

THE NUCLEUS

November 1994

Of the Northeastern Section of the American Chemical Society

Vol. LXXIII, No. 3

Monthly Meeting

Norris Award to Samuel P. Massie

National Chemistry Week

*NESACS Programs
November 6-12*

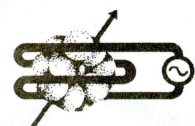
ACS TV Satellite Programs

*"Teaching Chemistry" and
"Your Chemistry Career"*

3rd Annual Northeast Undergraduate Chemistry Day

at Boston University





National Science Foundation Summer 1995 NMR Workshops



NMR Concepts will hold its second set of NSF NMR Workshops. Tuition and living expenses will be paid by NSF through the *Undergraduate Faculty Enhancement Program*. Application forms for the following Workshops will be available December 1, 1994.

- Interpretation of One-Dimensional (1D) NMR Spectra
- NMR Concepts & Operating Techniques
- Two-Dimensional (2D) NMR

Participants will be responsible for travel expenses. Interested **undergraduate** faculty are urged to apply now.

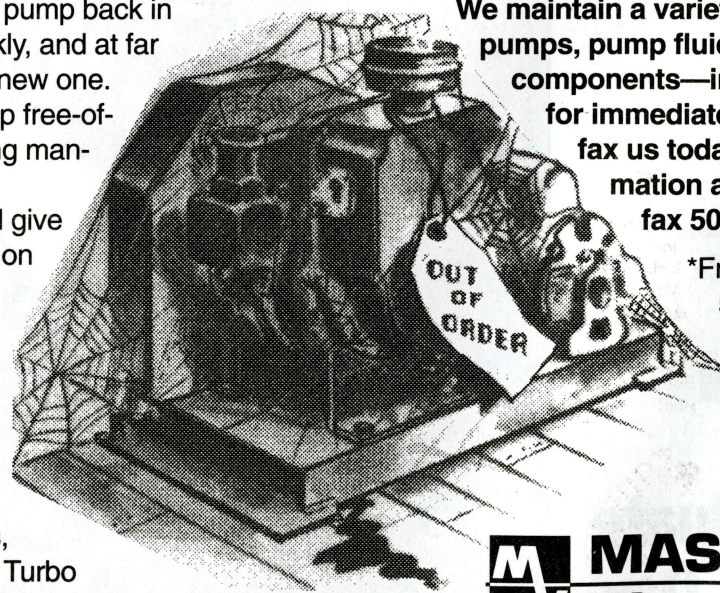
Applications must be received by March 20, 1995.

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Contents

Monthly Meeting	5
<i>James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry to Samuel P. Massie</i>	
National Chemistry Week November 6-12	6
<i>Northeastern Section doings</i>	
ACS TV Satellite Programs	6
<i>Teaching Chemistry 1994, November 7</i>	
<i>Your Chemistry Career, November 10</i>	
The Third Annual ACS Northeast Regional Undergraduate Day	7
<i>At Boston University, November 5</i>	
ACS Short Course	9
<i>Pharmacology for Chemists, November 17, 18</i>	

Cover: Samuel P. Massie

Deadlines: January 1995 issue: November 18, 1994

THE NUCLEUS



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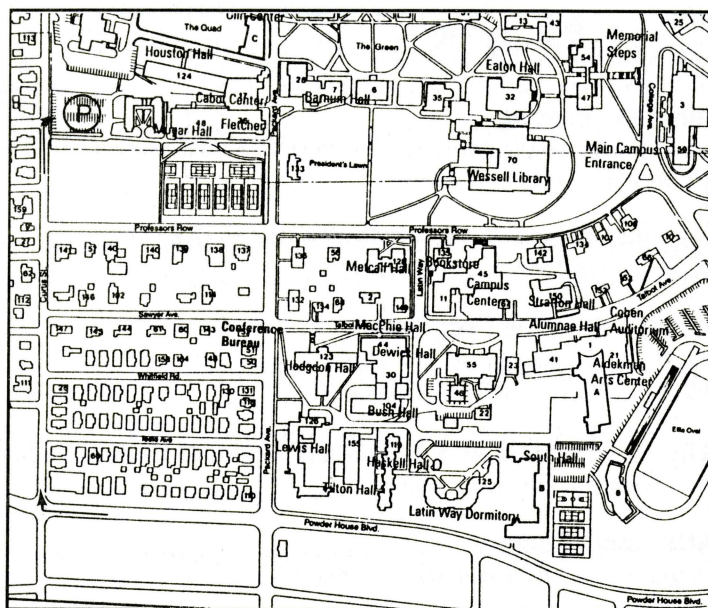
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From Powderhouse Square in Medford take Powderhouse Boulevard to the second street on the right, Curtis St. Turn right. After the 4th cross street (Professor's Row) turn right into the large parking place marked: Faculty and Staff only. The Fletcher Center is the multi-storied red brick building to the East.



