



*The Bulletin*  
of the  
Virginia Section  
AMERICAN CHEMICAL SOCIETY

**FEBRUARY MEETING NOTICE**

**University of Richmond**

**FEBRUARY 2007**

**Richmond, Virginia**

**Friday, February 23, 2007**

**POWELL  
RECEPTION**

**6:00 p.m.**  
Richmond Room  
Heilman Dining Center

**DINNER:**

**6:30 p.m.**  
Richmond Room  
Heilman Dining Center

**PROGRAM:**

**7:30 p.m.**  
Auditorium  
Gottwald Center for

the Sciences

**MENU:**

House Salad, Grilled Chicken Breast Served with Creamy Grits, Fresh Peas, Caramelized Pearl Onions, Assorted Desserts, Coffee and Tea. Pasta Primavera is available as a vegetarian alternative.

**PRICE:**

\$12.00 (no reductions)

**DINNER  
RESERVATIONS:**

Please make reservations for the Dinner by **NOON on Tuesday, February 20** by calling the Chemistry Department at the University of Richmond, (804) 289-8242 or e-mail to [amallory@richmond.edu](mailto:amallory@richmond.edu).  
**NOTE: Because of space constraints, the number of dinner places is limited to 80. PLEASE MAKE YOUR RESERVATION EARLY.**

**HOST:**

Dr. William Myers, (804) 289-8249; [wmyers@richmond.edu](mailto:wmyers@richmond.edu)

**SPEAKER:**

**Dr. Sunney Xie, Harvard University**

**TOPIC:**

**“Holding Single Molecules up to the Light:  
From *in vitro* to *in vivo* Studies”**

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
		reservations			meeting	
25	26	27	28			

## The W. Allan Powell Lectureship

---

### Dr. Sunney Xie

X. Sunney Xie was born in Beijing, China, in 1962. He received a B.S. in chemistry from Peking University in 1984, followed by a Ph.D. from the University of California at San Diego in 1990, working with Professor John Simon. After postdoctoral research with Professor Graham Fleming at the University of Chicago, Xie joined the Environmental Molecular Sciences Laboratory at Pacific Northwest National Laboratory in 1992 where he later became a Chief Scientist. In 1999, he joined Harvard University as Professor of Chemistry and Chemical Biology. His research interests are single-molecule enzymology, imaging gene expression, and coherent anti-Stokes Raman scattering microscopy. Xie's honors include the 1996 Coblentz Award, the 2003 Raymond and Beverly Sackler Prize in the Physical Sciences, and a 2004 NIH Director's Pioneer Award.



### Holding Single Molecules up to the Light: From *in vitro* to *in vivo* Studies

At the single molecule level, a chemical reaction occurs stochastically. We study ever-fluctuating single enzyme molecules and reconcile their enzymatic kinetics with the classic Michaelis-Menten equation. In addition, we have developed new methods to probe spontaneous as well as functionally important conformational dynamics in an intact protein.

