

**Organizers: William L. Switzer, Program Chairman
Halbert H. Carmichael, Local Arrangements**

107th Sectional Conference

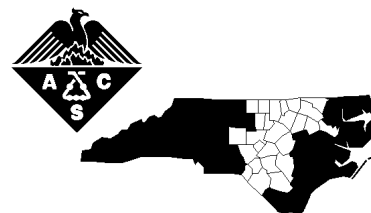
**NORTH CAROLINA SECTION
AMERICAN CHEMICAL SOCIETY**

and

**Annual Meeting of the
North Carolina Institute of Chemists**

50 Year Members

**Morton Harfenist
Homer B. Hix
A. E. Montagna
Harold Russell Murdock, Jr.
Richard L. Phelps
Robert H. Rogge
Robert H. Sprague
Pelham Wilder, Jr.
George M. Wyman
Lloyd R. Zumwalt**



Saturday, April 24, 1993

**North Carolina State University
Raleigh, NC**

**Reservations: Required for lunch but not
for the meeting. See inside cover.**

Directions

For those unfamiliar with the NCSU campus, take I 40 from the Durham-Chapel Hill area (as well as other points west) and exit on the Wade Av. connector just after the Harrison St. exit in Cary. Continue on Wade to Brooks Av., which is the fourth stop light after crossing under the Beltline. Turn right and continue for several blocks until reaching a forced turn at Yarborough on the NCSU campus. Turn left and the Cox-Dabney complex is located on the left in about one block. From other parts of the Raleigh metropolitan area, one may also take the Wade Av. exit from the Beltline, but the Hillsborough St. and Western Blvd. approaches work well too. From Hillsborough St. turn onto campus at Dan Allen Dr. and then left onto Yarborough in one block, just before crossing under the railroad trestle. From Western turn onto campus also at Dan Allen Dr. but turn right onto Yarborough just after crossing under the railroad trestle. From points south, take I 40 or US 401/70 to the southern Beltline heading west. Exit onto Gorman St. and turn right onto Avent Ferry Rd. a short distance after exiting the freeway. Continue onto campus *via* Avent Ferry and turn left at a forced turn on campus. Turn right at the next forced turn onto Dan Allen Dr. and finally turn right onto Yarborough just after the railroad trestle. The Cox-Dabney complex is located on the left in about a block. There should be ample parking in the vicinity of the building.

Reservations

All awardees, speakers, presidors, projectionists and workers are guests of the Section at the luncheon which follows the meeting. Reservations have been made and luncheon tickets sent to all guests, except the awardees. We would appreciate receiving cancellations, however. The luncheon costs \$7 for other members and guests but \$3.50 for students and high school teachers. Please make reservations no later than 5:00 p. m., Wednesday, April 21. 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, 515-2355; 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 Cox-Dabney Hall complex. 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 sold at cost. For those who have made reservations, please buy your luncheon ticket at this table also.

Awards

All 50-year ACS members will be recognized along with representatives from industrial contributors to the Section Conference. During the awards ceremony, the NC Section will also receive a donation from the Mass Spectrometry Discussion Group towards the Scholarship Fund.

The Marcus E. Hobbs Local Section Service Award will be given to **Dr. William E. Hatfield**, University of North Carolina, Chapel Hill. Dr. Hatfield first became active in Local Section activities in the 70's on the High School Committee that gave awards to promising high school chemistry students. During this time he also served on an exploratory awards committee. In the early 80's, he served on the Development Committee for the 1984 Southeastern Regional Meeting. In 1985-86, he was treasurer and was Chair of the Section in 1988. In 1987, his Chair-elect year, he organized the first annual symposium sponsored by the Local Section, "International Symposium on High Temperature Superconducting Materials: Preparations, Properties and Processing." The proceedings of this symposium and one on biosensors, with which he worked, were both published. During his year as Chair, he organized a planning retreat for the Local Section. More recently, he has been Chair of Nominating Committee.

Questionnaire

Please submit comments at the registration table or send them to Bill Switzer, Chemistry Department-8204, North Carolina State University, Raleigh NC 27695-8204.

Is the late date for the meeting acceptable?

Would it be acceptable to return the deadline for titles to the end of February?

For your specialty (please indicate) would you favor extending papers into the afternoon if necessary?

Were instructions to the speakers, presidors, workers, etc. adequate?

Were there correctable problems that you saw in the meeting? Please describe.

Is there anything that you might do to contribute to the meeting organization? If so, please indicate what and give me your name and address.

14 p

Organic

Dabney 220

P. J. Kropp, Presiding

University of North Carolina, Chapel Hill

- 8:20 "Novel Intramolecular Stereocontrolled Alkylation of Mixed Acetals," K. Chen and R. J. Linderman, North Carolina State University
- 8:40 "Siloxanes as Temporary Tethers in [2+2] Photocycloadditions," L. E. Guise and M. T. Crimmins, University of North Carolina, Chapel Hill
- 9:00 "Asymmetric Synthesis of Tributylstannyl Substituted 1,3-Dioxanes," M. Jaber and R. J. Linderman, North Carolina State University
- 9:20 "Conformational Analysis of Methyl Substituted Cyclopentanones," J. W. Driscoll and T. Baer, University of North Carolina, Chapel Hill
- 9:40 "Synthesis of a Radical-Substituted Tetraarylporphyrin - A Building Block for the Construction of Organic Magnetic Materials," D. A. Shultz, North Carolina State University
- 10:00 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:20 "Synthetic Studies Towards (-)-Tetrodotoxin," C. S. Burgey, R. Vollerthun and B. Fraser-Reid, Duke University
- 10:40 "Stereoselective Aldol Reactions of Trialkylstannyl Substituted Acetals," S.-S. Chen and R. J. Linderman, North Carolina State University
- 11:00 "Surface-Mediated Reactions," M. M. Baillargeon and P. J. Kropp, University of North Carolina, Chapel Hill
- 11:20 "Preparation of Galvinol-substituted Terpyridine Complexes," L. W. Morgan and D. A. Shultz, North Carolina State University
- 11:40 "The Synthesis of the Heptasaccharide Portion of the Thy-1 GPI Anchor," C. Roberts, R. Madsen, U. Udodong and Bert Fraser-Reid, Duke University
- 12:10 **Awards Program in Dabney 124**

3 p

North Carolina Institute of Chemists A Division of the American Institute of Chemists

Awards Banquet and Spring Meeting Saturday, April 24, 1993

Walnut Room

**University Student Center
North Carolina State University
Buffet Lunch at 12:30 p. m.**

Student Awards

**Presented by Louis Adcock
University of North Carolina,
Wilmington**

**Distinguished Chemist Award
Thomas J. Meyer
University of North Carolina
Chapel Hill**

**Introduction by Maurice M. Bursey
Presentation by Adrian H. Cubberley, President**

2:30 p. m. NCIC Business meeting

Cost: \$13

**Reservations: Adrian H. Cubberley
110 Charlesberry Ln
Chapel Hill NC 27514**

Phone: (919) 408-0219

Deadline: April 15, 1993

4 p

Analytical I

Dabney 331

J. W. Hines, Presiding

Research Triangle Institute, RTP

- 8:40 "Destruction of Volatile Organic Compounds by a Pulsed Corona Discharge," S. Poteat, C. B. Boss, P. A. Lawless¹, C. Nuñez², and G. Ramsey², North Carolina State University, ¹Research Triangle Institute and ²U. S. Environmental Protection Agency
- 9:00 "Improved Separation of Chiral Pharmaceutical Compounds by Capillary Electrophoresis Using beta-Cyclodextrin and Organic Modifiers," C. Quang and M. G. Khaledi, North Carolina State University
- 9:20 "Development of Secondary Ion Mass Spectrometry (SIMS) as a Micro-Analytical Tool for Biological Tissues," J. G. Goldsmith¹, D. B. Lazof², W. Schroeder³, T. W. Rufty², R. W. Linton¹, ¹University of North Carolina, Chapel Hill, ²North Carolina State University, ³Forschungszentrum Juelich GmbH
- 9:40 "Spectroscopic and Radial Evanescent Electric Field Measurements of an Argon Microwave Induced Plasma," G. H. Webster and C. B. Boss, North Carolina State University
- 10:00 "Fluorinated Bonded Stationary Phases in Micellar Liquid Chromatography," S. Yang and M. G. Khaledi, North Carolina State University
- 10:20 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:40 "Phase Analysis and its Application in Step-Scan FT-IR Photoacoustic Depth Profiling," E. Y. Jiang and R. A. Palmer, Duke University
- 11:00 "Capillary Electrophoresis in Non-aqueous Media," B. Ye and M. G. Khaledi, North Carolina State University
- 11:20 "On-Line Continuous Determination of Individual Dye Concentrations from Spectra of Dye Mixtures in Solution: Deviations from Beer's Law," G. A. Berkstresser, IV, K. R. Beck, C. B. Smith, W. J. Jasper and R. McGregor, North Carolina State University
- 11:40 "Quantitative Retention - Activity Relationships in Micellar Liquid Chromatography," P. S. Joyner and M. G. Khaledi, North Carolina State University
- 12:10 **Awards Program in Dabney 124**

