



*The Bulletin*  
of the  
*Virginia Section*  
AMERICAN CHEMICAL SOCIETY

NOVEMBER MEETING NOTICE

*University of Mary Washington  
Fredericksburg, Virginia*

*Friday, November 13, 2015*

**RECEPTION:** *6:30 p.m.*  
Lobby outside the  
Digital Auditorium  
Hurley Convergence Center

**PROGRAM:** *7:30 p.m.*  
Digital Auditorium  
Hurley Convergence Center

**MENU:** Heavy Hors-d'oeuvres, Desserts, Beverages

**PRICE:** ACS Members & Guests - \$20.00  
High School Students, College Students, High School Teachers - \$10.00;  
Retired ACS Members & Spouses, Retired Teachers & Spouses - \$15.00

**DINNER RESERVATIONS:** Please make reservations by **NOON** on **Monday, November 9**  
by calling Nicole Johnson at (540) 654-1016 or by e-mail to  
[nargenzi@umw.edu](mailto:nargenzi@umw.edu)

**HOST:** Dr. Leanna Giancarlo, (540) 654-1407, [lgiancar@umw.edu](mailto:lgiancar@umw.edu)

**SPEAKER:** **Dr. Bryan Tienes, Naval Surface Warfare Center,  
Dahlgren Division**

**TOPIC:** "Chemical, Biological, and Radiological (CBR) Defense at the  
Naval Surface Warfare Center Dahlgren Division (NSWCDD)"

**NOVEMBER 2015**

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29	30					

## DR. BRYAN TIENES



Dr. Bryan Tienes is an Analytical Chemist who joined the Naval Surface Warfare Center, Dahlgren Division in August 2013. During his time with the CBR Concepts & Experimentation Branch he has been the lead analytical chemist and point person for the NMR and GC-MS instruments. He received his Ph.D. in analytical chemistry from the University of Colorado at Boulder in 2013, where he focused on the synthesis and characterization of nanoscale materials. The title of his dissertation was “Synthetic Methods for Nanomaterials of Controlled Composition and Morphology.” Prior to graduate school, Dr. Tienes worked in the Analytical Services and Development group at STERIS Corporation in St. Louis, Missouri. While at STERIS, he worked on the development of CBR decontamination products and was co-author on patent applications for related products. His undergraduate work was completed at the University of Missouri – St. Louis in 2003, where he received a B.S. in Chemistry and did undergraduate research in synthetic organo-metallic chemistry.

### “Chemical, Biological, and Radiological (CBR) Defense at the Naval Surface Warfare Center Dahlgren Division (NSWCDD)”

Weapons of mass destruction (WMDs) are an ever present threat to both the military and the general public. The Chemical, Biological, and Radiological Defense (CBRD) Division at the Naval Surface Warfare Center Dahlgren Division (NSWCDD) is charged with the mission to serve the DoD and the Nation as the Navy Organization providing innovative, timely, and effective products, technical solutions, and expertise in CBRD. The CBRD division is staffed with experts in chemistry, biology, computer science, mathematics, and engineering who are equipped with state of the art laboratories. This talk will provide an overview of the CBRD mission and how the CBRD Division at NSWCDD does multi-disciplinary research and product development to accomplish that mission.

### LIVE INTERNET STREAMING OF THE NOVEMBER 13 MEETING

Can't make the November 13 meeting at the University of Mary Washington? Catch the meeting live by going to this website: <http://convergence.umw.edu/umwdalive/> (you may need to cut the url and paste it into your Internet server) or via this direct *YouTube* link: <https://www.youtube.com/watch?v=5r39ksyz9sY>.