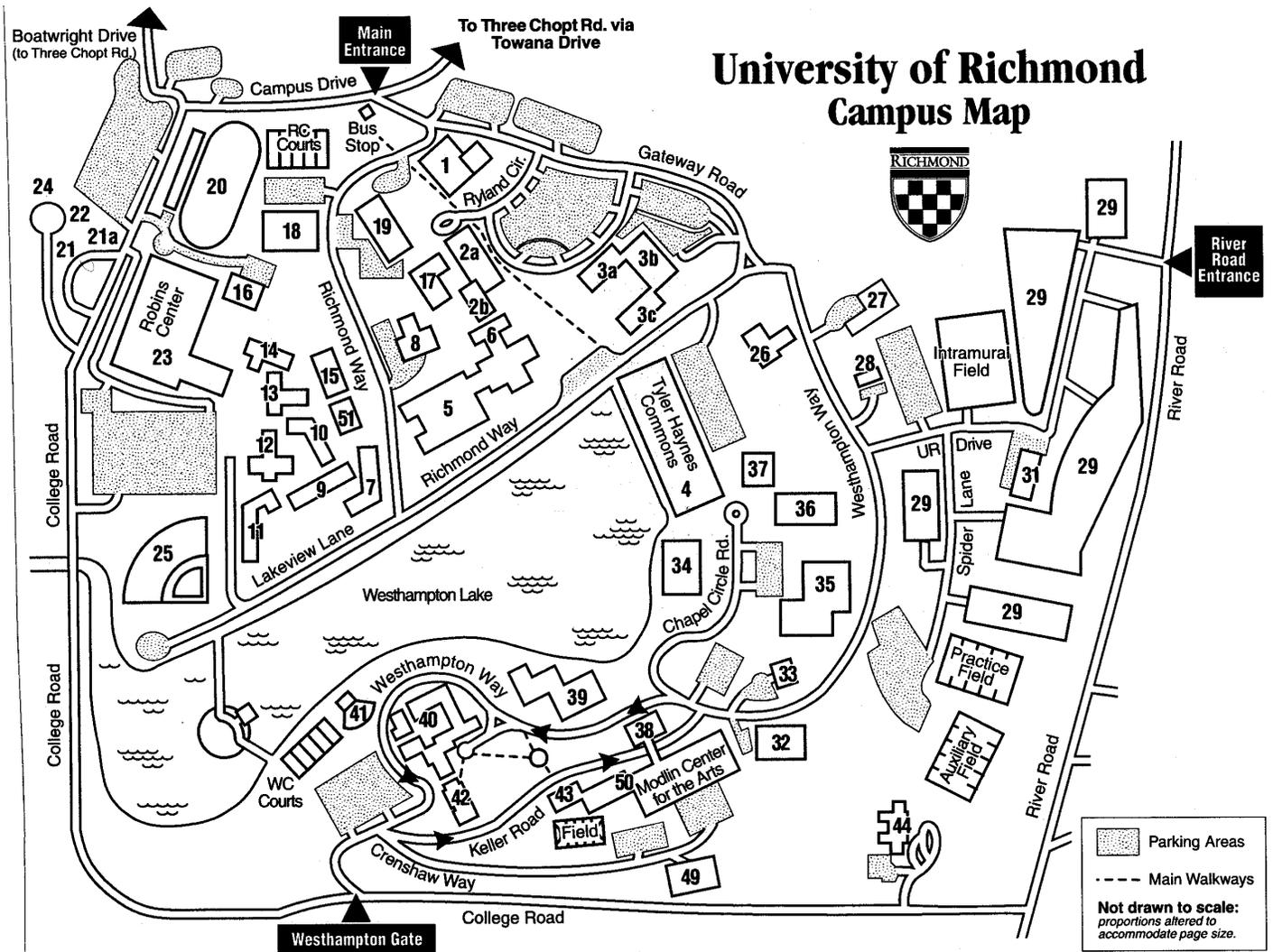
In a living cell, gene expression is by definition a single molecule problem because of one or two copies of DNA and low copy numbers of most mRNA and some proteins that are involved in the gene expression process. Stochastic events of gene expression give rise to different phenotypes among genetically identical cells or organisms. We have developed methods for probing gene expression at the single molecule level, yielding new and quantitative information regarding the fundamental processes in living cells.

#### **VIRGINIA ACADEMY OF SCIENCE MEETING**

The 85<sup>th</sup> Annual Meeting of the Virginia Academy of Science will be held at James Madison University in Harrisonburg on May 24-26, 2007. Persons interested in presenting in the Chemistry Section should send the author's name(s), author's affiliation(s), and presentation title to Dr. Thomas DeVore, Chemistry Department, MSC 4501, James Madison University, Harrisonburg, VA 22807; (540) 568-6672; devoretc @ jmu.edu. The deadline is February 16. More information can be found at <http://www.vacadsci.org/meetings.htm>.

# DIRECTIONS

From I-64, take the Glenside Drive South exit (Exit 183A) and go about 1.5 miles to the 4th traffic light. Turn left on to Three Chopt Road and go about 0.8 mile. Follow the signs to the University of Richmond, turning right on to Boatwright Drive, then left on to Campus Drive. Turn right through the main gate. Continue on Gateway Road to the traffic island. Turn left on to Westhampton Way. Continue on Westhampton Way to the top of the hill where it joins Chapel Circle Drive. Parking is available in two lots at the top of the hill. The Powell Reception and Dinner will be in the Richmond Room (downstairs) of the Heilman Dining Center (# 34 on the map below) which is across from the Gottwald Science Center (# 35). The program will be in the auditorium of the Gottwald Science Center. Note—there is no parking available in front of the Science Center. See map below.