13 p

Polymer

Cox 209

G. M. Balik, Presiding

North Carolina State University

- 10:00 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:40 "Thiophene-Based Polyarylene Ether Ketones and Sulfones," V. V. Sheares, R. S. Archibald and J. M. DeSimone, University of North Carolina, Chapel Hill
- 11:00 "Morphological Behavior of Statistical Copolymers and Block Copolymers with Statistical Blocks," A. Ashraf¹, S. D. Smith¹, S. J. Clarson², and R. J. Spontak³, ¹The Procter & Gamble Company, Cincinnati, ²University of Cincinnati and ³North Carolina State University
- 11:20 "Synthesis and Characterization of Perfluoroalkyl-Terminated Polymers," M. O. Hunt, Jr., A. M. Belu, R. W. Linton and J. M. DeSimone, University of North Carolina, Chapel Hill
- 11:40 "Chemical Reactivity of SO₂ with an Alkyd Paint," G. M. Balik and W. H. Simendinger, North Carolina State University
- 12:10 **Awards Program in Dabney 124**

Physical and Chemical Education

Dabney 623

D. B. Chesnut, Presiding
Duke University

- 9:20 "Ferrimagnetism of Al-Maghemites" L. H. Bowen, A. M. Bryan and E. DeGrave¹, North Carolina State University and ¹Gent University, Belgium
- 9:40 "The Use of Locally Dense Basis Sets for NMR Shielding Calculations," D. B. Chesnut, B. E. Rusiloski, K. D. Moore, and D. A. Egolf, Duke University
- 10:00 "Strategies for Cross Polarization in Tilted Frame: Spin Dynamics and Relaxation," S. Zhang, D. R. Morgan, J. Burgess, E. O. Stejskal and R. E. Fornes, North Carolina State University
- 10:20 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:40 "Why is Reversible Heat Linked to Entropy Change?," J. E. Reissner, Pembroke State University
- 11:00 "Maximum Enhancement of Total Polarization in NMR," S. Zhang, E. O. Stejskal and R. E. Fornes, North Carolina State University
- 11:20 "Hydrolysis of Thymidine Boranophosphate," F. Huang, A. Sood and B. R. Shaw, Duke University
- 11:40 "Cross Depolarization Spectrum in Solids," S. Zhang, I. D. Shin, E. O. Stejskal and R. E. Fornes, North Carolina State University
- 12:10 **Awards Program in Dabney 124**

Analytical II

Dabney 330

L. A. Coury, Presiding
Duke University

- 8:20 "Electrochemical Examination of Mass Transport under Ultrasonic Irradiation," C. R. S. Hagan and L. A. Coury, Jr., Duke University
- 8:40 "Electron Transfer Kinetics by High Frequency Square Wave Voltammetry," U. Kalapathy, J. O'Dea and R. A. Osteryoung, North Carolina State University
- 9:00 "Imaging and Modification of Au (111) Monoatomic Steps with Atomic Force Microscopy," J. C. Brumfield, C. A. Goss¹, E. A. Irene and R. W. Murray, University of North Carolina, Chapel Hill, ¹current address Burroughs Wellcome
- 9:20 "Chemical Amplification of Catechol Hormones and Pharmaceuticals by Mediated Charge Transfer Reactions with Glucose Oxidase," T. J. Moore and L. A. Coury, Jr., Duke University
- 9:40 "Problems of the Ni-W-B Alloy Electrodeposition," N. Isaev and J. G. Osteryoung, North Carolina State University
- 10:00 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:20 "Permeation of Polymer-Tagged Ferrocenes through Thin Films," R. Pyati and R. W. Murray, University of North Carolina, Chapel Hill
- 10:40 "Effects of Ultrasonic Cavitation on Glassy Carbon Electrodes," H. Zhang and L. A. Coury, Jr., Duke University
- 11:00 "Electric Field Driven Electron Hopping in Nafion-Transition Metal Films," R. H. Terrill and R. W. Murray, University of North Carolina, Chapel Hill
- 11:20 "Spectroelectrochemistry for Clinical Analysis," P. A. Flowers, H. Woods, and B. R. Scott, Pembroke State University
- 11:40 "Electrochemical Characterization of Cytochrome c Adsorbed on Carboxylic Acid Terminated Monolayers Assembled on Gold," R. A. Clark and E. F. Bowden, North Carolina State University
- 12:10 **Awards Program in Dabney 124**

Analytical II (Cont.)

Dabney 330

E. F. Bowden, Presiding
North Carolina State University

- 12:10 **Awards Program in Dabney 124**
- 12:45 **Luncheon**
- 1:20 "Differentiation of Kinetic and Diffusional Effects on Single Exocytotic Events Using Flame-Etched Carbon-Fiber Microelectrodes," T. J. Schroeder, J. A. Jankowski and R. M. Wightman, University of North Carolina, Chapel Hill
- 1:40 "Electrochemistry of Cytochrome *c* Peroxidase on Pyrolytic Graphite," D. L. Scott and E. F. Bowden, North Carolina State University
- 2:00 "Kinetic Analysis as a Management Scheme for Voltammetric Data," L. A. Mahoney, J. J. O'Dea and J. G. Osteryoung, North Carolina State University
- 2:20 "A Kinetic Investigation of Ferrocene Thiol Monolayers at Ultralow Temperatures," J. N. Richardson, M. T. Carter, L. M. Tender, R. H. Terrill and R. W. Murray, University of North Carolina, Chapel Hill
- 2:40 "Adsorptive Square Wave Stripping Voltammetry for the Trace Analysis of Azobenzene," Gang Xu, J. J. O'Dea, L. A. Mahoney and J. G. Osteryoung, North Carolina State University
- 3:00 "Electrochemiluminescence at Double-Band Microelectrodes," K. M. Maness, J. E. Bartelt, S. M. Drew and R. M. Wightman, University of North Carolina, Chapel Hill

Inorganic II

Cox 204

H. H. Thorp, Presiding
University of North Carolina, Chapel Hill

- 8:20 "DNA Cleavage Using Osmium and Ruthenium Oxo Complexes," J. G. Goll¹ and H. H. Thorp², ¹North Carolina State University and ²University of North Carolina, Chapel Hill
- 8:40 "Solution Equilibria of Lysinehydroxamatoiron(III) Complex Solutions," I. Spasojevic and A. L. Crumbliss, Duke University
- 9:00 "Determination of the DNA Binding Constants of Metal Complexes by Quenching of the Emission of [Pt₂(P₂O₅H₂)₄]⁴⁻," W. A. Kalsbeck¹ and H. H. Thorp², ¹North Carolina State University and ²University of North Carolina, Chapel Hill
- 9:20 "The Use of Carrageenan to Prepare an Enantioselective Electrode," D. Cooke and A. L. Crumbliss, Duke University
- 9:40 "Thymine-Specific Cleavage of DNA by Octahedral Oxopolypyridylruthenium(IV) Complexes," T. W. Welch¹, G. A. Neyhart², N. Grover² and H. H. Thorp², ¹North Carolina State University and ²University of North Carolina, Chapel Hill
- 10:00 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:20 "Supramolecular Assembly Formation of Al(III), Ga(III), Fe(III) and In(III) Deferriferrioxamine B with 18-6 Crown Ether in Chloroform," I. Spasojevic, I. Batinic-Haberle, P. L. Choo and A. L. Crumbliss, Duke University
- 10:40 "Hydrolysis of Ferrioxamine B in the Presence of Micelles," I. Batinic-Haberle, I. Spasojevic, E. Olmstead and A. L. Crumbliss, Duke University
- 11:00 "Electronic Properties of Aquapolypyridyl Complexes of Ruthenium Bound to DNA," S. R. Smith¹, G. A. Neyhart², W. A. Kalsbeck¹ and H. H. Thorp², ¹North Carolina State University and ²University of North Carolina, Chapel Hill
- 11:20 "Bimetallic Iron(III) Hydroxamic Acid Complexes," M. T. Caudle and A. L. Crumbliss, Duke University
- 11:40 "Magnesium Activated Double-Stranded Cleavage of DNA by [(bpy)₂(H₂O)RuORu(H₂O)(bpy)₂]⁴⁺," N. Grover and H. H. Thorp, University of North Carolina, Chapel Hill
- 12:10 **Awards Program in Dabney 124**