Calendar

continued from page 12

November 17

Prof. Kenneth D. Karlin (Johns Hopkins Univ.)
"Copper-Dioxygen Reactivity and Models for Copper Proteins"
Boston College
Room 127, Merkert Chemistry Center at 4:00 pm

Prof. Marsha Lester (Univ. of Pennsylvania)
"Intermolecular Interactions and Reaction Dynamics of OH Complexes"
MIT
Room 6-120 at 5:00 pm

November 21

Prof. Alan S. Michaels (Tufts Univ.)
"Novel High-Stability Immobilized Liquid Membranes for Perstractive Recovery or Removal of High-Value or Toxic Organic Solutes from Saline Aqueous Wastes"
Tufts University
Room 136, STC Building, 4 Colby St., Medford, MA at 2:30 pm

Prof. Larry Scott (Boston College)
TBA
Harvard University
12 Oxford St., Room Mb-23 at 4:15 pm

November 21

Prof. Mounji G. Bawendi (MIT)
"Chemistry and Photophysics of Semiconductor Nanocrystallites (Quantum Dots)"
Boston University
590 Commonwealth Ave., SCI 107 at 4:00 pm

November 22

Prof. Warren S. Warren (Princeton Univ.)
"Generation of 'Impossible' Cross-Peaks between Independent Molecules in Solution NMR"
MIT
Room 2-105 at 4:00 pm

November 28

Dr. Paul van Eikeren (Sepracor Inc.)
"Manufacturing of Chiral Pharmaceuticals: From the Laboratory to the Plant"
Tufts University
Room 136, STC Building, 4 Colby St., Medford, MA at 2:30 pm

Prof. Harold Scheraga (Cornell Univ.)
"Solution of the Multiple-Minima Problem in Protein Folding"
Boston University
590 Commonwealth Ave., SCI 107 at 4:00 pm

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November 29

Prof. Herman Cummins (City Univ. of New York)
"Light Scattering Spectroscopy of the Liquid-Glass Transition: Test of the Mode Coupling Theory"
MIT
Room 2-105 at 4:00 pm

November 30

Dr. Harlyn O. Halvorson (Center for Marine Bioscience-Technology Policy, UMass Dartmouth)
"Phosphate Uptake and Utilization in *Acinetobacter lwoffii*."
UMass Dartmouth
Room 305 Science & Engineering Building (Group II) at 4:00 pm

Dr. Jeff Cheung (Rockwell International-Advanced Materials Devices)
"Pulsed Laser Deposition: Fundamental Process and Applications"
Harvard University
12 Oxford Street, Room Mb-23 at 4:00 pm

Notices for the Nucleus Calendar should be sent to:

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Wellesley College
Wellesley, MA 02181
Tel: (617) 283-3056
Fax: (617) 283-3642
e-mail: tvarcoshea@lucy.Wellesley.edu ◇

Monthly Meeting

The 765th Meeting of the Northeastern Section of the American Chemical Society

Presentation of the 43rd. James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry to Dr. Samuel P. Massie

Thursday, November 10, 1994, Tufts University, Medford, MA
All events will be in the Fletcher School of Law, Packard Ave. (See map)

5:30 Social Hour, Faculty Lounge

6:30 Dinner, Faculty Center

8:00 Evening Meeting, Cabot Auditorium
Dr. James Kaufman, Chairman, Northeastern Section, presiding
James Flack Norris, Dr. Edward R. Atkinson
Introduction of the Awardee by Dr. Thomas C. Rozzell, National Academy of Sciences
Presentation of the Award by Dr. Elmer E. Jones, Chairman, Norris Award Committee
The Norris Award Address: *The Arkansas Traveler*
Dr. Samuel P. Massie, Prof. Emer., U.S. Naval Academy, Annapolis, MD