# HAPPY THANKSGIVING

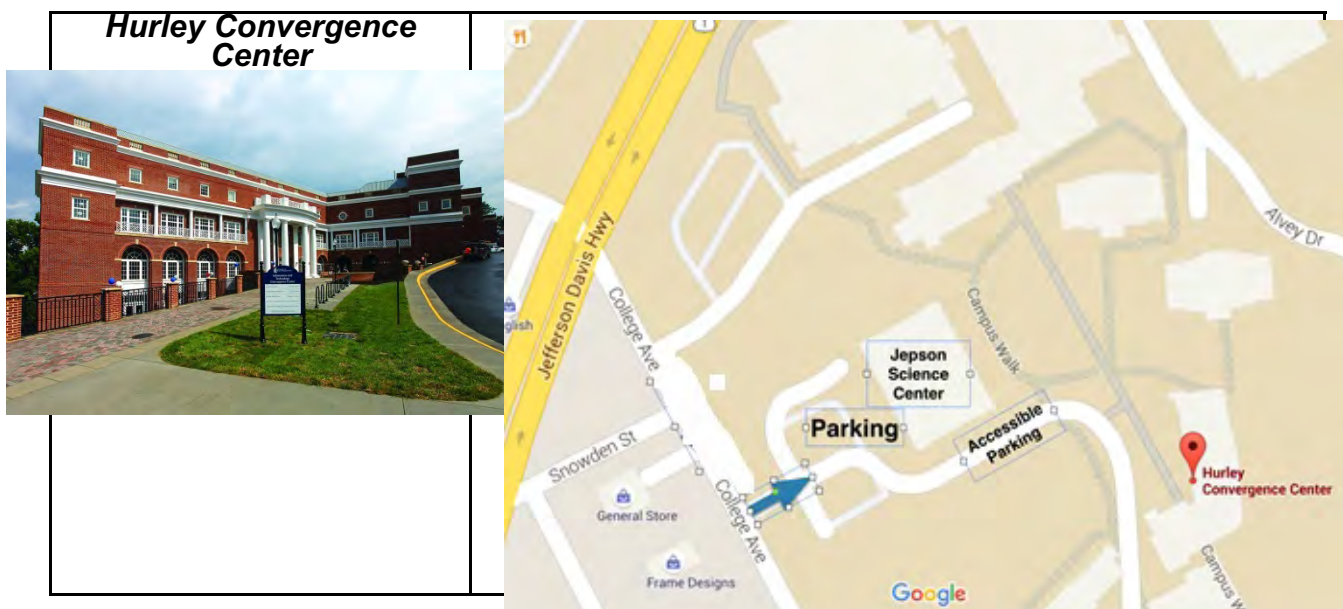


### Directions and Map

Fredericksburg is located just off I-95, about 50 miles north of Richmond. The Hurley Convergence Center is on the north side of the UMW campus. There is on-street parking along College Avenue. Alternatively, you can park in the Jepson Science Center parking lot; the Hurley Convergence Center is across Campus Walk from the Jepson Science Center.

To reach College Avenue and the Jepson parking lot, take Exit 130-A from I-95 and follow Route 3 East Business to the traffic light for William Street. Turn left on to William Street, then left at the next traffic light on to College Avenue.

There is handicapped parking to the south side of the Jepson Science Center. Proceed to the right in the Jepson parking lot. The handicapped spaces are alongside of the building, heading toward the Hurley Convergence Center.



### 2016 MEETINGS OF THE VIRGINIA SECTION

These meetings have been scheduled for 2016:

**January 22** - Virginia State University, Petersburg - Awards Meeting

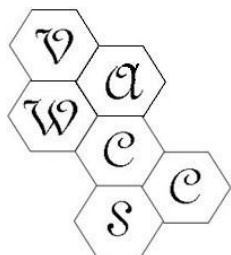
**February 19** - University of Richmond - Dr. Dennis Liotta (Powell Lectureship)

**March 18** - Evonik Industries, Richmond - Dr. Frank Schmidtman, laboratory tour

**April 15** (tentative date) - University of Virginia, Charlottesville



WORDS OF WISDOM FOR NOVEMBER : *“If You Can Dream It, You Can Do It”*

**\*\*\* VIRGINIA SECTION NEWS \*\*\*****WOMEN CHEMISTS COMMITTEE NETWORKING LUNCH**

The Women Chemists Committee (WCC) of the Virginia Section will hold a networking lunch at **noon on Friday, November 20**. The event will be at Chili's at VCU, 355 West Cary Street, Richmond, VA 23284. There is metered parking on the street in front of the restaurant and free parking in the lot across Cary Street. Please **RSVP by November 18** by email to [Stephanie.mabry@aftonchemical.com](mailto:Stephanie.mabry@aftonchemical.com). Contact Stephanie for more information.

**RICHMOND CHROMATOGRAPHY DISCUSSION GROUP MEETING**

The Richmond Chromatography Discussion Group (RCDG) will meet at **5:30 p.m. on Tuesday, November 10** at Virginia Commonwealth University. The program on "**Recent Advances in LC/MS Including Ion Mobility**" will be presented by Julia Wright of Agilent Technologies. The meeting will be in Room 129A-B of the School of Pharmacy Smith Building, 401 N 10<sup>th</sup> Street, Richmond, VA 23298. Please RSVP by **Thursday, November 5** to [richmondchromatographydg@gmail.com](mailto:richmondchromatographydg@gmail.com). The meeting is sponsored by Agilent Technologies.