HEILMAN DINING CENTER

GOTTWALD SCIENCE CENTER

**P = PARKING**

**\*\*\* VIRGINIA SECTION NEWS \*\*\***

### FUTURE MEETINGS

**DATE:** March 23, 2007  
**LOCATION:** Hampden-Sydney College  
 Hampden-Sydney, Virginia  
**HOST:** Dr. C. William Anderson  
**PHONE:** (434) 223-6178  
**SPEAKER:** Dr. Ariel Fenster

**DATE:** April 13, 2007  
**LOCATION:** University of Virginia  
 Charlottesville, Virginia  
**HOST:** Dr. James Demas  
**PHONE:** (434) 924-3343  
**SPEAKER:** Dr. William Bare  
**TOPIC:** "Why Matter Matters"



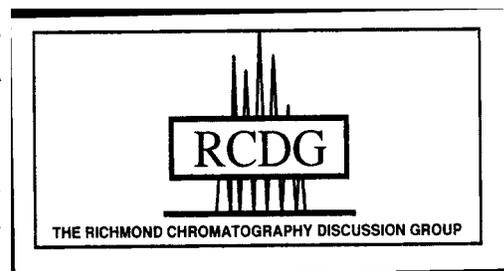
**STUDENT POSTER SESSION**

### RICHMOND CHROMATOGRAPHY DISCUSSION GROUP

The Richmond Chromatography Discussion Group (RCDG) has scheduled these meetings:

Feb. 20 - **Greg Eppink**, Applied Biosystems, "Moving from GC-MS to LC-MS/MS with Q Trap Technology," Philip Morris USA Research Center, Richmond

Mar. 20 - **Dr. Christian Schuh**, Philip Morris USA, "Aroma Activity Value Concept - Theory and Application," Philip Morris USA Research Center, Richmond



RCDG promotes the interests of chromatographic and other separation sciences by expanding the awareness and capabilities of individuals from the scientific community. The group publishes a newsletter, presents lectures, and provides student scholarships. For more information and a schedule of their seminars, check the RCDG website, <http://rcdg.org>, or contact Carol Sheets at [sheetsc@wyeth.com](mailto:sheetsc@wyeth.com); (804) 257-2453.

### SEMINARS AT THE UNIVERSITY OF VIRGINIA

February 2 - **Professor Steven Zimmerman**, University of Illinois at Urbana-Champaign, "Recognition-Driven, Supramolecular Polymer Chemistry" (**LUTZ LECTURE**)

February 16 - **Professor Mark Wightman**, University of North Carolina

March 23 - **Professor Raoul Kopelman**, University of Michigan

Seminars are scheduled for 4:00 p.m. in Room 304 of the Chemistry Building. The complete colloquium schedule can be found at <http://www.virginia.edu/chem/newsandevents/seminars/>.

## THE CHAIR'S CORNER

It is hard to believe that we are well into 2007. I take this opportunity to say thank you to the members and officers of the Virginia Section of the American Chemical Society. Special thanks goes to Dr. Dorothy Eseonu, Immediate Past Chair, for listening to me and answering lots of my questions. I am honored to serve as Virginia Section 2007 Chair and look forward to working with everyone in what is destined to be an exciting year.



In December 2006, several members received either phone calls or e-mails inviting them to participate on our Executive Committee and in other ACS activities. The Virginia Section has a wealth of talented members and I want you to know that we need you and that your help is greatly appreciated. Your responses have just been wonderful, with members volunteering for various committees as well as members willing to represent their respective school or company at our meetings, and I'm still looking for more. Some members have asked about a calendar of Virginia Section events and activities. The Bulletin, our Section publication, and our website at <http://membership.acs.org/VVA/> are two of the best resources for keeping you up to date. Of course, I am also available and my contact information appears in both of those resources.

The Virginia Section will continue to be active in ACS project initiatives. As discussed at the Executive Committee meeting, some of the project initiatives and activities include the Chemistry Olympiad, National Chemistry Week, Project Seed, and a new pilot High School Chemistry Clubs Program. The Section will also continue to be supportive of area Science Fairs and in the quest to promote a better understanding of chemistry in our communities. I encourage you to attend our meetings and to bring a guest whenever possible.

Again, I thank you for the opportunity to serve as Chair and I'm excited about working together to make 2007 a great year for our Virginia Section.