Reception in honor of Dr. Massie

Dinner reservations should be made no later than November 3. Please call Marilou Cashman at (800) 872-2054. Reservations not cancelled at least 24 hours in advance must be paid. Members, \$21.00; Non-members, \$23.00; Retirees, \$12.50; Students, \$8.00. THE PUBLIC IS INVITED. Anyone who needs special services or transportation, please call Marilou Cashman a few days in advance so that suitable arrangements can be made.

Parking off Curtis St. See map, page 4.

Next meeting: Joint meeting with the Medicinal Chemistry Group. December 15, 1994 at Boston College, Conte Forum, Shay Rm. A Symposium on Chiral Synthesis and Resolution. 3:00 p.m., Drs. Jorge Lopez (Sepracor) and James Lalonde (Alus Biologicals) speakers; Social Hour and dinner at 5:30, Evening Meeting at 8:00, Prof. Eric Jacobsen (Harvard U.). Titles to be announced.

Biography

Dr. Samuel P. Massie, Professor Emeritus, U.S. Naval Academy, ended a distinguished career of 54 years in higher education with his recent retirement from the Naval Academy. He had been a Professor of Chemistry at the Academy since 1966 and chairman of the department from 1977 through 1981.

Dr. Massie, a native of Arkansas, graduated from high school at 13, and from A. M. & N. College *summa cum laude* at 18. He received an M.A. in Chemistry from Fisk University, and a Ph.D. in Organic Chemistry from Iowa State University.

Dr. Massie served as Chairman of the Departments of Chemistry at

Langston University (Oklahoma) and at Fisk University (Tennessee); and as Chairman of Pharmaceutical Chemistry at Howard University. He also served as Distinguished Visiting Professor for 4 years at Dillard University, Virginia State University, and University of Maryland Eastern Shore.

He served as an Associate Program Director of the National Science Foundation from 1960-63 and as President of the North Carolina College at Durham from 1963-66. He served on boards and advisory councils of educational bodies, both as a member and officer: Maryland State Board for Community Colleges, the Governor's Science Advisory Council, Towson

Abstract

The Arkansas Traveler

This presentation will be a look at 54 years of service in higher education as a teacher, departmental chairman, college president, State Community College Board Chairman, Liberal Arts College Trustee, foundation executive, and lecturer.

As the child of two teachers, and grandchild of one of Arkansas' historic black legislators and teacher, I did not want to teach. But when I went to Fisk University Graduate School, where the Departmental Chairman used the "chalk and talk" technique of presenting material, I found that I was always the one at the chalkboard, explaining to my classmates certain principles. Then, when I graduated with my master's degree at 20 and industry would not even consider me for employment, I obtained my first employment as a college teacher in 1940. I FOUND MY CALLING. And even as I tried to escape this destiny — serving as College President and as Foundation Executive — the path always led back to the classroom — and the Arkansas Traveler made another trip. (I taught in seven states, Arkansas, Tennessee, Oklahoma, North Carolina, Virginia, Louisiana and the District of Columbia).

In these travels I had interesting experiences, but no matter what the challenge, I met it. Ten of its requirements, which will be discussed further in my talk, include:

- (1) Always know your subject
- (2) Always prepare your presentation
- (3) Keep the language understandable
- (4) Have your students know that you believe in them
- (5) Use humor
- (6) Use appropriate textbooks and laboratory materials
- (7) Fit lab materials to text materials
- (8) Require the maximum of your students
- (9) Carry out some research
- (10) Enjoy yourself

continued on page 8

continued on page 7

Call for Papers

Undergraduate Research Poster Session at the 209th National Meeting of the American Chemical Society
Anaheim, CA, April 2-7, 1995

The ACS invites undergraduate students to submit abstracts of their research papers for presentation at the Undergraduate Research Poster Session, which will be part of the extensive programming for undergraduates at this national meeting. Send abstracts on standard ACS forms to:

John W. Higuchi
Student Affiliates Program
American Chemical Society
1155 Sixteenth St., NW
Washington, DC 20036

Deadline for receipt of abstracts: December 1, 1994. ◇

Local Section Dues

The ACS dues statement being sent to you this month invites you to pay the voluntary Local Section Dues of \$9 together with your national ACS dues.