**CHEMISTRY SEMINARS AT THE UNIVERSITY OF VIRGINIA**

November 6 - **Professor Marcel Bruchez**, Carnegie Mellon University, "Genetically Encoded Chemical Sensors and Sensitizers: From Single Molecules to Whole Animals"

November 13 - **Professor Steve Soper**, University of North Carolina at Chapel Hill, "Integrated Fluidic System for Analysis of Circulating Tumor Cells: Searching for Drug-Induced DNA Damage Using Nanosensors"

All lectures are scheduled at 4:00 p.m. in Room 304 of the Chemistry Building. For more information, visit this website: <http://chem.virginia.edu/events-seminars/>.



The **100th Anniversary Gala** was held at the DoubleTree by Hilton Hotel in Richmond on Saturday, October 24. Over 140 persons enjoyed a delicious dinner and a program of activities to celebrate the Section's centennial.

The evening began with a reception that featured exhibits and displays on some of the achievements of the Section. The posters on display included several from student affiliate chapters at colleges and universities within the Section, as well as some from sponsoring organizations. At the after-dinner program, **Dr. Todd Koch**, Chair of the Virginia Section, welcomed everyone, then introduced special guests, and recognized Gala sponsors. A number of official proclamations and letters of congratulation were presented, including one from the American Chemical Society that was read by **Dr. Diane Grob Schmidt**, 2015 President of the ACS, and one from the Chesterfield County Board of Supervisors that was presented by **Mr. William Dupler**, Deputy County Administrator for Community Development.

**Mr. Larry White**, Chair of the *ad hoc* Committee on the Section's History, provided a brief history of the Section.

**Dr. Denise Walters**, Chair-Elect of the Section, recognized 33 special persons, including those who have served the Section as Chair, winners of the Distinguished Service Award, winners of teaching, industrial, and special awards, and ACS Fellows.

**Dr. James Beck** described the nature of a new Section award recognizing longstanding and outstanding service to the Section. **Dr. William Welstead** introduced **Dr. R. Gerald Bass** as the first recipient of the **R. Gerald Bass Award for Exceptional Service**. Dr. Bass received a plaque and a very special gift—a quilt featuring scenes from his life, hand-made by Dr. Walters.

Dr. Walters then introduced Dr. Schmidt, the keynote speaker, who talked about "Looking Back, and Looking Forward." Dr. Schmidt encouraged the Virginia Section to meet the challenges of the future and to adapt to changing conditions.

After some final remarks from Dr. Koch, the meeting closed with anniversary cake, coffee, and conversation.

*Editor's note:* A more complete report on the Anniversary Gala, including photographs, will appear in the December issue of *The Bulletin*.

## SEMINARS AT VIRGINIA COMMONWEALTH UNIVERSITY

November 5 - **Dr. Chris Mundy**, Pacific Northwest National Laboratory

November 10 - **Dr. Jennifer Aitken**, Duquesne University

November 12 - **Dr. Jeffrey Seeman**, University of Richmond

November 19 - **Dr. Amanda J. Morris**, Virginia Tech, "Exploring Metal Organic Frameworks for Use as Integrated Artificial Photosynthetic Assemblies"

November 24 - **Dr. Sarah Michel**, University of Maryland



All seminars are scheduled at 3:30 p.m. in Room 1024 of Oliver Hall-Physical Science Wing.

### CORRECTION TO BIOGRAPHICAL STATEMENT FOR DR. JOSEPH POMPANO

An outdated biographical statement for Dr. Joseph Pompano was printed in the October *Bulletin* and also in the biographical statements that accompanied the ballot for 2016 Section officers. Here is the correct statement for Dr. Pompano.

"Joe Pompano was raised in Connecticut and earned his BS in mathematics and chemistry at the University of Connecticut in Storrs. Joe received an M.S. in Human Nutrition from the University of Massachusetts, and did a Dietetic Internship at the Medical College of Virginia Hospitals in Richmond, which brought him to Virginia in 1982. After teaching high school mathematics and chemistry in Henrico County for 16 years, he obtained a Ph.D. in chemistry from Virginia Commonwealth University, doing research with Professor Sarah Rutan on artificial neural networks in the analysis of water soluble sulfonylurea herbicides, using an LC/MS.

