



# The TarHelium

Volume 22, Number 3

January/February 1992

**January 9, 1992**

## **Joint Meeting NC Section and Polymer Group**

### **Isolated, Stretched Polymer Chains in the Solid State**

**Dr. Alan E. Tonelli  
Textile Engineering  
North Carolina State University**

#### **NCSU Faculty Club**

- 5:30 p.m. Social Hour
- 6:30 p.m. Dinner<sup>†</sup>--\$13 for members/guests and \$6.50 for students/high school teachers
- 7:30 p.m. Lecture

<sup>†</sup>Reservations: A reservation is a commitment: No-shows who fail to cancel within 24 hours will be billed. Reservations deadline 4:00 p.m. Monday, January 6, 1992. 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.ncsu.edu

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

Address Correction Requested

#### **Executive Committee:**

C. G. Moreland (NCSU), Chairman  
R. W. Morrison, Jr. (BW), Chairman Elect  
M. T. Riebe (Glaxo), Secretary  
J. T. Burse (Radian), Treasurer  
W. L. Switzer (NCSU), Editor  
R. A. Palmer (Duke), Councilor '92  
M. M. Bursey (UNC), Councilor '91  
W. F. Little (UNC), Councilor '90  
D. D. Sternbach (Glaxo), Alternate Councilor '92  
P. Smith (Duke), Alternate Councilor '91  
E. C. Bigham (BW), Alternate Councilor '90  
J. L. Chao (IBM), Past Chairman '91  
D. M. Preiss (NCSU), Past Chairman '90  
A. L. Crumbliss (Duke), Past Chairman '89  
E. L. Eliel (UNC), *Ex Officio*

PRE-SORTED  
FIRST CLASS MAIL  
U.S. POSTAGE PAID  
RALEIGH NC  
PERMIT NO. 491

*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

S. T. Purrington, Assistant Editor

B. A. Whittaker, Advertising

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

*The TarHelium*

c/o W. L. Switzer, Editor

Department of Chemistry-8204

North Carolina State University

Raleigh NC 27695-8204

Internet:

switzer@chemdept.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**  
**March-April Calendar**  
**Saturday, February 8,**  
**1992**

## Thanks Barbara

After serving over 3 years, Barbara Whittaker has asked to step down as editor of *The TarHelium*. She has worked hard to publish the Section newsletter. On behalf of the Section, I want to thank her for her efforts. On a more personal note, I want to thank her for the assistance she is giving me during the transition while I am trying to take over this responsibility. I am especially grateful that she has agreed to remain as Advertising Manager during this period.

-W. L. Switzer, Editor

## Publication Policy

The *TarHelium* will be published in January, April, September and November. Monthly meeting announcements will appear in February, March, October and December. During the academic year, a bimonthly *Calendar* will be included in either the *TarHelium* or announcement. Editions of the *Calendar* will appear for: January-February, March-April, September-October and November-December. 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. The **Deadline** for each publication is about three weeks before the publication date.

**Full Page Ad for  
CACHe**

**1992 ACS Dues:** If you have not received your 1992 dues bill, please contact the ACS Department of Member and Subscriber Services at (800) 333-9511. In accordance with ACS policy on a grace period for unrenewed ACS journals and C&EN, ACS cannot continue to send C&EN and journals after February 29 to those member whose 1992 dues and subscription payments are not received by February 1. If you have questions about your dues bill or wish to charge your payment by phone, call (800) 333-9511 or (614) 447-3600. Be sure to have your credit card handy for ready reference. If you have questions concerning your membership, please call Jean Parr, Manager, Office of Member Services at (202) 872-4414.

## Carolina Workshops

Topic: Yeast Molecular Genetics

Dates: March 2-17, 1992

Instructors: Thomas Petes, UNC-CH  
Kerry Bloom, UNC-CH  
Elaine Yeh, UNC-CH

Topic: Approaches to Gene Expression

Dates: May 17-June 1, 1992

Instructors: Stephen Hunt UNC-CH  
Judy Lesnaw, University of Kentucky

Topic: Mouse Genetics

Dates: July 19-August 1, 1992

Instructors: Victoria Bautch, UNC-CH  
Brian Popko, UNC-CH  
Ralph Snodgrass, UNC-CH

Information: Dr. Wayne Litaker, Facilities Director  
University of North Carolina-Chapel Hill  
Program in Molecular Biology & Biotechnology  
101 MBBRL Bldg., CB#7100  
Chapel Hill NC 27599-7100  
Phone (919) 966-1730 or Fax (919) 966-6821