Consider that your annual Local Section Dues are just about equal to the production and mailing cost of the year's copies of the *NUCLEUS* you receive. Yet, in addition to the *NUCLEUS* the Northeastern Section sponsors many programs and awards.

We appreciate the support of those members who pay their Local Section dues with the national dues, and urge those who usually cross out the Local Section dues to reconsider. In lieu of (or in addition to) voluntary dues, tax deductible contributions may be made to the Section.

Please make out the check to:

Dr. James U. Piper
19 Mill Rd.
Harvard, MA 01451 ◇

National Chemistry Week

November 6-12, 1994

Sponsored by the Northeastern Section, ACS

The Boston Museum of Science will again host an exciting evening event: **The Chemistry of DNA**. John Hicks of the FBI will present this symposium. Chemistry students and teachers will attend by invitation only. Details will be given in the special October mailing of National Chemistry Week programs.

***The Third Annual Northeast Regional Undergraduate Chemistry Day** at Boston University November 5, 1994. More details will be in the special mailing.

***ACS TV Satellite Programs** on November 7, "Teaching Chemistry, 1994" and on November 10, "Elements of Your Chemistry Career" at U. Mass Lowell and at U. Mass Dartmouth (see October issue).

***The James Flack Norris Award for Outstanding Contributions to Chemistry Education**, November 10, 1994 at Tufts University. See page 5.

Second Annual Forum for Young Chemists at Harvard University. Intended to attract youths with an interest in chemistry, especially from inner city schools. Details to be in the special mailing.

**Announced elsewhere in this issue*

For information about National Chemistry Week programs contact Bert Paul, (508) 429-7917. *Other events will include mall presentations and demonstrations, classroom visits and mentor sessions.* ◇

ACS Satellite Program

Teaching Chemistry 1994

As part of National Chemistry Week the Department of Chemistry at the University of Massachusetts Lowell will sponsor *Teaching Chemistry, 1994*, the American Chemical Society TV Satellite program to be broadcast on **Monday, November 7**. *Materials Science* will be the topic presented by four nationally known chemistry educators with the focus on incorporating the chemistry of metals, plastics, and ceramics into introductory chemistry curricula to illustrate fundamental concepts.

The telecast will be preceded by a buffet dinner, compliments of the telecast sponsors.

Before the dinner, the Department of Chemistry will sponsor a safety seminar by James Kaufman, a nationally known expert on safety, and the current Chairman of the Northeastern Section of the ACS. This seminar will present a method approach to convince students to "buy" into laboratory safety.

3:30-4:30 *Selling Laboratory Safety: The Student Connection* Olney Hall 521

4:45-5:45 Buffet Dinner, Olney Hall 428

6:00-8:00 *Teaching Chemistry, 1994* Falmouth Hall 207

The seminars are for high school, college and university instructors, science supervisors, and anyone interested in chemistry education. The registration fee is \$5.00 per person, covering the cost of materials and viewing the TV satellite program.

For more information and to register call Dr. Ruth Tanner, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA 01854-2881. Tel: (508) 934-3662. Registration deadline: October 25, 1994. ◇

The Third Annual ACS Northeast Regional Undergraduate Day

November 5, 1994 at Boston University, Metcalf Center for Science and Engineering, 590 Commonwealth Ave., Boston, MA 02215
Sponsored by the Northeastern Section, ACS

9:00 Registration

9:30 Welcoming Remarks: Prof. Standish Hartman, Chairman, Chemistry Department, Boston University; Brian Gentry, President of Chemia (ACS Student Affiliate Chapter at B.U.); Prof. James Kaufman, Curry College, Chairman, Northeastern Section, ACS

9:45 Keynote Address: Prof. Christopher Cummins, M.I.T.: *Three-Coordinate Metal Complexes.*

10:30 Coffee Break

10:45 Workshop I: *Choosing a Graduate School*, Prof. Warren Giering, B.U.