In the 1970's, Joe was the founder of an alternative school in Orange, Massachusetts and the owner/operator of a natural foods restaurant. His professional chemistry- related experience includes working as a laboratory technician at Erving Paper Mills in Erving, Massachusetts, as a Principal Scientist at Boehringer-Ingelheim Chemicals, Inc. in Petersburg and Arista Labs in Richmond. He is currently employed as a Senior Scientist at Eurofins Lancaster Labs in Richmond.

Joe has been an ACS member since 1994 and is a member in the Analytical Chemistry Division. He is a member of the Executive Committee of the Virginia Section and has served the section as Treasurer, Secretary, Vice-Chair, Chair-Elect, and Chair. He was the General Chair of the 2011 Southeast Regional Meeting of the American Chemical Society (SERMACS) He received the Virginia Section Distinguished Service Award in 2014, and is currently involved with the Chemistry Olympiad.

Joe lives in Hanover with his wife Debbie and two dogs, Snowbear and Corky. He has three daughters. Rachel is an art teacher in Charlottesville, Rebecca is an Assistant Professor of Chemistry at UVA is a, and Laura is a Ph.D. candidate in International Nutrition at Cornell University in Ithaca, New York."

## CAN YOU IDENTIFY THESE PERSONS?



The photograph was taken in December, 2007 at John Tyler Community College in Chester when the distinguished high school chemistry teacher and the distinguished middle school science teacher were recognized by the chair of the Virginia Section. The high school teacher was teaching at Prince George High School and the middle school teacher was employed at the Ni River Middle School in Spotsylvania County. The Chair of the Section was working at Philip Morris Operations Center and received the Section's Distinguished Service Award in 2009.

The mystery persons in the Summer Bulletin were Dr. Orville Chapman and Dr. Allan Powell. The photograph was taken on February 16, 2001 at the Powell Lectureship at the University of Richmond.

Dr. Chapman also spoke to the Virginia Section in Williamsburg on April 22, 1972.



### **REMARKS BY MR. PAUL PARKER**

Mr. Paul Parker, an Honors/IB chemistry teacher at Midlothian High School in Chesterfield County, was presented the Franklin D. Kizer Distinguished High School Chemistry Teacher Award at the September meeting of the Virginia Section. After receiving the award, Mr. Parker made some pertinent remarks about chemistry teaching. He has graciously agreed to share them with us.

Good Evening -

Let me begin by thanking the American Chemical Society for honoring me with this Award. Since I graduated from VCU I would also like to thank some of my former professors such as Dr. Albert Sneden, Dr. Robert Bass, Dr. Brian Moores, who by the way also taught my niece, Dr. King, and Dr. Rezba to name just a few. Their dedication and inspiration in fields in which they taught influenced me to always try and be my best. They were role models on how I conduct myself in the classroom. I find it hard to believe this will be my 25th year of teaching and in that time I have seen a lot of changes —

**Changes in the students, changes in the parents, changes in education and of course changes in myself.**

**What makes a good high school chemistry teacher?**

**First of all you have to establish why you need to study the subject.**

You must remember that some of the students in your class are not there because they want to be but because mom said they had to be.

Well, how do you motivate these students?

I begin by telling them that chemistry is everywhere -

"It's in the food you eat, the clothes you wear, ... medicines" you take and in the cleaners that you use. (Helmenstine "Why Study...") It is the 'central science' because it connects... biology, physics", ...and the environment to each other. (Helmenstine "Why Study...").

Chemistry explains how things work. "Because it is a science, learning chemistry means learning how to ... reason and solve problems" (Helmenstine "How Do I..."). It enables a person to understand some of the world's difficulties and work toward possible solutions.

### Questions like

Ex. Why do metals give off color when they are placed in a Bunsen burner flame?

What is a precipitate and how does it form?

Why does hydrogen explode when heated?

These questions provide a motivation for seeking answers.

### Second of all you have to establish how to learn chemistry?

It has a reputation for being tough, but there are steps you can take to make it easier (Helmenstine "How Do I...")

1. After school go home and review.
2. Practice problems with the intent of grasping the concept. Being able to plug numbers into an equation does not mean you understand it.
3. Study chemistry daily - "If you want to be good at something you have to practice it." (Helmenstine "How Do I...") Don't wait until the night before to prepare. (Helmenstine "How Do I...")

**Several years ago** I had a class that was unmotivated and refused to see any reason for studying chemistry. One day I lost my temper and shoved a desk in the middle of the room and placed my arm on top of a desk in an arm wrestling position and said which one of you thinks you can take me. They laughed and said that was the coolest thing they had ever seen and then said why don't you come to the game tonight and watch us play. I did.