...Will H. Lewis, Jr., Ph.D.  
Chair, the Virginia Section

## SEMINARS AT VIRGINIA COMMONWEALTH UNIVERSITY

February 1 - **Professor Kent S. Gates**, University of Missouri

February 8 - **Professor Eric Herbst**, The Ohio State University, "The Chemistry of Star Formation"

March 29 - **Professor Laurence Hurley**, University of Arizona, "Drug Targeting of Secondary DNA Structures in Oncogene Promoter Elements" (**KAPP LECTURE**)

March 30 - **Chemical Biology Symposium** (see article below)

The seminars are held at 3:30 p.m. in the Kapp Lecture Hall, Room 1024, in the Mary E. Kapp wing of Oliver Hall, 1001 West Main Street in Richmond. The public is invited. For more information, call (804) 828-1298.

## **CHEMICAL BIOLOGY SYMPOSIUM**

On March 30, Virginia Commonwealth University (VCU) and University College Dublin will hold a one-day symposium on Chemical Biology. The Symposium will be at VCU in Richmond. Featured speakers will include Professor Ron Breaker of Yale University, Dr. Eric Meggers of the University of Pennsylvania, and Professor Tadhg Begley of Cornell University. Dr. Begley will present a seminar on Thiamin and will lead a discussion of the Chemical Biology curriculum. Speakers from VCU and University College Dublin will also be scheduled. The Symposium will be preceded on March 29 by a presentation on Drug Targeting by Professor Laurence Hurley of the University of Arizona (the Kapp Lecture). For more information on the Chemical Biology Symposium or the Kapp Lecture, contact Dr. Nick Farrell at VCU, (804) 828-1298.

## **2007 CHEMISTRY OLYMPIAD**

The Virginia Section will host the 2007 Chemistry Olympiad for all high school chemistry teachers and students who are interested in participating. The Local Section competition will begin on March 4 and end on March 24, 2007. High school teachers can make arrangements within their schools to provide secure testing sites and administer the Olympiad exams. **The deadline for applications is February 24, 2007.** For more information and the application forms, either hard copy or on-line, go to the Virginia Section Chemistry Olympiad site at <http://membership.acs.org/VVA/olympiad/default.htm>.

The students who do well in the Local competition will be nominated to compete in the National competition hosted at J. Sargeant Reynolds Community College in Richmond, Virginia on April 28. These students will compete for 20 positions in the study camp to be held at the US Air Force Academy in Colorado Springs, Colorado on June 3-17, 2007. The five member International Chemistry Olympiad (IChO) team will be chosen from these 20 students to compete in the IChO. This year the 39th International Chemistry Olympiad competition will be held in Moscow, Russia on July 15-24, 2007.

Local Section competition is organized into three categories: small public or private schools (enrollment under 500 students), large schools (over 500 students), and schools with specialized programs such as Governor's schools. Each student who participates receives a certificate of recognition. The highest scoring student from each school receives a Chemistry Olympiad pin. High scoring students in the Section will receive gift certificates. Team awards will be presented to schools for group achievement.

For complete information and registration materials, visit the Virginia Section website or contact the Olympiad Coordinator: Dr. Ann M. Sullivan, Mathematics and Science, Downtown Campus, J. Sargeant Reynolds Community College, P. O. Box 85622, Richmond, VA 23285-5622; (804) 862-4260, (804) 943-2941, or (804) 523-5777; FAX: (804) 732-6077; e-mail: [asullivan @ reynolds.edu](mailto:asullivan@reynolds.edu).

## **TOUR OF CHEMICAL FACILITY**

The Virginia Section would like to schedule a tour of a chemical facility. This could be a manufacturing site, research laboratory, or government or academic site. If you have suggestions for such a tour, please contact Mr. Trey Gregory, the Chair-elect of the Virginia Section: (804) 504-8840; [cgregory @ bichemicals.com](mailto:cgregory@bichemicals.com).

## CHEMISTRY AT THE UNIVERSITY OF RICHMOND

The Chemistry Department at the University of Richmond is located in the Gottwald Center for the Sciences along with the Departments of Biology and Physics. Offering both the B.S. and B.A. degrees in chemistry and the B.S. degree in Biochemistry & Molecular Biology, the department provides excellent preparation for work or professional studies in chemistry, chemical engineering, biochemistry, and the health sciences. The department meets the certification requirements of the American Chemical Society for the B.S. in Chemistry and in Chemistry/Biochemistry.