11:15 Workshop II: *Career Options in Chemistry*, Dr. James D. Burke, Rohm and Haas Co. (Courtesy of the Dept. of Career Services, ACS)

12:00 Workshop III: *Getting a First Job*, Dr. Burke

12:45 Lunch

1:15 Graduate School and Industry Fair

2:15 Workshop IV: *Resume Preparation*, Dr. Burke

2:45 Workshop V: *Interviewing Skills*, Dr. Burke

3:30 Adjournment

There will be a \$5 registration fee to cover partially the cost of lunch and workshop materials.

For more information, or if your school or company would like to send a representative to the Graduate School and Industry Fair, please contact Stephen Doherty at (617) 353-2503; fax (617) 353-6466; internet: doherty@chem.bu.edu ◇

ACS TV Satellite Student Program

Your Chemistry Career

The ACS Student Affiliate Chapter at the University of Massachusetts Lowell will host the ACS TV satellite seminar program for students as a part of the Northeastern Section's National Chemistry Week program. The program *Elements of Your Chemistry Career* will be telecast on **Thursday, November 10, 1994**. On the satellite program a panel of four recent college graduates will discuss their experiences in industry, and industrial career options available to individuals of varying degree levels.

Program:

- How undergraduate research, internships, and co-op opportunities pay off in the job market

- Where a 2-year, 4-year, or graduate degree takes you in industry
- Employment outlook and job opportunities for chemists
- Strategies for climbing the ladder of success
- Issues in the workplace as a new employee
- Why a diversified background has advantages in industry

The program is for high school and college students interested in a chemistry career. Interested parents, teachers, and members of the local scientific community are welcome.

A late afternoon program, *Local Chemists in Industry* will start the program. Recent chemistry graduates who are employed in local industries will discuss their positions and responsibilities. There will be a crime-lab chemist,

a pharmaceutical chemist, a cosmetic chemist, a polymer chemist, a geochemist, and a biochemist working in the biotechnology industry. A tour of research labs will be ongoing.

A pizza party, compliments of the U. Mass Lowell Student Affiliate Chapter will follow.

3:30-5:00 Local Chemists in Industry; Laboratory Tours, Olney Hall 521

5:15-6:00 Pizza Party, Olney Hall 428

6:30-7:30 *Elements of Your Chemistry Career*, TV Satellite program, Falmouth Hall 201

Participants will receive a *Chemistry and Your Career* publication, brochures from the participating industries at the early afternoon event, and a UMASS Lowell Chemistry T-shirt designed by the Student Affiliate Chapter. Refreshments will be served after the telecast.

For more information, and to register, call Dr. Ruth Tanner, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA 01854-2881 Tel: (508) 934-3662. The registration fee is \$1.00 per person and should be completed by October 31, 1994. ◇

Abstract

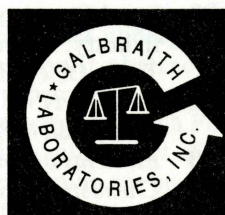
continued from page 5

Now at 75, as I complete one career, I begin another, and travel begins anew: I shall be Vice President for Education of the *Bingma Software Computer Co.*, directing the preparation of software modules which emphasize mathematics, elementary science, and later other areas combined with ethnic history and examples so that these students may increase their sense of dignity. I hope that some others may be what I am after 54 years, a bridge builder, AN ARKANSAS TRAVELER. ◇

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Biography

continued from page 5

State University and College of Wooster (Ohio).

He has lectured widely at colleges and universities throughout the nation and given many inspirational speeches to youth and community groups. He has presented chemical papers at many international conferences in several continents. He has published widely, served as referee for the Journal of Medicinal Chemistry, and received a patent with his students and colleagues of the Walter Reed Army Institute.

He has received many honors and awards. In 1970, the University of Arkansas, which he could not attend in the thirties because of his race, awarded him an honorary LL.D. degree. Four other institutions, including Lehigh University, also awarded him honorary degrees. His *alma mater*, Iowa State University, awarded him its highest Alumni award, The Distinguished Achievement Citation. Kappa Alpha Psi Fraternity presented

him with its highest award, The Laurel Wreath. He has served as Grand Sire Archon (National President) of Sigma Pi Phi Fraternity, the oldest Afro-American Fraternity. His local NAACP chapter presented him with its Freedom Funds Award.