The following week all the foolishness stopped.

Classwork was being done and homework was being turned in.

So if your students reject the reasons why and how, sometimes building a rapport will get the job done.

Thank you again for this honor - best wishes to all!

Works cited: Helmenstine, Ph.D. Anne Marie, "Where and How to Start Studying Chemistry" N.p., n.d. Web 5 Sept. 2015

Helmenstine, Ph.D. Anne Marie, "Why is Studying Chemistry Important?" N.p., n.d. Web 5 Sept. 2015





## CHEMISTRY AT THE UNIVERSITY OF MARY WASHINGTON

The chemistry program at the University of Mary Washington is beginning its seventeenth year in the Jepson Science Center. Eight full-time faculty teach a traditional chemistry major with 10-15 graduating seniors each year. The department's program is approved by the ACS, and it offers an ACS-certified degree as an option. In addition to the usual courses in organic, analytical, and physical chemistry, a full year of biochemistry with lab is available as an elective, as are courses in inorganic chemistry with lab and environmental chemistry with lab. The general chemistry and analytical programs use several cooperative, discovery-based experiments in the laboratory. The Jepson Science Center provides student research space and modern teaching labs, with state-of-the-art multimedia and Internet capabilities. The department is well-equipped, providing all students with hands-on experience with a variety of techniques and instruments, including 60 and 300 MHz H-NMR and C-NMR, FT-IR, GC/MS, ICP-AES, and scanning probe microscopy. Many students do undergraduate research and have presented their results at local, regional, and national meetings. UMW chemistry graduates have earned advanced degrees at schools such as UVA, VCU, Princeton, Florida, Johns Hopkins, and Maryland and medical degrees at UVA, MCV, and EVMS. Other graduates have gone directly to work at government labs including NIH, the DEA, and the Patent Office, or in industries such as Dow Chemical, Philip Morris, PPD, Evonik, and Dominion Power.



## QUESTIONS FROM THE PAST

This question was asked in the October Bulletin: In 1938, the Virginia Section hosted the national meeting for one of the largest scientific organizations in the world. **What was the organization and where was the meeting held? The American Association for the Advancement of Science (AAAS) met in Richmond on December 27-31, 1938.** Registration, general sessions, and the science exhibition were held in the Mosque. Sessions of several associated societies were held at the Medical College of Virginia. The General Headquarters was at the Jefferson Hotel. Other hotels that hosted participants and events included the John Marshall Hotel, the Murphy Hotel, the Richmond Hotel, and the William Byrd Hotel.

Here are some quotes from an announcement of the meeting, written by Dr. F. R. Moulton, Permanent Secretary of the AAAS, that appeared in Vol. 47 of *The Scientific Monthly* (Dec., 1938):

"It is necessary to attend a meeting of the association in order to see science on the march and to feel the warm glow of its spirit. Immediately after next Christmas trains from the Southeast and the South as far west as Texas will be crowded with scientists bound for Richmond; and trains from snowy New England and Canada and from the frozen Middle West will be carrying other scientists to milder Virginia."

“Richmond is a lovely city just where the softer life of the southland rubs elbows with the greater drive and efficiency of the north. It is rich in historical associations. Such names as John Marshall and Lee and Poe give it distinction. The afterglow of a rapidly vanishing aristocratic age still hovers over it. Almost at its door restored Williamsburg brings down the romantic past to the more practical present. The citizens of Richmond are noted for their friendliness and hospitality, and they will make up in warm welcome and attention to the comfort of visitors what the city lacks in the facilities of larger centers of population. The visiting scientists will retain memories not only of their inspiring meetings but also of a comfortable, leisurely way of living that still lingers here and there in the Southland. And, reciprocally, Virginia and its neighbor states will throb with the strong pulse of science that is working revolutions in the life of those areas as well as in that of the remainder of our country.”

The 103<sup>rd</sup> meeting of the AAAS was hosted by the Virginia Section of the ACS. Numerous members of the Section were involved in the planning and execution of the meeting.

*Editor's Note:* Ms. Saadia Raines, Archives and Management Intern at the American Association for the Advancement of Science's Archives and Records Center, provided the information on the AAAS meeting in Richmond. We plan to publish more interesting items about that meeting in future issues of *The Bulletin*.