10 p

Inorganic I

Cox 200

R. L. Wells, Presiding
Duke University

- 9:20 "Synthesis, X-Ray Structures and Reactivity of Neopentylindium Chlorides and Trimethylsilyl Plnicide Derivatives. Unusual Products from Straight-forward Reaction," M. F. Self, A. T. McPhail, L. J. Jones III and R. L. Wells, Duke University
- 9:40 "Fluorine Incorporation in Dibenzotetraaza[14]annulene Macrocycles," B. W. Knight, S. T. Purrington and R. D. Bereman, North Carolina State University
- 10:00 "Preparation and Thermal Decomposition of Compounds of the General Formula $[X_2GaP(SiMe_3)_2]_2$, (X = Cl, Br, I); New Precursors to GaP," S. R. Aubuchon, M. F. Self, R. C. Woudenberg¹, J. P. Jasinski¹, R. J. Butcher², A. T. McPhail and R. L. Wells, Duke University, ¹Keene State College and ²Howard University
- 10:20 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 10:40 "Rational Approaches to Extended Assemblies: Synthesis and Reactivity of the Triiron Cluster $Fe_3(CO)_9(\mu_3-PH)_2$," M. T. Bautista, P. S. White and C. K. Schauer, University of North Carolina, Chapel Hill
- 11:00 "Chemistry of Aluminum-Phosphorous Compounds: X-Ray Crystal Structures of $[Et_2AlP(SiMe_3)_2]_2$, $Et(Cl)_2Al\cdot P(SiMe_3)_3$ and $[i-Bu_2(Cl)Al\cdot P(SiMe_3)_3]$," J. A. Laske, M. F. Self, A. T. McPhail and R. L. Wells, Duke University
- 11:20 "Effects of Symmetry on Compound 1 Models," R. N. Austin, W. E. Hatfield, R. Weiss, A. Gold and A. X. Trautwein, University of North Carolina, Chapel Hill
- 11:40 "Chemical Vapor Deposition of Refractory Metal/Metal Boride Thin Films," S. S. Kher¹ and J. T. Spencer², ¹current address, Duke University and ²Syracuse University
- 12:10 **Awards Program in Dabney 124**

7 p

Biochemistry

Cox 209

E. C. Bigham, Presiding
Burroughs Wellcome Company

- 8:20 "Probing Weakly-polar Interactions in Cytochrome c," A. J. Saunders, D. S. Auld, S. F. Betz, D. Doyle, G. Young and G. J. Pielak, University of North Carolina, Chapel Hill
- 8:40 "Synthesis of Multisubstrate Analogue Inhibitors of GAR Transformylase," E. C. Bigham, W. R. Mallory and S. J. Hodson, Division of Organic Chemistry, Burroughs Wellcome Co.
- 9:00 "Spectroelectrochemical Investigation of Hemoglobin Alpha and Beta Sub-unit Heterogeneity Using Mixed Metal Hybrids," K. Kane-Maguire, K. M. Faulkner, B. M. Hoffman and A. L. Crumbliss, Duke University
- 9:20 "9-(((Phosphono)alkyl)benzyl)guanines, Multisubstrate Inhibitors of Human Erythrocyte Purine Nucleoside Phosphorylase," J. L. Kelley¹, J. A. Linn¹, E. W. McLean¹ and J. V. Tuttle², ¹Division of Organic Chemistry and ²Experimental Therapy, Burroughs Wellcome Co.
- 9:40 "Chemically-induced Tandem Double Mutant," H. Chen and B. R. Shaw, Duke University
- 10:00 "Immobilized Metal-ion Affinity Gel Electrophoresis of Cytochrome c," L. D. Holmes, A. A. Serag, S. D. Plunkett, R. J. Todd and F. H. Arnold¹, Pembroke State University and ¹California Institute of Technology
- 10:20 **Coffee Break and Poster Session 1st Floor Dabney-Cox**
- 12:10 **Awards Program in Dabney 124**

Poster

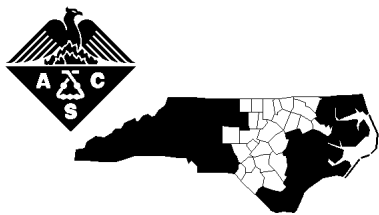
First Floor Dabney-Cox
H. H. Carmichael, Coordinator
North Carolina State University

10:00 - Lunch

- 101 "Adsorption Studies of Horseradish Peroxidase Upon Interaction with a Weakly Hydrophobic System," A. J. Aschman and C. H. Lochmüller, Duke University
- 102 "Flow Injection Analysis Using High Sensitivity Optical Rotation Detection," C. A. Goss, D. C. Wilson and W. E. Weiser, Analytical Development Laboratory, Burroughs Wellcome Company
- 103 "Retention Behavior of Poly(ethylene glycol)s in Reversed-phase Liquid Chromatography," C. Jiang and C. H. Lochmüller, Duke University
- 104 "Surface Migration of Bonded Chains on Silica," L. Huang and C. H. Lochmüller, Duke University
- 105 "Comparison of Total Weight Gain vs. Corrosion Film Thickness Using Coulometric Reduction in Accelerated Gaseous Testing Environments," E. Huang¹ and J. L. Chao², ¹IBM Coop from North Carolina State University and ²IBM Corporation
- 106 "Mediated Electron Transfer between Flavoenzymes and Oxidized Tylenol," G. Nam and L. A. Coury, Jr., Duke University
- 107 "Spectrophotometric and Electrochemical Studies of Modified-Peroxidase Catalysis in Organic Solvents," L. Yang and R. W. Murray, University of North Carolina, Chapel Hill
- 108 "¹H NMR Assignment for Y97F Iso-1-cytochrome *c*," Z. L. Fredericks and G. J. Pielak, University of North Carolina, Chapel Hill
- 109 "A Photochemical DNA Synthesis Method for the Preparation of Large Arrays of DNA Sequences," M. C. Pirrung, D. C. Lever and S. W. Shuey, Duke University
- 110 "Amide Proton Exchange Studies of Yeast Iso-1-cytochrome *c*," J. L. Marmorino, D. S. Auld, S. F. Betz, G. Young and G. J. Pielak, University of North Carolina, Chapel Hill
- 111 "Molecular Mechanisms of the Mycotoxin Moniliformin," S. K. Nauhaus, M. C. Pirrung and R. T. Ludwig, Duke University
- 112 "The Thermodynamics of Iso-1-cytochrome *c* Denaturation," D. S. Cohen and G. J. Pielak, University of North Carolina, Chapel Hill