Our students receive a strong background in chemistry in an environment of activity and support from an able and enthusiastic faculty. Class sizes are never greater than 40 and upper level classes and teaching laboratory sections generally have less than 20. Students enjoy the use of a wide variety of modern instrumentation both in their teaching laboratories and in their research. Many of our students present the results of their research work to the scientific community both by presentation at meetings on and off campus and in publications. They have the opportunity to grow and learn in an exciting and supportive atmosphere, and when it is all over, they find that they are well prepared to pursue their dreams.

The chemistry major at the University of Richmond provides a strong basic background in the major sub disciplines of chemistry (analytical, inorganic, organic, physical and biochemistry). Richmond graduates are ready to enter the best chemistry graduate programs in the country, to enter the work force as chemists in industry and government, to proceed into careers as secondary school teachers, or to develop careers in sales and marketing for technical industry. The major also provides strong background for studies in the health professions, the allied health professions and law. The number of students graduating with a major in chemistry has been between 15 and 25 for the past few years. The majority of our students participate in research sometime during their program. About half of recent graduating chemistry majors entered graduate programs in chemistry or related fields.

A \$35 million renovation and expansion of Gottwald Center for the Sciences is now complete.

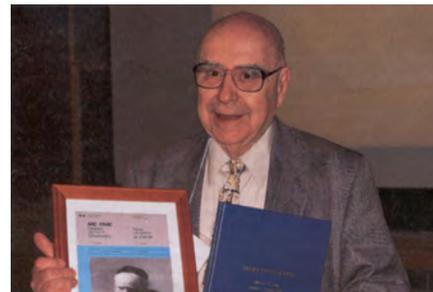
Approximately 28,000 square feet of new space has been added and the existing 162,000 square feet have undergone extensive renovation to include cutting-edge technology and scientific equipment. New space spans parts of the existing south and west sides of the building. Our facility includes a new atrium, new and renovated research laboratories and an entrance more closely aligned with the Collegiate Gothic architecture of most campus buildings. Flexibility to add future teaching and research technologies was designed into the project. Upgrading Gottwald is part of the University's

\$50 million plan to improve science facilities and programs over this decade and to place Richmond among the first-choice colleges of America's top high school science students. The initiative includes creating five interdisciplinary centers for scientific discovery-material science, environmental science, neuroscience, biological chemistry, and nuclear and particle physics. Over this decade, the University will add up to 18 new faculty positions and place greater emphasis on interdisciplinary studies and innovative science classes for non-majors.



## QUESTIONS FROM THE PAST

This question was asked in the January Bulletin: An article in the October 23, 2006 issue of *C&EN* reported on a lecture on the Dutch painter Rembrandt that Alfred Bader gave at the Royal Netherlands Embassy in Washington, D.C. on Oct. 5. The event was sponsored by the American Chemical Society and the Chemical Society of Washington. Dr. Bader cofounded Aldrich Chemical which later became Sigma-Aldrich, the world's largest supplier of research chemicals. He is a renowned collector of fine art and an expert on Rembrandt. **Alfred Bader spoke to the Virginia Section. When and where did he speak to the Section on "The Chemistry in Art"?**



The date was February 15, 1984, the place was the University of Richmond. The photograph above shows Dr. Bader in 2004.



**Two new questions:** When Bob Kemp retired from his position as head of the Chemistry Branch at the Naval Weapons Laboratory in Dahlgren, Virginia, he also resigned as Chairman of the Virginia Section and he and his wife Jean moved to Asheville, North Carolina. **1. What year was that?** and **2. Who took over from Bob Kemp as Chairman of the Section for the remainder of Bob's term?** (the photograph shows Bob and Jean Kemp at the time of his retirement)

## VIRGINIA SECTION WEBSITE

Don't forget to check out the Virginia Section website, located at: <http://membership.acs.org/VVA/>. Thanks to Ann Sullivan for maintaining the site. Anne can be contacted at [asullivan @ reynolds.edu](mailto:asullivan@reynolds.edu).

## SECTION'S NCW ACTIVITIES CITED IN C&E NEWS

An article in the December 11, 2006 issue of *Chemical & Engineering News* described activities that celebrated **National Chemistry Week 2006**. The Virginia Section's NCW program at the Science Museum of Virginia was included in the article:

"More than 500 children participated in the Virginia Section's three-day event at the Science Museum of Virginia in Richmond. Volunteers from academia and industry helped students learn about polymers, make superballs, understand the importance of insulation in a house, and build a birdhouse."