He is listed in *American Men and Women of Science* and *Who's Who in America*. Among other honors, in 1961, he was honored as one of the six best College Chemistry teachers; in 1980, the National Organization of Black Professional Chemists and Chemical Engineers named him its Outstanding Professor, and in 1986, its Henry A. Hill Awardee for long and distinguished service to Chemistry; in 1988, the White House Initiative gave him its first, and only Lifetime Achievement Award; and in 1989, Massie, a graduate of two HBCU institutions, was inducted into The National Black College Hall of Fame in Science.

In recent years, he was named the featured teacher in an article in the official U.S. Navy journal *All Hands*, entitled: "A Spotlight on Excellence". He also received the U.S. Naval Academy's Faculty Achievement Award. In 1992, the National Naval Officers' Association and the U.S. Naval Academy's Afro-American Alumni established the Samuel P. Massie Educational Endowment Fund in his honor to help pay college tuition costs for women, minority and low-income residents of Anne Arundel County, MD, home of the Academy. In 1993, he was the first Afro-American to receive honorary membership in the U.S. Naval Academy Alumni Association (limited to 25 members). In April 1994, he was permanently placed in the Smithsonian Institute exhibit on *Science in American Life*.

Dr. Massie is married, and his wife, (Mrs. Gloria Massie) recently retired from Bowie State University after 28 years of teaching psychology. They have three sons, all of whom finished law school, and five grandchildren. ♦

ACS Short Course

Pharmacology For Chemists

A Two-Day Short Course Sponsored by the Northeastern Section, ACS, Committee on Continuing Education

National ACS is making top-rated ACS Short Courses available to local sections at tuition fees greatly reduced from the normal \$785. The NESACS Committee on Continuing Education is pleased to present this course, which has been offered successfully at each National ACS Meeting since 1979.

Dates and Time: Thursday, Nov. 17, 1994, 8:30 a.m. – 6:00 p.m.
 and Friday, Nov. 18, 1994, 8:30 a.m. – 6:00 p.m.

Place: Snell Library, Room 90, Northeastern University, 360 Huntington Ave., Boston, MA

Program Agenda:

General Concepts and Principles of Pharmacology: definitions, survey of the literature; membrane models; structure of liquid water and implications to pharmacology; absorption and distribution of drugs; active and passive transport; drug metabolism; storage, excretion and enzyme induction; receptor site theory; theories of drug activity; pharmacokinetics; primary drug screening; dose ranges; acute toxicity; LD₅₀ and ED₅₀; dose response — potency vs efficacy.

Nervous System: anatomy and physiology; the reflex arc; autonomic nervous system, autonomic physiology and pharmacology; cholinergic agonists and antagonists; adrenergic agonists and antagonists; analgesics and related agents - non-narcotic, narcotic-endorphins, narcotic-antagonists.

Chemistry of the Mind: physiology and neurotransmitters in the central nervous system.

Cardiovascular Agents — if time permits.

Instructor: Joseph G. Cannon, Professor and Head of Medicinal Chemistry and Natural Products, College of Pharmacy, University of Iowa. Prof. Cannon is one of the highest-rated instructors in the ACS continuing education program.

Pre-registration Required — Registration Fees:

ACS Members if mailed before Oct. 31 \$225.00; after Oct. 31 \$275.00
 Non-ACS Members if mailed before Oct. 31 ... \$325.00; after Oct. 31 \$375.00

There will be a limited number of scholarships for unemployed ACS Members on a space-available basis.

Parking Fee \$3.00/day University cafeterias will be available for lunches.

For further information contact: Prof. Alfred Viola — (617) 373 2809

Registration form for Short Course: Pharmacology for Chemists

Name: _____ Affiliation: _____

Mailing Address _____ Telephone: _____

Mail with remittance to :
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Prof. Alfred Viola, Chair
 NESACS Committee on Cont. Ed.
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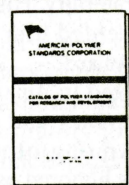
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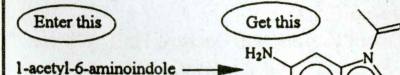
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Index of Advertisers