- 113 "Theory for Measuring Bivalent Surface Kinetics Using Total Internal Reflection with Fluorescence Photobleaching Recovery," H. V. Hsieh and N. L. Thompson, University of North Carolina, Chapel Hill
- 114 "Translational Diffusion of Fragment 1 Weakly Bound to Supported Planar Membranes," Z. Huang K. H. Pearce and N. L. Thompson, University of North Carolina, Chapel Hill
- 115 "Dielectric Investigation of Cu²⁺ Polymers," G. Abell and W. E. Hatfield, University of North Carolina, Chapel Hill
- 116 "Investigation of Dielectric Properties in Polymer Electrolytes," I. Magder and W. E. Hatfield, University of North Carolina, Chapel Hill
- 117 "Synthesis, Structure and Reactivity of Vanadium Complexes Containing Deprotonated Amide Ligands," E. P. Zovinka, Y. Boyajian, T. Sutherland, P. Singh and C. R. Cornman, North Carolina State University
- 118 "X-ray Structure Determination of (3,5-dicholoanilium)₈[CuCl₆]Cl₄," Z. Shi, W. E. Hatfield and P. White, University of North Carolina, Chapel Hill
- 119 "Determination of Chemical Shifts *via* Hydrogen-Deuterium Exchange," S. Cukla and S. G. Levine, North Carolina State University
- 120 "Oxidation of Substituted Imidazoles to Hydantoins-A Novel Reaction," T. Allen, C. Ress, C. Barringer and P. Maffuid, Glaxo Research Institute
- 121 "Photoremovable Protecting Groups for the Phosphorylation of Chiral Alcohols," S. W. Shuey, M. C. Pirrung and D. C. Lever, Duke University
- 122 "Cationic Polymerizations in Supercritical Fluids," M. R. Clark and J. M. DeSimone, University of North Carolina, Chapel Hill
- 123 "Functionalization of Living Anionic Chain Ends with Chlorosilane Derivatives," M. Peters, A. M. Belu, R. W. Linton and J. M. DeSimone, University of North Carolina, Chapel Hill
- 124 "Heterogeneous Polymerizations in Supercritical Carbon Dioxide," E. E. Maury, J. R. Combes, Y. Z. Menciloglu, H. Batten, S. Killian and J. M. DeSimone, University of North Carolina, Chapel Hill
- 125 "Homogeneous Polymerization in Supercritical Carbon Dioxide," Z. B. Guan and J. M. DeSimone, University of North Carolina, Chapel Hill
- 126 "Polymer Syntheses in Supercritical Fluids," J. R. Combes, J. M. DeSimone, Z. B. Guan and E. E. Maury, University of North Carolina, Chapel Hill

12:10 **Awards Program in Dabney 124**



The TarHelium

Volume 23, Number 8

April 1993

NORTH CAROLINA SECTION AMERICAN CHEMICAL SOCIETY

107th Conference of the North Carolina Section American Chemical Society

and

Annual Meeting of the North Carolina Institute of Chemists

Saturday, April 24, 1993

North Carolina State University
Raleigh NC

Registration: See program inside

High School Teachers: Workshop
May 1; see p. 3

Polymer Group: Student Poster Session
May 13; see p. 3

TCDG: 10th Annual Exhibit and Symposium
May 27; see p. 4

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

Executive Committee:

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C. G. Moreland (NCSU), Past Chairman '92
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D. M. Preiss (NCSU-Ret.), Past Chairman '90
M. M. Bursey (UNC), *Ex Officio*
E. L. Eliel (UNC), *Ex Officio*
S. C. Brown (Glaxo), *MRSDG, Ex Officio*
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Publication Policy

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.

W. L. Switzer, Editor, Advertising
S. T. Purrington, Assistant Editor

Please direct all correspondence and submissions to the attention of the editor:

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Raleigh NC 27695-8204

Internet:
bill_switzer@ncsu.edu
(919) 515-2945
(919) 515-5079 (FAX)

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:

Manager, Membership &
Subscription Services
American Chemical Society
P. O. Box 3337
Columbus, OH 43210


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

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.

Voice Information:
(919) 541-7183 Box 10

National ACS meetings:
August 22-27, 1993, Chicago
March 13-18, 1994, San Diego
August 21-26, 1994, Washington
April 2-7, 1995, Anaheim
August 20-25, 1995, Chicago

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Application for Membership in TECH

Please enroll me as a member of the Probationary Division for 1993. Enclosed is a check payable to the probationary Division of Chemical Technicians for the indicated membership category:

_____ACS member, \$3.00
 _____Non ACS member, \$5.00
 _____Full time student \$2.50

I would like to suggest the following symposia topic(s):

Voluntary contribution \$ _____

Name: _____ACS Member Number: _____

Mailing Address: _____

City _____ State _____ Zip Code _____

Please return to:	For additional information contact:
Treasurer, TECH	Michael Cisneros, Membership Chair
American Chemical Society	Los Alamos, National Labs
P. O. Box 3337	TA-48, INC-12, MS J514
Columbus, Ohio 43210	Los Alamos, NM 87545
(800) 872-4396	(505) 667-9164

(Application Form from *The TarHelium*, North Carolina Section ACS)

Corrections

The notice in the March *TarHelium* reporting the deaths of Dr. Ezra L. Totten and Dr. E. J. Van Loon was incorrect.

High School Committee Plans Workshop

The ACS sponsored High School Chemistry Workshop will be held on Saturday, May 1 from 8:30 to 12:30 at the NC School of Science and Mathematics in Durham. This arrangement is a departure from previous years when this event was held as part of the Spring Conference of the NC Section. If you or anyone you know are interested in the High School Chemistry Workshop, call Sarah Allen, Chair of the High School Chemistry Education Committee at (919) 286-3366 or write Sarah Allen, NCSSM, 1219 Broad St., Durham NC 27705.

Plans are under way for M. Halpin, L. Knecht, K. Currie, C. Roser, S. Allen (all from the NCSSM) and C. Morse (Chapel Hill HS) to present a variety of student labs, activities and demonstrations. Topics to be addressed are those common to most chemistry courses or topics which would be considered enrichment in such courses. Included will be aqueous chemical Equilibria, salt hydrolysis, buffering, chemical bonding in solids, chemical kinetics, IBM PSL computer interfacing for data acquisition, polymer chemistry in general chemistry and electrochemistry. A new video entitled "People Who Took Chemistry, That's Who" has been ordered along with its user's guide for preview. This video, announced in the ACS publication ACCESS, is intended to promote interest in chemistry among high school students.

Ken Cutler, Project SEED coordinator for the Section, will speak briefly about Project SEED, the ACS's career education and social action program that helps expand the career outlook of high school students from families defined as economically disadvantaged by federal poverty guidelines.

Polymer Group Meeting

Thursday, May 13, 1993

North Carolina State University Faculty Club
 4200 Hillsborough St.

Student Poster Session

5:30 p. m. Social Hour
 6:30 p. m. Dinner[†] (members-guests: \$15; students \$8)
 7:30 p. m. Lecture

[†]Reservations by noon, Tuesday, May 11, with Walter Pawlowski (919) 543-2243 (IBM-RTP).

Fall Symposium Planned

The fall symposium will be on molecular modeling. To express interest in working with this symposium, call Alex Tropsha, University of North Carolina, Chapel Hill at (919) 966-2955.

Tenth Triangle Chromatography Symposium and Instrument Exhibit

Sponsored by

**Triangle Chromatography Discussion Group
of the North Carolina Section
American Chemical Society**

Thursday, May 27, 1993

**Jane S. McKimmon Center
Raleigh, North Carolina**

Symposium Schedule

**MORNING SESSION -- Meeting Room
Louis Jones, Presiding**

- 8:25 Introduction - Louis Jones, TCDG President
- 8:30 Charles H. Lochmüller, Department of Chemistry, Duke University, "Predicting Retention Behavior in HPLC: Current Status of Empirical and Theoretical Approaches"
- 9:15 Refreshment Break - Instrument Exhibit - Poster Session
- 10:00 Margaret Mills, United States Geological Survey, Lawrence KS, "Solid Phase Extraction: Review of a Sample Preparation Tool"
- 10:45 Refreshment Break - Instrument Exhibit - Poster Session
- 11:15 Ira Krull, Department of Chemistry, Northeastern University, "Polymeric Reagent Derivatization of Trace Drugs in Biofluids"
- 12:00 Luncheon at the McKimmon Center - Instrument Exhibit - Poster Session

Huffman AD

Regional Meetings

October 4-6, Pittsburgh PA, Abstract Deadline May 15, Contact: E. Ray McAfee, Publicity Chairman, 25th Central Regional Meeting, American Chemical Society, Mobay Rd, Pittsburgh, PA 15205

October 24-27, Austin TX, Contact: Alan H. Cowley, Department of Chemistry and Biochemistry, University of Texas, Austin, TX 78712

New Division for Technicians

Everyone that works in the chemical industry realizes the important contributions that chemical technicians make daily. In a rapidly advancing, highly technical society, there is a growing need for dedicated, conscientious technicians to contribute to the efforts of the scientific team. The demands made upon the chemical technician has evolved tremendously from lab helper to contributing member of the team. The changing roles of chemical technicians is dictated by the requirements of chemical industry. With the awareness of these changes, the American Chemical Society (ACS) created the Committee on Technician Activities (CTA) in 1966, and in 1971 the National Conference of Chemical Technicians (NCCTA). Twenty years later the Society's CTA and NCCTA saw the need for the creation of a new Division within the ACS for chemical technicians. This Division, referred to as the probationary Division of Chemical Technicians (TECH) was created at the Fall ACS National Meeting in 1991, and replaces the NCCTA.