If you missed the NCW article, check the archived issues of *C&E News* at [www.cen-online.org](http://www.cen-online.org).

Dr. Kristine Smetana, National Chemistry Week Coordinator for the Virginia Section, is already planning the activities for NCW 2007. This year's theme will be "The Many Faces of Chemistry." It will be celebrated October 21-27, 2007. There will be a Poster Contest for students and a Chemvention Competition for student affiliate chapters. To volunteer ideas or your assistance, contact Dr. Smetana at [ksmetana @ jtcc.edu](mailto:ksmetana@jtcc.edu), (804) 706-5143. For more information on NCW 2007, check the ACS website: <http://www.chemistry.org/> (choose Natl Chem Week under the "Quickfind:")

## **JEFFERSON CUP**

For many years, the Virginia Section has had a tradition of presenting each speaker at its meetings an inscribed Jefferson Cup. Does anyone know how or when this practice began?

## **JUDGES FOR THE VIRGINIA JUNIOR ACADEMY OF SCIENCE**

Judges and meeting chairs are needed for the annual meeting of the Virginia Junior Academy of Science (VJAS), to be held at James Madison University in Harrisonburg, May 23-25, 2007. Last year nearly 700 students from grades seven through twelve presented papers and reported on original research work. If you would like to contribute to this celebration of science by young persons, please contact Susan Booth, VAS Director at susanscience @ msc.com or (757) 874-3349. Judges are needed in Agriculture & Animal Science, Animal Behavior, Botany, Chemistry, Computer Science, Consumer Science, Design Technology, Earth & Space Science, Engineering, Environmental Science, Genetics & Cellular Biology, Mathematics, Medicine & Health, Microbiology, Physical Science, Physics, Psychology, Statistics, and Zoology.

## **A NOTE TO HIGH SCHOOL CHEMISTRY TEACHERS**

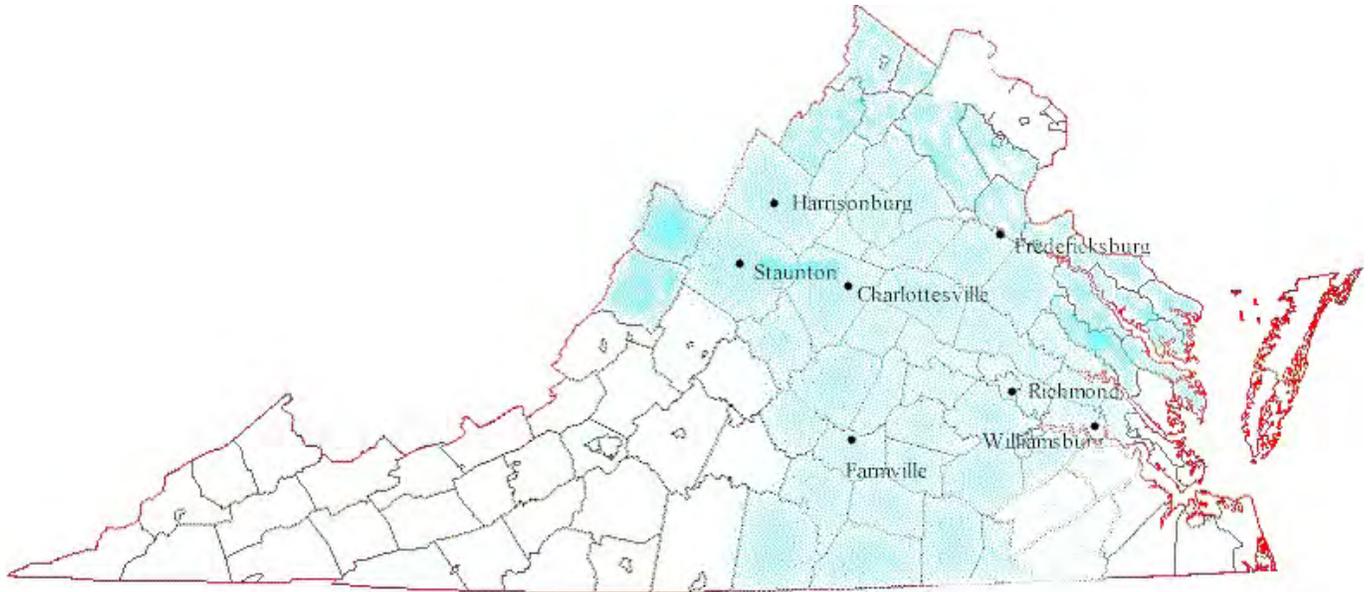
For the past several years, I have felt that the local ACS (American Chemical Society) sections and VAST (Virginia Association of Science Teachers) should coordinate their efforts to help chemistry teachers throughout the state do an even better job of teaching chemistry. I have long been associated with the Virginia Section of the ACS, and have recently been asked to serve on the VAST board as the chemistry representative. So if ever there was an opportunity to get some things in place to improve chemistry teaching, now is the chance.