## Symposium on Capillary Chromatography

Event: 14<sup>th</sup> International Symposium on Capillary Chromatography

Dates: May 25-29, 1992

Place: Stouffer Harbor Place Hotel, Baltimore MD

Information: Dr. Leonard Schronk, Foundation for the ISCC  
PO Box 164552  
Miami FL 33116-4552  
(305) 270-8585

## Isolated, Stretched Polymer Chains in the Solid State

It is possible to form crystalline inclusion compounds (IC's) between polymers and small-molecule, host clathrates, where the included polymer chains are constrained to occupy narrow (5-6 Å) cylindrical channels which are well-separated by the clathrate walls. The net result is a unique, solid state environment which permits observation of individual polymer chains that are highly extended, as a consequence of their confinement to the narrow clathrate channels, and whose behavior is free from the complex cooperative inter-chain interactions which often predominate in bulk, solid polymer samples. We will describe our efforts to characterize the conformations and mobilities of polymers in their crystalline IC's by means of molecular modeling and experimental techniques, principal among the latter are high resolution, solid state NMR.

## Come Meet the Speaker

Alan Edward Tonelli received his B. S. degree in Chemical Engineering from the University of Kansas and his Ph. D. degree with P. J. Flory from Stanford University. After 23 years with AT&T Bell Laboratory, he joined the faculty of the College of Textiles at North Carolina State University in August of 1991. He has published extensively in the field of solid state NMR and computational polymer chemistry. He has served on the editorial boards of *Macromolecules* and the *Journal of Computational Polymer Science*.

## Election Results

Chairman-Elect:

Robert W. Morrison, Jr.

Secretary:

Michael T. Riebe

Councilor:

Richard A. Palmer

Alternate Councilor:

Daniel D. Sternbach

**Galbraith Ad**



**North Carolina Section  
AMERICAN CHEMICAL SOCIETY**

**Chairman's Corner:** Let me take this opportunity to thank Jim Chao for his leadership during 1991 and for the good-natured way he cajoled others, including myself, into getting their jobs done. I would also like to thank Bill Hatfield, Hanna Green, Halbert Carmichael, Suzanne Purrington and Barbara Whittaker for their many years of service on the Executive Committee. We had a productive year for the NC Section of the ACS in 1991 and I am looking forward, with your help, to us doing even better in 1992.

We have already arranged for an excellent group of speakers for our monthly meetings in January, February, March, October and November. Each of these meetings will feature a chemist who has recently moved to the area. This will give you a chance to welcome them and to learn about their research. A list of the speakers for the Spring 1992 is provided in this issue.

Our Sectional Conference will be held April 4 at UNC-CH, the Sectional Symposium will be in September and our Distinguished Speaker Award program will be in December. Let's all make a resolution to participate in at least one of these events. Happy New Year to each of you.

--Charles G. Moreland

**From the Past Chairman:** As the year winds down to a close, I retire from my post as chairman with some mixed emotions. I am overjoyed that finally the baton has been passed on ... secure in the knowledge that the section is in willing and able hands. At the same time, I am saddened because I will also miss working with the many people who made this year so productive and contributed to making a smoothly running section possible.

We close the year with a number of successful new accomplishments in the areas of Project SEED/Glaxo Summer Scholars, International Chemistry Olympiad, National Chemistry Week, undergraduate research scholarships, and an ambitious joint proposal submitted to combat scientific illiteracy in our State. I would again like to thank all the many supporting cast members who made this year so enjoyable and successful.

--James L. Chao

**Full Page Ad for  
Beckman**

## Fraser-Reid Receives Jefferey Medal

Professor Bert Fraser-Reid was awarded the R. W. Jefferey Medal by the New South Wales Chemical Society at a ceremony in Sydney, Australia, on October 31, 1991. In this connection he presented three research seminars at the Chemistry Department of the University of New South Wales. Research seminars were also presented at the Australian National, Monash and James Cook Universities, as well as the Universities of Melbourne and Queensland. In addition Professor Fraser-Reid gave a recital on the Beckerath organ at the Great Hall of the University of Sydney. His program included the Passacaglia and Fugue in C minor by Bach, Fantasie in A major by Franck, Lotus Blossom of Billy Strayhorn and the *finale* from the Symphony #1 by Vierne.

**BOMEN Ad**

## Call for Papers

The 106<sup>th</sup> North Carolina Sectional Conference will be held on the campus of the University of North Carolina, Chapel Hill on Saturday, April 4, 1992. Again this year, there will be a workshop for high school chemistry teachers. This workshop will be presented by Woodrow Wilson Chemistry Team 6. Immediately following the meeting and workshop, a brief awards ceremony will be held followed by a luncheon.

The enclosed form may be used to submit titles for this meeting. Alternatively you may submit the required information by e-mail, FAX or phone. All presenters are guests of the section at the luncheon following the meeting.