There are several criteria for a probationary Division to be granted full Division status. As part of this procedure, TECH must obtain 250 Full ACS Members as Members of its Division by the end of the probationary period August 1994.

The key goals of TECH are to promote the formation of new Technician Groups (TG's) throughout the country; coordinate technician symposia and workshops at every National Meeting and many Regional Meetings, and to act as a communication and information body to assist local TG's.

Because we are a new Division, we must inform ACS members and technicians who work with them of our existence, and encourage them to become ACS and TECH Division members. Please pass on this information to interested individuals. Current ACS members who endorse our cause can support our efforts by becoming a TECH Division member. An application for is attached below:

SCIENCE AND MATHEMATICS PARTNERSHIP

VOLUNTEER REGISTRATION FORM *via NC Section ACS*

I am willing to volunteer to share my interest in science, engineering, medicine and mathematics with Triangle area teachers and students. I understand that filling out this form does not obligate me to any commitments, but only indicates my willingness to consider request for assistance that would be made by Partnership staff.

NAME: _____

POSITION/COMPANY: _____

Check prefers correspondence location:

p WORK ADDRESS: _____

p HOME ADDRESS: _____

PHONE: _____(W) _____(H)

MY specialty area in science/math/engineering: _____

OTHER interests potentially related to science/math/engineering I could share with students and teachers: _____

We wish to provide positive role models and encouragement for groups underrepresented in science and engineering. If you would be willing to specifically assist us in this regard, please let us know if you are a member of such a group (e.g. black, American Indian, female, etc.) _____

I could meet with school children and their teachers (1, 2, 3 or more) _____ times per _____(month, semester or year)

I prefer to volunteer at the following times or on the following days: _____

I prefer meeting with students in grades: _____

I am willing to visit schools in the following school districts in the greater Research Triangle area:

___ Granville County ___ Chapel Hill/Carrboro ___ Chatham County

___ Durham County ___ Orange County ___ Wake County

Although I understand my name and other information on this form will not be released without my permission, I do / do not (*circle one*) wish my name to be shared with other volunteers who want to discuss a particular activity.

Have you visited elementary, middle, or secondary school students and teachers before? _____

If yes, how often, what did you do, where and when did you do it? _____

(Send to: Judy Elson, Research Triangle Science and Math Partnership, 410 Oberlin Rd., Suite 410, Raleigh NC 27605, 733-4745 or (800) 972-0429)

AFTERNOON SESSION -- Meeting Room John Hines, Presiding

- 1:30 Calvin Giddings, Department of Chemistry, University of Utah, "Separation and Characterization of Macromolecules and Colloids by Field-Flow Fractionation"
- 2:15 Refreshment Break - Instrument Exhibit - Poster Session
- 3:00 Bert Gordon, R. J. Reynolds Tobacco Co., Winston-Salem NC, "Industrial Application of Hyphenated GC Techniques"
- 3:45 DRAWING - Refreshment Break - Instrument Exhibit - Poster Session
- 4:15 Robert Maxwell, United States Department of Agriculture, Philadelphia PA "Trace Level Analyte Recovery from Biological Matrices by Supercritical Fluid Extraction"

1993 Symposium Exhibitor List

- | | |
|----------------------------------|---------------------------------------|
| Ace Glass, Inc. | Hitachi Instruments, Inc. |
| Alltech Associates, Inc. | Hydro Service & Supplies, Inc. |
| Analtech, Inc. | Isco, Inc. |
| Applied Biosystems, Inc. | JASCO |
| Applied Separations, Inc. | Justice Innovations, Inc. |
| Autochrom, Inc. | Kozoman Instruments |
| Balston, Inc. | Krackeler Scientific, Inc. |
| Baxter Scientific Products | LDC Analytical |
| Beckman Instruments | LEAP Technologies |
| Bio-Rad Laboratories | Matheson Gas Products |
| Bioscan, Inc. | Millipore - Waters Chromatography |
| Bodman Industries | Packard Instrument Company |
| CAMAG Scientific, Inc. | Perkin-Elmer Corporation |
| Chromatography Research Supplies | Rainin Instrument Company |
| Curtin Matheson Scientific | Raleigh Valve & Fitting Co. |
| Delta Technical Products Company | SCI-CON/Peak Scientific |
| Doe & Ingalls of NC, Inc. | Shimadzu Scientific Instruments, Inc. |
| DraChrom | Spectra-Physics Analytical |
| EM Science | Sun Brokers, Inc. |
| ESA, Inc. | Tekmar Company |
| Fisher Scientific Company | Thomson Instrument Company |
| FISONS Instruments | Varian Instruments |
| Hamilton Company | VWR Scientific |
| Hewlett-Packard Company | YMC, Inc. |

Scholarship Committee Solicits Nominees

Dr. James L. Chao, Chairman of the NC ACS Scholarship Committee is soliciting undergraduate nominees for scholarships from the Section. Last year the Committee received 30 applications and were able to give six awards of \$750 each. The purpose of these undergraduate scholarships is to assist potential candidates in participating in scientific research programs at their schools.

These funds will be awarded on a competitive basis and are intended to be used for the direct benefit of the student to pay for incidental expenses related to chemical research (books, library searches, personal computer materials, trips for scientific meetings or interviews, etc.) Contact Dr. James L. Chao, Chairman of the NC ACS Scholarship Committee, IBM Corp., P. O. Box 12195, Dept. E81/61, Research Triangle Park NC 27709 for a copy of the one-page application form.

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Free Periodic Table Wall-Charts

Galbraith Laboratories announced that attractive 22" x 17" periodic charts are available in reasonable quantities free from Galbraith Laboratories, Inc., P. O. Box 51610, Knoxville TN 37950-1610, (615) 546-1335.

Industrial Extension Service Workshops

Right-to-Know: SARA, Title III, and OSHA/Hazard Communication May 10, Charlotte NC June 7, Wilmington NC

SARA Training for Chemical Spill Response May 7, Wilmington NC

Techniques and Practices: Managing Underground and Above-ground Storage Tanks April 22, Greensboro

Hazardous Chemicals: Safe Practices and Procedures June 9-10, 1993 Raleigh

Scientist Partners with Local Schools

by Robert W. Shaw, Army Research Office, RTP

Last week I spent an hour with twenty elementary school kids doing experiments and talking about "energy from chemicals". I enjoyed it and they appeared interested. They watched carefully, participated with enthusiasm and wrote to me the next day. Their letters showed that they mostly understood what I had been talking about.

That opportunity came to me through the "Research Triangle Science and Mathematics Partnership". The process began when I filled out a volunteer application listing my skills and interests. The Partnership matched my application with requests from local teachers and called me with the names of my teacher-contacts at a local school. The teachers told me that they wanted a demonstration on "energy from chemicals". We scheduled a planning meeting and my visit to the class followed.

The Partnership, supported by an NSF grant, is directed by Dr. Joyce Hilliard Clark. They have 900 scientist volunteers now and continue to add more. The schools ask mostly for visitors to kindergarten through fifth grade. Dr. Clark says that the Partnership needs chemists but flexible ones - able to speak about ecology and plants and animals, about chemistry of the body and medicine, and so on; there are many topics.

The Partnership has numerous other programs. "Scientists in Residence" matches a scientist with a class for a year. The scientist serves as a resource for the teacher and visits the class periodically as a scientific mentor. "Teachers in Industry" arranges for teachers to visit industrial labs for a day or more.

