave Plasma," G. H. Webster and C. B. Boss, North Carolina State University
- 9:40 "*In Situ* FT-IR Characterization of the Lithium Electrode Surface by Rapid-Scan Attenuated Total Reflectance and Step-Scan Photothermal Beam Deflection Spectroscopies," R. A. Palmer<sup>†</sup>, S. E. Plunkett<sup>†</sup>, J. M. Widder<sup>†</sup>, and J. L. Chao<sup>††</sup>, Duke University<sup>†</sup> and IBM<sup>††</sup>
- 10:00 "Analysis of Low-Volume Nebulized Samples by Direct Current Plasma Atomic Emission Spectrometry," L. Thompson and C. B. Boss, North Carolina State University
- 10:20 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:40 "The Development of Morphology of Surfaces Exposed to Ion Beams," M. Denker, J. Wall, M. Ray and R. W. Linton, University of North Carolina
- 11:00 "Determination of Micellar Migration Time in Micellar Electrokinetic Chromatography," D. M. Smith, J. K. Strasters and M. G. Khaledi, North Carolina State University
- 11:20 "Three-dimensional Surface Characterization of Conductive Polymer Arrays," K. H. Gray, R. M. Leasure, I. H. Musselman, T. J. Meyer and R. W. Linton, University of North Carolina
- 11:40 "Separation Optimization and Structure-Mobility Relationship Studies in CZE Using Factor Analysis," R. S. Sahota and M. G. Khaledi, North Carolina State University

12:10 **Awards Program in Venable 207**

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## Biochemistry

Venable 220  
J. A. Knopp, Presiding  
North Carolina State University

- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:20 "Comparison of the Association Constants of Five Anti-hapten IgG1 with Mouse Fc RII on J774 Cells in the Presence and Absence of Hapten," M. T. Sumner and N. L. Thompson, University of North Carolina
- 10:40 "NMR Studies of Boronated Nucleosides," B. Banks<sup>†</sup>, A. Sood<sup>††</sup>, B. Spielvogel<sup>††</sup>, B. R. Shaw<sup>†</sup>, Duke University<sup>†</sup> and Boron Biologicals, Inc.<sup>††</sup>
- 11:00 "Cloning and Characterization of Mycoviral Double-Stranded RNA from *Ustilago maydis*," G. R. Buehler, D. E. Ward, C. F. Horton and J. A. Knopp, North Carolina State University
- 11:20 "Surface Binding Kinetics of Bovine Prothrombin Fragment 1 Studied using Total Internal Reflection Fluorescence Photobleaching Recovery," K. H. Pearce, R. G. Hiskey and N. L. Thompson, University of North Carolina
- 11:40 "Progesterone Receptor Can Bind and Regulate Ovine FSH Beta Gene Expression," J.C. Webster, N.R. Pedersen and W. L. Miller, North Carolina State University
- 12:10 **Awards Program in Venable 207**

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## Polymer

Venable 221  
C. M. Balik, Presiding  
North Carolina State University

- 8:40 "Thiophene-based Liquid Crystalline Aromatic Polyamides," S. Stempel<sup>†</sup>, E. T. Samulski<sup>†</sup>, J. M. DeSimone<sup>†</sup> and J. Preston<sup>††</sup>, University of North Carolina<sup>†</sup> and Research Triangle Institute<sup>††</sup>
- 9:00 "Sorption and Reaction of SO<sub>2</sub> with Alkyd Drying Oils," W. H. Si-mendinger and C. M. Balik, North Carolina State University
- 9:20 "Solubility and Diffusivity of Phenyl Ethyl Alcohol in Bromobutyl Rubber," M. A. Hoyt and C. M. Balik, North Carolina State University
- 9:40 "Novel PS-b-PTFE Materials via Perfluoroalkyliodide Telomers," M. O. Hunt, Jr. and J. M. DeSimone, University of North Carolina
- 10:00 "Near Supercritical and Supercritical Fluids as Solvents for Living Anionic Polymerizations," E. Maury and J. M. DeSimone, University of North Carolina
- 10:20 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:40 "Solid-State NMR Characterization of Molecular Motion of PMMA Plasticized by DBP," I. D. Shin and E. O. Stejskal, North Carolina State University
- 11:00 "Polypeptide Films on Gold Surfaces," I. P. Enriquez and E. T. Samulski, University of North Carolina
- 11:20 "Solid State NMR Analysis of Composite Material Model Systems," E. O. Stejskal and J. P. Burgess, North Carolina State University
- 11:40 "Rheo-Optical Polymer Characterization Using 2D FT-IR," V. G. Gregoriou<sup>†</sup>, J. L. Chao<sup>††</sup> and R. A. Palmer<sup>†</sup>, Duke University<sup>†</sup> and IBM<sup>††</sup>
- 12:10 **Awards Program in Venable 207**

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## Physical

Venable 220  
H. H. Carmichael, Presiding  
North Carolina State University

- 9:20 "Aromaticity and Superaromaticity," Z. Zhou, University of North Carolina
- 9:40 "Phase Transitions and Structure of Hydroxybenzoic Acid Isomers," E. A. Heath and Y. Ebisuzaki, North Carolina State University
- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 12:10 **Awards Program in Venable 207**