Advanced Surface Technology, Inc.	8
Am. Instrument Exchange	10
Am. Instrument Exchange	11
Am. Polymer Standards Corp.	10
Betec Laboratory	10
ChemInnovation Software	11
Desert Analytics	10
Galbraith Laboratories	8
Jordi Associates, Inc.	10
Mass-Vac	2
Micron	10
NMR Concepts	2
Oryza Laboratories	10
Quantitative Technologies, Inc.	11
Scientific Bindery Productions	11
Spectral Data Services, Inc.	11
Surfaces Research & Apps, Inc.	10
Technology Exchange Corp.	10

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November 1

Prof. Bret Jackson (UMass Amherst)
“Theoretical Studies of Eley-Rideal Reactions on Surfaces”
Tufts University
Room 104 Pearson Laboratory at 4:30 pm
Prof. Klaus Schulten (Univ. of Illinois)
“Molecular Dynamics Investigation of the Proton Pump Cycle of Bacteriorhodopsin”
MIT
Room 2-105 at 4:00 pm

November 2

Dr. Mary J. Schulz (Tufts University)
“Heterogeneous Chemistry in the Stratosphere”
UMass Dartmouth
Room 305 Science & Engineering Building (Group II) at 4:00 pm
Prof. Kevin Lehmann (Princeton Univ.)
“Spectroscopic Studies of Intramolecular Dynamics”
Harvard University
12 Oxford Street, Room Mb-23 at 4:00 pm

November 3

Prof. Lanny S. Liebeskind (Emory Univ.)
“Synthetic Organic Methodology Using Ring Strain and Transition Metals”
Boston College
Room 127, Merkert Chemistry Center at 4:00 pm

November 7

Prof. Robert E. Buxbaum (Michigan State Univ.)
“Very High Hydrogen Fluxes with Palladium-Coated Refractory Metal Membranes”
Tufts University
Room 136, STC Building, 4 Colby St., Medford, MA at 2:30 pm

Prof. Ronald Kluger (Univ. of Toronto)
“Targeting Hemoglobin by Chemical Design”
Harvard University
12 Oxford St., Room Mb-23 at 4:15 pm

Dr. Mark Tuckerman (IBM Zurich)
“*Ab Initio* Simulations of Protonic Charge Defects in Water”
Boston University
590 Commonwealth Ave., SCI 107 at 4:00 pm

November 8

Dr. Thomas Harris (DuPont-Merck Pharmaceutical Company)
“Synthesis and Biological Activity of Radiolabelled IIb/IIIa Receptor Antagonists as Thrombus Imaging Agents”
Tufts University
Room 104 Pearson Laboratory at 4:30 pm

November 9

Dr. Barry B. Snider (Brandeis Univ.)
“Mn(III)-Based Oxidative Free-Radical Cyclizations”
UMass Dartmouth
Room 305 Science & Engineering Building (Group II) at 4:00 pm

November 10

Prof. Alexander Pines (Univ. of California, Berkeley)
“Magnetic Moments”
Boston College
Room 127, Merkert Chemistry Center at 4:00 pm

Prof. Curt Wittig (Univ. of Southern California)
“Photochemistry of Weakly Bound Complexes”
Harvard University
12 Oxford Street, Room Mb-23 at 5:00 pm

November 14

Prof. Richard Friesner (Columbia Univ.)
“Correlated *Ab Initio* Electronic Structure Calculations on Large Molecules in the Gas Phase and in Solution”
Boston University
590 Commonwealth Ave., SCI 107 at 4:00 pm

Dr. Adam Heller (ACS 1994 Materials Award Winner, Univ. of Texas, Austin)
“Amperometric Biosensors Based on ‘Wiring’ of Enzymes With Redox Macromolecules”
Polaroid Corp.
Polaroid Farmhouse Lecture Hall, Winter St., Waltham exit 27, Rt 95/128
Social Hour 7:00 pm, Lecture 8:00 pm

November 15

Prof. R. Kirss (Northeastern Univ.)
“New Chemistry of Phosphine Bridged Palladium Dimers”
Northeastern University
Room 129 Hurtig Building at 4:00 pm

November 16

Prof. Eric Heller (Harvard Univ.)
“Tunneling Effects in Polyatomic Molecules”
Harvard University
12 Oxford Street, Room Mb-23 at 4:00 pm

continued on page 4

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