The Partnership now includes elementary and middle schools in Chapel Hill/Carrboro, Chatham, Durham, Orange, Granville and Wake County schools. If you want to be a partner with a local school, complete the application form below.

Sakura Fund Started at UNC

Dr. Sachiko Sakura-Chapman, 46, Senior Research Scientist, Kibun R&D Office in the USA, a subsidiary of Kibun Foods Inc., Tokyo, Japan died November 14, 1992. Dr. Sakura-Chapman received her BS, MS and Ph. D. in Electroanalytical Chemistry, all at Kyoto University, Japan. She taught upper level chemistry courses at Fukuyama University, Fukuyama, Japan before moving to Chapel Hill in 1989. Before her death, she published almost 50 papers and 3 books. She participated in research projects dealing with immunochemistry, development of biosensors for blood analysis and sensors for cardiovascular research especially pH sensors for detection for fetal distress.

Dr. Sakura-Chapman's friends, family and associates have expressed a desire to endow a research fund in her memory in the Chemistry Department at the University of North Carolina, Chapel Hill. "The Sachiko Sakura Chemical Research Memorial Fund" will annually benefit students concentrating in chemistry, with preference given to a female Japanese graduate student involved in chemical research or to a Japanese or other international student focusing on chemical research. Those wishing to contribute to the fund can make memorial gifts to:

UNC-CH Arts and Science Foundation
Attn: The Sachiko Sakura Chemical Research Memorial Fund
104 New West, CB 6115
Chapel Hill NC 27599-6115

New NIH Network Formed

Painfully, the prospect of obtaining research funding through NIH is expected to grow even worse than it is today. In order to address this growing crisis, the ACS has created the *National Institutes of Health Network*, which consists of ACS members concerned about NIH funding. Your participation in the Network will be crucial if the scientific community is to remedy the problems of shrinking NIH funds. It is essential that researchers become engaged with the science policy issues affecting funding decisions made by Congress. Currently, the basic research enterprise faces heavy congressional scrutiny. Its value and benefit to society are being seriously questioned. Consequently, Congress has begun paring back support for basic research available at NIH. Congress needs to hear from the research-intensive community how it utilizes the public's money for the betterment of the Nation. Network membership will facilitate your communicating this to Congress by providing you with information about your members of Congress, important congressional activities related to NIH funding, and alerts when your action is required to inform your members of Congress of the importance of health-related basic research funded by NIH. To become a member of the Network and to join the growing community supporting NIH funding is simple. Just call the ACS at (202) 452-2127 and ask that a sign-up form be faxed or mailed to you. It's that easy!

Oneida Ad

E-mail Distribution List Grows

Nearly 100 people who have access to e-mail are on the distribution list to receive reminders of all Local Section events as well as announcements of job openings that come to the Editor. The messages are kept short to minimize their becoming a bother. Currently individuals are connected though Internet, Bitnet and CompuServe. There is a standing offer to include anyone on this list who has access to e-mail via an external network. Contact the Editor with your e-mail address via Internet: bill_switzer@ncsu.chem.

Local News

Boron Biologicals: Boron Biological, Inc. (BBI) has signed a Cooperative Research and Development Agreement (CRADA) with the US Department of Energy's Brookhaven National Laboratory to develop and test boron compounds for a novel cancer treatment called Boron Neutron Capture Therapy (BNCT). This technique delivers cell-killing radiation to cancerous tumors without harming surrounding normal cells. BBI is one of only a handful of Research Triangle Companies to sign a CRADA, a joint research and development effort between a company or organization and a federal lab. Under the agreement, BBI will continue to develop new boron compounds and production procedures for these compounds. The new compounds and procedures will be evaluated at Brookhaven and commercialized by BBI.

"This cooperative research program should ensure that a high-quality source of boronated compounds is available for BNCT clinical trials, which will begin this year," said Charles R. Krause, BBI president. "BBI's ongoing research program under the agreement will seek new ways to produce these compounds more cost-effectively, thus lowering its cost to patients. The program will also seek more effective ways to deliver the drug specifically to cancer cells. The net effect should be to establish the efficacy of BNCT as quickly as possible."

BNCT involves administering a boron compound called p-boronophenylalanine to a cancer patient. The compound concentrates at the cancerous tumor site. When the tumor is irradiated with a low-energy beam of neutrons, the boron compound captures the neutrons. This causes the compound to become unstable and emit radiation, selectively destroying the tumor cells while leaving surrounding healthy tissue unharmed. BNCT has applications in combating skin cancers and deadly brain tumors. BBI is the sole US manufacturer of the boron compounds used in BNCT.

Burroughs Wellcome: The US Food and Drug Administration's Peripheral and Central Nervous System Advisory Committee has recommended that Lamictal® brand lamotrigine be approved as add-on therapy for adult epilepsy patients who experience partial seizures despite current drug therapy. The committee made its unanimous recommendation after reviewing and evaluating the available data on the drug's use in epilepsy patients with poorly controlled seizures. The committee's recommendation, while not binding, will be considered by the FDA in its review of the new drug application (NDA) for Lamictal.

Studies to determine the clinical efficacy and safety of Lamictal were conducted in patients with partial seizures who required more than one anticonvulsant to control their seizures. Approximately 4,700 patients in the US and throughout the world have received Lamictal in clinical programs. Two double-blind, placebo-controlled studies conducted at approximately 20 US centers found that patients who received Lamictal experienced a significant reduction in partial seizure frequency. Adverse reactions were generally mild and resolved without counter-measures or discontinuation of Lamictal. They included neurological side effects common in this population such as dizziness and double vision as well as headache, nausea and rash.

It has been almost 15 years since a new antiepileptic drug was introduced in the US. Although many epilepsy patients are able to control their seizures through current antiepileptic drugs, as many as 45% with partial epilepsy experience seizures despite therapy. Many of the current medications have side effects that are problematic and limit their clinical usefulness. Since Lamictal does not alter the blood concentrations of the most commonly used antiepileptic drugs, it can easily be added to existing regimens. "There is a need to provide epilepsy patients who experience seizures not adequately controlled by current antiepileptic drugs with additional therapies," said Dr. Richard Kent, vice president of medical affairs at Burroughs Wellcome Co. "We believe that Lamictal will play an important role in reducing seizures and improving the quality of life for these patients."

Lamictal® is currently licensed as add-on therapy for patients with refractory partial seizures in 10 countries including Ireland and the United Kingdom.

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; 3 credits, 8:00-9:15 TTh; DeSimone
 CH 130 Introduction to Biological Chemistry; 3 credits, 11:00-12:15 TTh, Erickson
 CH 132 Protein Chemistry; 3 credits, 8:00-9:15 TTh; Pielak
 CH 136L Laboratory Techniques for Biochemistry; 3 credits, 12:00-12:50 M and 1:00-4:50 TTh; Errede
 CH 138 Chemistry of Metabolic Regulation; 3 credits, 10:00-10:50 MWF, Spermulli
 CH 142 Analytical Research Techniques; 2 credits, 9:00-9:50 MWF; Wightman
 CH 142L Laboratory in Analytical Research Techniques; 2 credits, 1:00-4:50 MTh, Wightman
 CH 148 Mass Spectrometry; 2 credits, 10:00-10:50 MWF; Glish
 CH 150 Intermediate Inorganic Chemistry; 3 credits, 9:00-9:50 MWF, Templeton
 CH 151 Theoretical Inorganic Chemistry; 3 credits, 8:00-8:50 MWF; Schauer
 CH 166 Advanced Organic Chemistry I; 3 credits, 9:30-10:45 TTh; Crimmins
 CH 170L Synthetic Chemistry Laboratory; 2 credits, 12:00-12:50 W and 1:00-4:50 WTh, Hatfield
 CH 175 Mechanisms of Organic and Inorganic Reactions; 4 credits, 11:00-11:50 MWF and 1:00-1:50 F; Meyer and Brookhart
 CH 180 Introduction to Biophysical Chemistry; 3 credits, 11:00-11:50 MWF, Thompson
 CH 181 Physical Chemistry; 3 credits, 10:00-10:50 MWF, Jarnagin
 CH 181L Physical Chemistry Laboratory, 2 credits, 5:00-5:50 M and 2:00-4:50 MW, Pedersen
 CH 184 Thermodynamics and Introduction to Statistical Thermodynamics; 3 credits, 9:00-9:50 MWF; Berkowitz
 CH 186 Introduction to Quantum Chemistry; 3 credits, 11:00-12:15 TTh; Johnson
 CH 190 Fundamentals of Materials Science; 3 credits, 10:00-10:50 MWF; Irene

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QTI Inc.**Fall Graduate Course Offerings**

Duke: Contact Ms. Earlene Beamon, Director of Graduate Studies Office, at 660-1546 for information about course offerings and registration.