I am soliciting ideas for endeavors that these organizations could do to help us do our job more effectively. As you have ideas that you would like to see explored, e-mail me at the address listed below. I will address a few of the ideas that are planned: the VAST PDI (Professional Development Institute), lab safety, and some other events are available to us.

At the past November VAST PDI, three chemistry teachers assisted by four high school students made a presentation, which received financial support from the VA Section of ACS. Suzanne Aivano, Marvin Curry, Larry White and four HHS chemistry students had equipment, materials, and displays to acquaint the attending teachers with Vernier LabPros, probes and lab activities, Small-Scale Labs developed by Ed Waterman and Steven Thompson, converting coins to "silver" and "gold," a number of moles made by students, and many other items. In addition, there was opportunity for teachers to discuss items of interest and concern to chemistry teachers. We plan to continue having a session of this type at future VAST PDIs, and to expand the support of the ACS to the other sections in Virginia.

If you would be interested in showing your favorite lab, activity, lesson presentation, technology use, or any other thing you do differently in your classroom at the next VAST PDI meeting, contact Larry White at the e-mail address listed below. If you have applied for, or plan to apply for an individual session, even better. We need to have more choice in chemistry-related sessions at the VAST conference. If you are not sure you have anything to contribute at this meeting, attend as many sessions as you can to learn what others are doing. Lab safety is an issue that is more significant for chemistry teachers than for any other science teachers, especially at the high school





**Counties in the Virginia Section:**

Albemarle	Clarke	Hanover	Mathews	Prince George
Amelia	Culpeper	Henrico	Mecklenburg	Prince William
Appomattox	Cumberland	Highland	Middlesex	Rappahannock
Augusta	Dinwiddie	James City	Nelson	Richmond
Bath	Essex	King & Queen	New Kent	Rockingham
Brunswick	Fauquier	King George	Northumberland	Shenandoah
Buckingham	Fluvanna	King William	Nottoway	Spotsylvania
Caroline	Frederick	Lancaster	Orange	Stafford
Charles City	Goochland	Louisa	Page	Warren
Charlotte	Greene	Lunenburg	Powhatan	Westmoreland
Chesterfield	Greensville	Madison	Prince Edward	

## THE BULLETIN

Published eight times a year by  
the American Chemical Society  
Virginia Section

Science Museum of Virginia  
2500 West Broad Street  
Richmond, VA 23220

<http://membership.acs.org/V/VA/>

NON-PROFIT ORGN.

U.S. POSTAGE  
PAID

Richmond, Virginia  
Permit No. 1231

---

### OFFICERS OF THE VIRGINIA SECTION OF THE ACS

---

**Chair - Dr. Will Lewis (804) 274-5869**

Chair-Elect - Mr. Charles (Trey) Gregory (804) 504-8840    Secretary - Dr. Yezdi Pithawalla (804) 274-4587  
Vice Chair - Mr. Kenneth Chapman (804) 448-4852    Treasurer - Dr. Brian Moores, (804) 227-3149  
Bulletin Editor - Dr. James Beck (804) 733-5286    Bulletin Publisher - Dr. Will Lewis (804) 274-5869

---

### ***CAN YOU IDENTIFY THESE PERSONS?***



The date was September 2001 with the subjects holding their award plaques. One of the awardees, who served as Chair of the Virginia Section in 1993, received its Distinguished Service Award in 2001, and is now an Alternate Councilor for the Section. The other two gentlemen, who are faculty members in the Department of Medicinal Chemistry at Virginia Commonwealth University, received the Section's Outstanding Innovation Award. They are the founders of *eduSoft, LC*, a company that provides unique and novel computer-based tools for drug design and molecular biology.

The "mystery person" in the January issue was **Dr. Rae Carpenter**, who did a lecture-demonstration on "Physics is Phun" at the Science Museum of Virginia on December 6, 2001.