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## Inorganic

Venable 224  
A. F. Schreiner, Presiding  
North Carolina State University

- 8:40 "Redox Chemistry in Concentrated Acids," X. Chen and T. J. Meyer, University of North Carolina
- 9:00 "Ligand Exchange of Ferric Dihydroxamate Complexes," M. T. Caudle and A. L. Crumbliss, Duke University
- 9:20 "Desilylation Chemistry of  $(\mu\text{-H})_2\text{Fe}_3(\text{CO})_9\text{PSi}(\text{i-Pr})_3$ , a Protected Metallophosphine Ligand", D. L. Sunick, P. S. White and C. K. Schauer, University of North Carolina
- 9:40 "Investigations into the Reactivity of Organoindium and Silylplnicide Reagents: Synthesis and Structure of Novel Rings and Adducts," M. F. Self, R. L. Wells and A. T. McPhail, Duke University
- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:20 "Unusual Reactivities of Group III-V Dimeric and Mixed-Bridge Species: Synthesis and Characterization of Ligand Redistribution Products," L. J. Jones, R. L. Wells, M. F. Self and A. T. McPhail, Duke University
- 10:40 "Fe<sub>3</sub> - Triangle Opening and Closing by Two-electron Transfer in Phosphinidene Bicapped Triiron Clusters," Y. Koide, M. T. Bautista and C. K. Schauer, University of North Carolina
- 11:00 "Synthesis and Characterization of Novel Organogallium-Phosphorus Compounds: Crystal Structures of  $\text{Ph}_2(\text{Cl})\text{Ga}\cdot\text{P}(\text{SiMe}_3)_3$ ,  $\text{Ph}_2\text{GaP}(\text{SiMe}_3)_2\text{GaPh}_2(\text{Cl})$  and  $\text{Ph}_3\text{Ga}\cdot\text{P}(\text{SiMe}_3)_3$ ," S. R. Aubuchon, R. L. Wells, M. F. Self, J. P. Jasinski, R. C. Woudenberg and R. J. Butcher, Duke University
- 11:20 "Origin of Resistivity Anomalies in Ternary Copper Chalcogenides," H. Ro and W. E. Hatfield, University of North Carolina
- 11:40 "Electrochemistry of High Polymeric Phosphazene Polymers," D. C. Cooke, P. Wisian-Neilson and A. L. Crumbliss, Duke University
- 12:10 **Awards Program in Venable 207**

**Organic I**

Venable 223  
A. R. Moorman, Presiding  
Burroughs Wellcome Company

- 8:20 "193 nm Laser Assisted Dechlorination of Phenols in Water," V. R. Thomas, A. F. Schreiner, T.-Y. Xie, J. G. Gratzl and C.-L. Chen, North Carolina State University
- 8:40 "Studies Directed Toward the Total Synthesis of Ginkgolide B," P. G. Nantermet and M. T. Crimmins, University of North Carolina
- 9:00 "Radical Chemistry of Difluoroacrylates," C. L. Bumgardner and J. P. Burgess, North Carolina State University
- 9:20 "Studies Directed Toward the Total Synthesis of Lubiminol," M. T. Crimmins and L. A. McKerlie, University of North Carolina
- 9:40 "Studies Directed Towards the Total Synthesis of Milbemycin D," I. M. Vallin and M. T. Crimmins, University of North Carolina
- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:20 "Reaction of  $F_2^+$  with Aromatic Compounds in the Gas Phase," C. A. Haney, S. T. Purrington and R. D. Voyksner<sup>†</sup>, North Carolina State University and Research Triangle Institute<sup>†</sup>
- 10:40 "Studies Directed Towards the Total Synthesis of Paniculatin," P. S. Watson and M. T. Crimmins, University of North Carolina
- 11:00 "A New Synthesis of  $\beta$ -Lactams," K.-W. Sheu and S. T. Purrington, North Carolina State University
- 11:20 "Total Synthesis of ( $\pm$ )-Bilobalide," M. T. Crimmins, D. K. Jung and J. L. Gray, University of North Carolina
- 11:40 "N-Pentenyl Glycosidation as an Expedient Route Towards the Synthesis of a High-mannose Oligosaccharide," B. Fraser-Reid, J. R. Merritt and T. Handlon, Duke University
- 12:10 **Awards Program in Venable 207**

**Organic II**

Venable 222  
S. G. Levine, Presiding  
North Carolina State University

- 8:20 "A Molecular Rearrangement Experiment for the Undergraduate Laboratory," S. G. Levine and K. Anderson, North Carolina State University
- 8:40 "Synthesis and Characterization of Small Molecule Analogs to Phospholipid-Metal Ion Binding Sites: Structural and Metal Ion Binding Studies," R. G. Hiskey, L. G. Pedersen and J. C. Amburgey, University of North Carolina
- 9:00 "Studies Toward the Enantioselective Synthesis of Eudistomin B," R. P. Polniaszek and S. J. Bell, Duke University
- 9:20 "Model Studies for the Synthesis of Phyllanthocin," W. Kwochka and R. J. Linderman, North Carolina State University
- 9:40 "Regioselective and Stereospecific Substitutions of Dioxaphospholanes," S. A. Evans, Jr. and I. Mathieu-Pelta, University of North Carolina
- 10:00 **Coffee Break and Poster Session Outside Venable 221-224**
- 10:20 "Synthetic Utility of Chiral Oxazaphosphorinanes," S. A. Evans, Jr. and N. J. Gordon, University of North Carolina
- 10:40 "Approaches to Breynolide," N. Cutshall, B. Becicka and R. J. Linderman, North Carolina State University
- 11:00 "Heterocycloadditions of Dienoylphosphonates," S. A. Evans and T. Schuster, University of North Carolina
- 11:20 Radical Rearrangements," N. A. Porter and K. A. Mills, Duke University
- 11:40 "Structural Analysis using Resonance Enhanced Multi-Photon Ionization Spectroscopy," J. W. Driscoll and T. Baer, University of North Carolina
- 12:10 **Awards Program in Venable 207**