- CHM 201 Molecular Spectroscopy, 1-3 units, 10:30-11:20, MWF, Baldwin, Palmer
 CHM 203 Quantum Chemistry, 1-3 units, 11:50-12:40, MWF, MacPhail, Pirrung
 CHM 205 Structure/Reaction Dynamics, 1-3 units, 1:10-2:00, MWF, Baldwin, Fraser-Reid, Wells
 CHM 207 Kinetics/Thermo/Diffractions, 1-3 units, MWF, 9:10-10:00, Henkens, McPhail
 CHM 313 Special Topics Inorganic Chemistry, 1-3 units, TBA, Staff

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

- CH 501 Advanced Inorganic Chemistry I, 3 credits, 10:15-11:05, MWF, Cornman
 CH 505 Physical Methods in Inorganic Chemistry, 3 credits, 12:25-1:15, MWF, Wertz
 CH 511 Advanced Analytical Chemistry I, 3 credits, 9:10-10:00, MWF, Hanck
 CH 521 Advanced Organic Chemistry I, 3 credits, 11:20-12:10, MWF, Shultz
 CH 530 Advanced Physical Chemistry, 3 credits, 8:05-8:55, MWF, Carmichael
 CH 595H Sp Top: Bioinorganic Chemistry, 3 credits, 1:05-2:20, TTh, Bowen
 CH 595X Sp Top: X-Ray Crystallography, 2 credits, 11:20-12:10, TTh, Singh
 CH 595Z Sp Top: Solid State Chemistry, 3 credits, 1:05-2:20, TTh, Whango
 CH 615 Chemical Separations, 3 credits, 9:50-11:05, TTh, Khaledi
 CH 659 Natural Products, 3 credits, 9:10-10:00, MWF, Comins

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Burroughs Wellcome: Surfactant therapy for premature infants may be responsible for a six percent drop in US infant mortality rates between 1989-1990, according to a newly released report from the Centers for Disease Control (CDC). The 1990 figure of 9.2 infant deaths per 1,000 live births is the lowest rate ever recorded. In the March 12 issue of the CDC's Morbidity and Mortality Weekly Report, researchers noted that the overall drop in infant mortality is largely attributable to a significant decrease in deaths among premature infants due to respiratory distress syndrome (RDS). The authors suggest that new surfactant therapies may explain the substantial decrease in this particular cause of infant death.

Exosurf[®] (colfosceril palmitate/cetyl alcohol/tyloxapol) Neonatal form Intratracheal Suspension, developed and manufactured by Burroughs Wellcome Co., was the first surfactant released for marketing by the Food & Drug Administration in August of 1990. Prior to that, beginning in July 1989, Exosurf Neonatal was provided to approximately 11,000 premature infants through an expanded access Treatment IND program.

Surfactant, a naturally occurring substance in developed lungs that is necessary for normal breathing, is not produced in sufficient amounts in the immature lungs of many premature infants. This lack of surfactant results in serious breathing difficulties and can lead to RDS, a leading cause of death and disability among premature infants. Exosurf[®] Neonatal improves the ability of surfactant deficient lungs to inflate, thereby, greatly reducing the need for high concentrations of oxygen and mechanical ventilation. Controlled clinical trials with Exosurf Neonatal began in 1986 and have involved more than 4,800 infants in the US and Canada. These studies showed Exosurf substantially reduced the number of deaths and overall morbidity among premature infants at a risk for or suffering from RDS.

In efforts to learn more about the optimal administration of Exosurf, Burroughs Wellcome funded a major international controlled study that involved more than 6,700 infants. The most significant question studied was whether early treatment with Exosurf would improve the outcomes of babies judged to be at high risk for RDS. The findings, published in December of 1992 in the medical journal, *Lancet*, showed that babies who received treatment with Exosurf two hours after birth had even lower risks of death and long-term oxygen use than babies who received the drug three hours after delivery.

Exosurf Neonatal was invented by Dr. John Clements of the University of California, San Francisco, and was developed, tested and manufactured by Burroughs Wellcome. The only completely synthetic surfactant available in the US, Exosurf Neonatal is particularly important because it contains no animal proteins and, therefore, carries no known infectious or allergic risks. Burroughs Wellcome scientists are currently studying the effectiveness of Exosurf in treating acute respiratory distress syndrome in adults.

Duke: Weitao Yang, Assistant Professor of Chemistry, Duke University has been awarded a Sloan Research Fellowship worth \$30,000 to run from September 1993 to September 1995. Dr. Yang received his Ph. D. from the University of North Carolina, Chapel Hill where he was a research student with Professor Robert G. Parr. Fol-

manage research projects and supervise laboratory staff. **Five Postdoctoral Chemists** F0363 63A, F0371 63A, F0385 60A, F0393 63A, F0394 63A, positions in the general area of organic chemistry. **Quality Assurance Specialist I** F0379 60D, B. S. in chemistry or biological sciences with experience in analytical chemistry in a GLP environment. Will perform inspections on analytical chemistry and toxicological studies. **Res. Forensic An. Toxicologist I/II** F0374 64A, Ph. D. in chemistry, toxicology, pharmacology or related discipline with experience in the scientific and technical direction of urine drug testing laboratory. Will review laboratory applications and inspection reports, SOP's laboratory data and other information and determine certification status. **Contact:** Office of Human Resources, Research Triangle Institute, P. O. Box 12194, Research Triangle Park NC 27709-2194. (919) 541-6466.

Calendar

- Apr 15 C. Harris, University of California at Berkeley, "The Dynamics and Properties of Electrons at Interfaces", 4:00 p.m., UNC-CH
- Apr 16 C. Harris, University of California, Berkeley, "The Dynamics and Properties of Electrons at Interfaces", Duke
- Apr 19 D. Hoffman, University of California, Berkeley, "Chemistry of the Heaviest Actinides and Transactinide Elements", NCSU
- Apr 20 J. Polanyi, University of Toronto, "The Responsibility of the Scientist in an Age of Science", London Lecture, 8:15 p.m., Duke
- Apr 21 J. Polanyi, University of Toronto, "Surface Aligned Photochemistry", 2:00 p.m., Duke
- Apr 24 "107th Conference of the North Carolina Section of the ACS", 8:00 a. m. at NCSU, ACS
- Apr.29 H. C. Anderson, Stanford University, "Molecular Dynamics Simulations of Melting in Two Dimensions", 4:00 p.m., UNC-CH
- Apr 30 H. C. Andersen, Stanford University, "Molecular Dynamics Simulations of Melting in Two Dimensions", Duke
- May 13 "Triangle Area Graduate Student Speakers", Polymer
- May 21 S. Ley, Imperial College, London, "TBA", Glaxo Lecture, Duke
- May 27 "10th Annual TCDG Exhibit, Symposium and Poster Session", TCDG at McKimmon Center NCSU, TCDG

ACS-American Chemical Society monthly meeting

Polymer-ACS Polymer Discussion Group, at 7:30 p. m., NCSU Faculty Club.

Call Walter Pawlowski (919) 543-2243 (IBM-RTP)

TCDG-Triangle Chromatography Discussion Group

Duke (Chemistry) seminars at 3:30 p.m. Call Bonnie Turner at 660-1506.

NCSU (Chemistry) seminars at 3:30 p.m. Call Joyce Weatherspoon at 515-2548.

NCSU-BC (Biochemistry) seminars at 4:00 p.m. Call Pat Sullivan 515-2581.

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

Burroughs Wellcome: For information on job opportunities with Burroughs Wellcome Co., call our Job Information Line at (919) 248-8347.