The deadline for submitting titles is: **Friday, February 28, 1992.**

**Micron Ad**

**CALL FOR PAPERS**  
**106<sup>th</sup> N. C. Sectional Conference**  
**Saturday, April 4, 1992**  
**The University of North Carolina, Chapel Hill**

Author(s): \_\_\_\_\_  
 \_\_\_\_\_

Position(s): \_\_\_\_\_  
 \_\_\_\_\_

Title: \_\_\_\_\_

Phone (senior author): \_\_\_\_\_

Presenter: \_\_\_\_\_

Institution: \_\_\_\_\_

Session:

p Analytical	p Biochemistry	p Chemical Education
p Inorganic	p Organic	p Physical
p Polymer	p Other	

Other (specify): \_\_\_\_\_

Type of Session:      p Regular              p Poster              p Either

Type of Projector: \_\_\_\_\_

**DEADLINE: Friday, February 28, 1992**

Send application to:

William L. Switzer Chemistry-8204 North Carolina State University Raleigh NC 27695-8204	Internet: switzer@chemdept.ncsu.edu (919) 515-5079 (FAX) (919) 515-2945 (W) (919) 847-7471 (H)
--	---

## Osteryoung Heads NCSU Chemistry

Dr. Janet Osteryoung joins the Department of Chemistry at North Carolina State University as its new Department Head. She received her B. A. degree from Swarthmore College and her Ph. D. from the California Institute of Technology. After a brief stay at Montana State University, she moved to Colorado State University for a number of years. During that time, she also served as Program Director for Chemical Analysis at the National Science Foundation for a year. She moved to the State University of New York at Buffalo in 1979 where she held the position of Professor of Chemistry. Dr. Osteryoung's research interests focus on the investigation of chemical reactions requiring development and elaboration of electroanalytical techniques, especially pulse voltammetry. She has published approximately 150 papers in this area and given numerous invited presentations. Dr. Osteryoung is recipient of a number of awards and distinctions including Guggenheim and Fulbright Fellowships, the Garvan Medal and the ANACHEM Award. She succeeds Dr. Kenneth W. Hanck who has been Head for more than nine years. Dr. Hanck will return to full time activities in teaching and research.

## Science House at NCSU

The Science House, the learning outreach project of the College of Physical and Mathematical Sciences, will offer workshops on Countertop Chemistry and Physics from the Junk Drawer in January and February. The workshops emphasize learning activities and demonstrations that can be assembled from commonly available materials. The workshops are intended for K-12 teachers and are taught in three 2-hour sessions meeting on the same day of consecutive weeks. Teachers who complete a workshop and a follow up session are eligible for NC renewal credit. The registration deadline for the first workshop is January 20, 1992. There is a nominal materials charge. For more information write The Science House, NCSU, Raleigh, NC 27695-8211 or phone 919/515-6118. Parents are encouraged to mention this program to the teachers.

**Huffman AD**

- Feb 14 E. T. Samulski, University of North Carolina--Chapel Hill, "Alpha-Helical, Synthetic Homopolypeptides in Non-Linear Optics and Self-Assembly," Duke
- Feb 17 P. S. Bagus, IBM Almaden Research Center, "Molecular Orbital Cluster Models for Surface Phenomena," NCSU
- Feb 20 R. Smalley, Rice University, "TBA," 1:00 p.m., Kenan B928; 4:00 p.m., Venable 308, UNC
- Feb 21 W. D. Wilson, Georgia State University, "Nucleic Acids as Receptors in Drug Design," Duke
- Feb 24 T. Hughbanks, Texas A&M University, "New Materials and New Ideas in Metal-Rich Chalcogenides," NCSU
- Feb 26 N. S. Lewis, California Institute of Technology, "Solar Energy Conversion Using Semiconductor/Liquid Junctions," NCSU
- Feb 27 N. S. Lewis, California Institute of Technology, "Mechanism of Light-Induced Charge Separation at Semiconductor/Liquid Interfaces, 4:00 p.m., Room TBA, UNC
- Feb 28 N. S. Lewis, California Institute of Technology, "Solar Energy Conversion Using Semiconductor/Liquid Junctions," Duke

Duke Chemistry seminars are held at 3:30 p.m. in the Fritz London Lecture Hall (Gross 103) unless otherwise noted. Call Carolyn Bean at 660-1506 for information.

NCSU Chemistry seminars are held at 3:30 p.m. in 1404 Williams Hall adjacent to Dabney Hall unless otherwise noted. They are preceded at 3:00 p.m. by refreshments outside Dabney 210. Call Joyce Weatherspoon at 515-2548 for information.