A new question from the past: Tours of the Ethyl Corporation Research Laboratory in Richmond were featured at a December meeting of the Section with nearly 120 persons in attendance. The meeting included an outstanding dinner served around a large Christmas tree in the Ethyl Pavilion Dining Room, overlooking the James River and the Christmas lights of Richmond. At the meeting, four members of the Section received special handcrafted Christmas ornaments that were made by **Katherine Wingfield** of Kid Chem Ltd. **In what year was this meeting held?**

## ACS WEBINARS

ACS Webinars® is a free, weekly online event connecting ACS members with subject matter experts and global leaders in chemical sciences, management, and business. Each webinar is about 60 minutes in length, comprising a short presentation followed by a question and answer session. The live webinars are scheduled on Thursdays at 2 p.m. Recordings of past webinars are available online. For a schedule of upcoming events and more information on ACS Webinars, go to <http://www.acs.org/content/acs/en/acs-webinars.html>. Here are a few upcoming webinars:

Nov. 5 - **From Truth Serum to Anesthesia: The Discovery and Uses of Sodium Thiopental**

Nov. 12 - **Chemistry of Addiction**

Nov. 19 - **Prodrugs in Drug Discovery**

## JEFFERSON LAB UNCOVERED IN ROTUNDA AT UVA

A chemistry laboratory that may have been designed by Thomas Jefferson has been discovered in a section of the Rotunda at the University of Virginia. The 19<sup>th</sup> century structure was uncovered behind a wall during a renovation project. It features a chemical hearth with two fireboxes to provide heat. It appears that students at the time worked at five stations cut into stone countertops. The chemical hearth may have been used by John Emmett, UVA's first professor of natural history. Jody Lahendro, an historic preservation architect at the University, said that “It really is the beginning of the teaching of science.” Plans are being made for a permanent display of Jefferson's laboratory .

## VIRGINIA SECTION AWARDS

Each year, the Virginia Section recognizes an outstanding person with the Distinguished Service Award. Periodically, the Section presents other awards. The “industrial” and “special” awards fall into several categories that are described below. Also, the Section recognizes elementary, middle school, and high school teachers. Nominations for all of these awards are welcomed. Teacher nominations should be forwarded to **Eileen Downey** at [eileendowney@gmail.com](mailto:eileendowney@gmail.com). Nominations for all other awards should be submitted to **Yezdi Pithawalla** at [yezdi.b.pithawalla@altria.com](mailto:yezdi.b.pithawalla@altria.com) or (804) 335-2301. The 2015 teacher awards were presented in September; all other awards will be presented at the January meeting.

Here are brief descriptions of the industrial and special awards:

**The Outstanding Innovator Award.** This is the most prestigious of the industrial innovation awards presented to an individual. The award is given to an individual whose innovation and industrial leadership in technology has made a contribution to the state, the community, and the local economy.

**The Industrial Innovation Award.** This award is given to an individual whose invention has resulted in a commercial product or a new or improved process for making a commercial product.

**The Environmentally Significant Product Award.** This award recognizes individuals or teams for the development of a novel process or commercial product that has contributed to the improvement of the environment.

**The Process Engineering Award.** This award is given for creative applications of analytical methods for process control that are of major importance to a commercial process.

**The Team Innovation Award.** This award is given to several individuals whose creative innovations have contributed to the commercial success of their company and consequently to the good of the community.

**The Industrial Leadership Award.** This award is given to an individual who has demonstrated outstanding leadership in research and development involving chemistry.

**The Distinguished Research Award.** This award is given to a member of the Virginia Section whose research has made significant contributions in advancing knowledge in his or her field of research.

**The Excellence in Industrial Analytical Chemistry Award.** This award is given to a member of the Section who has excelled in the use of analytical chemistry in an industrial setting.

## PAPER COPIES OF THE BULLETIN

Each issue of the Virginia Section *Bulletin* is posted on the Section's website—<http://www.virginia.sites.acs.org>. E-mail notification of the postings are sent to all Section members and to high school chemistry teachers for whom we have current e-mail addresses. However, paper copies of the newsletter are still printed and are mailed to a limited number of persons who have requested them. If you would like to receive a paper copy of each *Bulletin*, please send us your name and mailing address via e-mail to [beckjd1977@comcast.net](mailto:beckjd1977@comcast.net), or mail it to James Beck, 1977 Vesonder Rd, Petersburg, VA 23805. Please include your nine-digit extended zip code, if you have it. Also, if you are not now receiving e-mail notification of the *Bulletin* postings, please send your e-mail address to us and we will add you to the e-mail notification list.