Duke: Manager of advanced undergraduate laboratories in Duke Chemistry: Non-tenure track staff position with the title Lecturer; Chemistry Ph.D. required. Plan and manage all laboratories associated with courses beyond both general chemistry and introductory organic chemistry, laboratory lectures to students, brief and supervise teaching assistants, and organize laboratory grading. Close collaboration with faculty in creative planning of stimulating experiments for excellent students is a major objective. Publication and career development encouraged. Application, which includes a C.V., should be sent to: Lab Manager Search Committee, Department of Chemistry, Duke University, Box 90346, Durham, NC 27708-0346. Applicants should request that three references be sent to the same address. Closing date for receipt of application, C.V., and three references is April 30, 1993. Duke University is an Equal Opportunity/Affirmative Action Employer.

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

RTI: In its March 1 listings of current openings at the Research Triangle Institute, the following new positions were given: **Postdoctoral Chemical Engineer** J0228 96A, Ph. D. in chemical engineering with research experience in gas-solid catalysis and/or fluid-bed reactors. A background in gas separation is desirable. Will construct and operate bench-scale desulfurization/sulfur recovery reactor systems, analyze data and write technical reports and publications. **Research Associate I** (Term) F0391 63A, Ph. D. with at least one year of postdoctoral experience in organic synthesis. Familiarity with radioisotopic synthesis a plus. Duties will be synthesis of organic compounds including radiolabeled compounds.

The following previously publicized positions are still listed: **Chemist I** F0368 63A, B. S. or B. A. in chemistry with experience or training in organic synthesis. Will be involved in research to synthesize, purify and analyze organic compounds. **Chemist I/II** F0369 63A, B. S. or B. A. in chemistry with training or experience in organic synthesis. **Chemistry I/II** F0383 64A, B. S. or B. A. in chemistry/Biochemistry with training or experience in organic and analytical chemistry. Experience in HPLC/GC analysis preferred. Should have good writing skills and be computer literate. Will provide analytical chemistry support for toxicity studies: chemical characterization, quantitation of text chemicals in biological matrices, data analysis and report writing. **Env. Sci./Eng. III** or **Res. Env. Sci./Eng. I** J0220 91A, B. S. or M. S. in chemistry, environmental science or environmental engineering with 2-3 years experience and knowledge of environmental laws and regulations particularly RCRA and Superfund. Must have good writing skills. Will assist in providing support for Superfund management program. Review and evaluate background document related to remedial action at hazardous waste sites. **For. An. Tox. III/Res. For. An. Tox I** F373 64A, B. S. or B. A. in chemistry or related discipline with at least 1-2 years experience with review/certification of GC/MS and immunoassay data, QC procedures and chain of custody. **Natural Products Scientist** F0378 60A, Ph. D. in related area with strong background in natural products chemistry with expertise in isolation and structure determination and/or synthesis and testing. Will provide leadership in natural products research; write grant proposals;

lowing a postdoctoral year with Professor William H. Miller at the University of California, Berkeley, in 1989, he joined the Duke University faculty. He received the fellowship based on the strength of his work on the theory and computational development of the density-functional theory for molecules. Yang is the third Duke Chemistry faculty member to be awarded a Sloan Research Fellowship. The previous fellowships were awarded to William R. Krigbaum (1956-1960) and to Jacques C. Poirier (1959-1963)

Duke: Dr. Mark J. Burk will join the Department of Chemistry on July 1 as Assistant Professor of Chemistry. Dr. Burk is currently working at DuPont Central Research and Development Laboratories. Dr. Burk received his Ph. D. from Yale University under the direction of Professor Robert H. Crabtree and did his postdoctoral research for two years at MIT with K. Barry Sharpless. Dr. Burk's research interests include the area of organometallic chemistry and catalysis.

Duke: Dr. Michael C. Pirrung, associate professor in the Department of Chemistry was awarded \$321,000 from the US Department of Energy in support of "Preparation of Oligonucleotide Arrays for Hybridization Studies." Dr. Pirrung also receive a supplemental grant from the National Institutes of Health for his Undergraduate Research Experience program in "Bio-Organic Photochemistry."

NCSU: Dr. Richard M. Felder, Hoechst Celanese Professor of Chemical Engineering, was named "Outstanding Engineering Educator in the Southeast" by the American Society for Engineering Education. Felder was one of five people in the US cited for their contributions to engineering education.

RTI: Local Section member, **Dr. Carol C. Whisnant**, has been named assistant director of the Research Triangle Institute's Center for Bioorganic Chemistry. Staff in this multidisciplinary center conduct molecular level studies on interactions between biological systems and chemicals. A research immunologist at RTI since 1985, Dr. Whisnant has collaborated with staff in a variety of specialties, including organic synthesis, analytical chemistry and genetics. In her new position, she will direct the center's programs in immunochemistry and immunogenetics, and she will assume various administrative responsibilities. Dr. Whisnant holds a BS in chemistry and a Ph. D. in physical chemistry from Duke University. She was a postdoctoral fellow in immunology at Duke University Medical Center.

New GALBRAITH LABORATORIES, INC.

Sphinx: Sphinx Pharmaceuticals Corporation announced that it has signed a letter of intent to acquire Genesis Pharmaceuticals, Inc. through an exchange of stock in a non-cash merger transaction. Through the acquisition, Sphinx expects to utilize Genesis' proprietary technology to generate large libraries of novel small organic molecules which will enable Sphinx to produce additional highly potent and selective regulators of current and future enzyme targets. Additionally, Sphinx believes that access to increased sources of organic molecules, combined with its proprietary automated biological screening systems, will not only accelerate the development of lead compounds but will also decrease the overall time and cost associated with the drug discovery process. Sphinx is currently developing small molecule-based therapeutics for proliferative and inflammatory disorders, including cancer, cardiovascular diseases, psoriasis and eczema.

Subject to the negotiation of a definitive agreement, Sphinx will acquire Genesis and all outstanding shares of stock in a non-cash merger transaction. Genesis' shares of stock in a non-cash merger transaction. Genesis' shareholders will receive 650,000 share of Sphinx common stock. The warrants are exercisable upon attaining specific U. S. regulatory milestones for a therapeutic drug candidate which results from Genesis' molecular diversity program. The closing is subject to various conditions and is expected to be completed in March.

Laboratory Waste Management

The Section is arranging to offer the two day ACS course, Laboratory Waste Management, taught by Cynthia Salisbury and Russ Phifer. The course usually costs members \$785 and non-members \$885. The identical offering will be available locally for about \$200-300 depending on the level of local assistance.

Anyone interested should contact George Wahl at NCSU, 515-2941 Suggestions of preferred dates and locations, or offers of corporate assistance (for example with student scholarships) are particularly encouraged. Full details will follow in a separate mailing to section members.

ACS Sponsors Science Feature in *USA Today*

The ACS announces its sponsorship of "EXPLORATIONS: Fun Activities for All Ages," a colorful half-page of activities and information appearing in *USA Today* to motivate adults and children to get involved with "hands-on science." This feature, which will appear biweekly on Tuesdays, adjacent to the Life section's regular science news, premiered March 9.

ACS will provide the ongoing expertise and content for the column. *WonderScience*, the hands-on science activity magazine ACS publishes for children and adults, is the source for a major component of the feature. Each edition will include one of the magazine's "kitchen science" experiments, designed for children to do with adult supervision. "Early exposure to hands-on science," says Sylvial Ware, Director of the ACS Education Division, "stimulates a child's curiosity about the natural world. This curiosity and wonder form the foundation of scientific thinking."

USA Today's Education and Family Initiatives staff is working with ACS in the development of the feature and its outreach. In addition, the newspaper is providing an 800 number for information requests and to help consumers order educational materials.

A future "Explorations" feature will announce details of a program offering grants of up to \$1,000 to community groups, schools and institutions in support of hands-on, informal science activities for adults and children. ACS expects to award at least \$50,000 in Community Science Grants this year. The organization will publicize the grant competition and application process in the *USA Today* feature.

Micron Ad

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Job Related Information

ACS: Director of Industry Relations managing a current staff of seven professional reporting to Dr. John K. Crum, Executive Director, the American Chemical Society in Washington DC. Contact Earl Hopgood, Principal, JDG Associates Ltd., 1700 Research Boulevard, Rockville MD 20850, (301) 340-2210.