February 11, Malcom Forbes from the University of North Carolina--Chapel Hill will speak at the Monthly meeting. His title is: "Spin Correlated Radical Pairs and Biradicals at Solid-Solution Interfaces."

March 10, Dr. Eric Toone from Duke will give the ACS Monthly Meeting. His title is: "Enzyme Based Carbohydrate Synthesis."

April 4, 106<sup>th</sup> Sectional Conference, UNC-Chapel Hill

Meeting details will follow in later publications.

## Calendar Notes

- Jan 9 A. E. Tonelli, North Carolina State University (College of Textiles), "Isolated, Stretched Polymer Chains in the Solid State", 7:30 p.m., NCSU Faculty Club, **ACS/ Polymer Group** joint meeting
- Jan 10 B. P. Branchaud, University of Oregon, "Synthetic & Mechanistic Organocobalt Radical Chemistry," Duke
- Jan 17 G. A. Krafft, Abbott Laboratories, "Fluorogenic Substrate Probes in the Study of Pretenses," Duke
- Jan 21 I. Noda, Miami Valley Laboratory of Proctor & Gamble, "2-D Spectroscopy," 11:00 a.m., Venable 308, UNC
- Jan 23 I. Tinoco, Jr., University of California at Berkeley, "Structure of Stable RNA Tetraloops," 4:00 p.m., 3712 Bostian Hall (NCSU), 16<sup>th</sup> Matrone Lecture, **ACS Triangle NMR Discussion Group** and others
- Jan 24 R. D. Coalson, University of Pittsburgh, "Theory of Condensed Phase Optical Spectroscopy," Duke
- Jan 27 K. R. Stewart, General Electric Corporate R&D Center, "Organic Molecular Crystals Having Useful Nonlinear Optical Properties," NCSU
- Jan 29 P. B. Dervan, California Institute of Technology, "A Chemical Approach to the Specific Recognition of Double Helical DNA," Duke
- Jan 31 O. Hindsgaul, University of Alberta, "Chemical-Enzymatic Synthesis of Oligosaccharides," Duke
- Feb 3 J. T. Hupp, Northwestern University, "Light Driven Redox Reactions," NCSU
- Feb 7 O. Webster, "DuPont Central Research, "New Synthesis of Rigid Rod Polymers," 12:00 noon, Venable 308, UNC
- Feb 7 A. P. Alivisatos, University of California--Berkeley, "Physical Chemistry of Semiconductor Nanocrystals," Duke
- Feb 11 M. D. E. Forbes, University of North Carolina--Chapel Hill, "Spin Correlated Radical Pairs and Biradicals at Solid-Solution Interfaces," 7:30 p.m., Location TBA in Chapel Hill, **ACS**
- Feb 13 H. Frische, SUNY Albany, "Advances in Interpenetrating Polymer Networks," 7:30 p.m., NCSU Faculty Club, **Polymer Group**
- Feb 13 R. Williams, Old Dominion University, "GC/LC of Wines," 7:30 p.m., NCSU Faculty Club, ACS Triangle Chromatography Discussion Group (**TCDG**)

(Continued after *Calendar*)

## PACS Short Courses at Pitt Con 1992

• OSHA and EPA Laboratory Practices	March	7-8
• Toxicology for the Non-Toxicologist	March	6
• Infrared Spectral Interpretation	March	6-8
• Basics of Mass Spectrometry	March	8
• Mass Spectral Interpretation	March	8-10
• Ion Chromatography	March	8-9
• ICP-Mass Spectrometry	March	8-9
• Chemometrics	March	8-9
• Expert Systems	March	8-9
• Managing Environmental Testing Laboratories	March	8-9
• Managing Environmental Projects	March	8-9
• Environmental Sampling, Principles and Applications	March	8-9
• Experimental Design and Analysis	March	8-9
• Indoor Air Pollution Control, Principles and Practice	March	8-9
• Basics of Ground Water Pollution Control	March	8-9
• Water Testing for NPDES and Environmental Monitoring	March	8-9
• Laboratory Information Management Systems	March	8-9
• Supercritical Fluid Chromatography and SF Extraction	March	8-10
• Computer Programming with BASIC	March	8-10
• Computer Programming with Fortran	March	8-10
• Atomic Absorption Spectroscopy Analysis AA/ICP	March	9-11
• Quality Assurance of Chemical Measurements	March	12-13
• EPA Analytical Chemistry	March	12-13
• Selecting Environmental Labs and Methods	March	12-13
• Statistical Process Control for Laboratories	March	12-13
• Basics of HPLC	March	12-13
• Basics of Gas Chromatography	March	12-14

Information: PACS Inc.  
 Barbara Sherman  
 409 Meade Dr.  
 Coraopolis, PA 15108  
 (412) 457-6576  
 (800) 367-2587