



The Bulletin
of the
Virginia Section
AMERICAN CHEMICAL SOCIETY

NOVEMBER MEETING NOTICE

NOVEMBER 2014

*University of Mary Washington
Fredericksburg, Virginia*

Tuesday, November 4, 2014

S	M	T	W	T	F	S
						1 <small>reservations</small>
2	3	4 <small>meeting</small>	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

RECEPTION: 5:30 p.m.
Room 411
Lee Hall

PROGRAM: 7:30 p.m.
Room 412
Lee Hall

MENU: Heavy Hors-d'oeuvres
Desserts, Beverages

PRICE: ACS Members & Guests - \$17.00
High School Students, College Students, High School Teachers - \$9.00
Retired ACS Members & Spouses; Retired Teachers & Spouses - \$10.00

DINNER RESERVATIONS: Please make reservations by **NOON** on **Saturday, November 1**
by calling Nicole Johnson at (540) 654-1016 or by e-mail to nargenzi@umw.edu

HOST: Dr. Janet Asper, (540) 654-1143, jasper@umw.edu

SPEAKER: **Dr. Gregory Petsko, Brandeis University**

TOPIC: **"The Coming Epidemic of Neurodegenerative Diseases and What Science Is – and Should Be – Doing About It"**

DR. GREGORY PETSKO



Gregory Petsko is the Mahon Professor of Neurology and Neuroscience at Weill Cornell Medical College in New York City, and Tauber Professor of Biochemistry and Chemistry, Emeritus, at Brandeis University. His research interests center on protein three-dimensional structure and its relationship to biological function. Most recently, he has focused on developing methods to treat age-related neurodegenerative diseases, such as Alzheimer's, Parkinson's and Lou Gehrig's (ALS) diseases.

He is an elected member of the National Academy of Sciences, the Institute of Medicine, the American Academy of Arts and Sciences, and the American Philosophical Society. He is past president of both the American Society for Biochemistry and Molecular Biology and the International Union of Biochemistry and Molecular Biology. Cofounder of the journal *Protein Engineering*, he currently writes a monthly column on science and society, the first ten years of which have recently appeared in book form.

“The Coming Epidemic of Neurodegenerative Diseases and What Science Is – and Should Be – Doing About It”

The Earth's population is aging fast, and the coming sharp increase in the number of people over age sixty-five will bring with it an epidemic of age-related neurodegenerative diseases, such as Alzheimer's and Parkinson's diseases. Currently, no cures exist for the major neurologic disorders. Unless cures can be found, by 2050 the cost of these diseases will exceed \$1 trillion annually in the United States, and the burden for other countries will scale with their populations. Despite exciting advances in our understanding of these diseases, both government research funding and the efforts of industry have failed to keep pace with this unmet medical need. Private philanthropy has done better, but the total dollars spent on developing diagnostics and therapeutics for neurologic disorders still lags far behind that spent on much less prevalent diseases. The challenge for biomedical research in the next forty years is to identify markers that would allow early detection of high-risk cohorts, and to develop therapies that either will prevent the diseases from starting at all in susceptible populations or will arrest their progression before severe damage to the central nervous system has occurred. I will present the latest developments in these areas and offer some ideas for what else must be done.

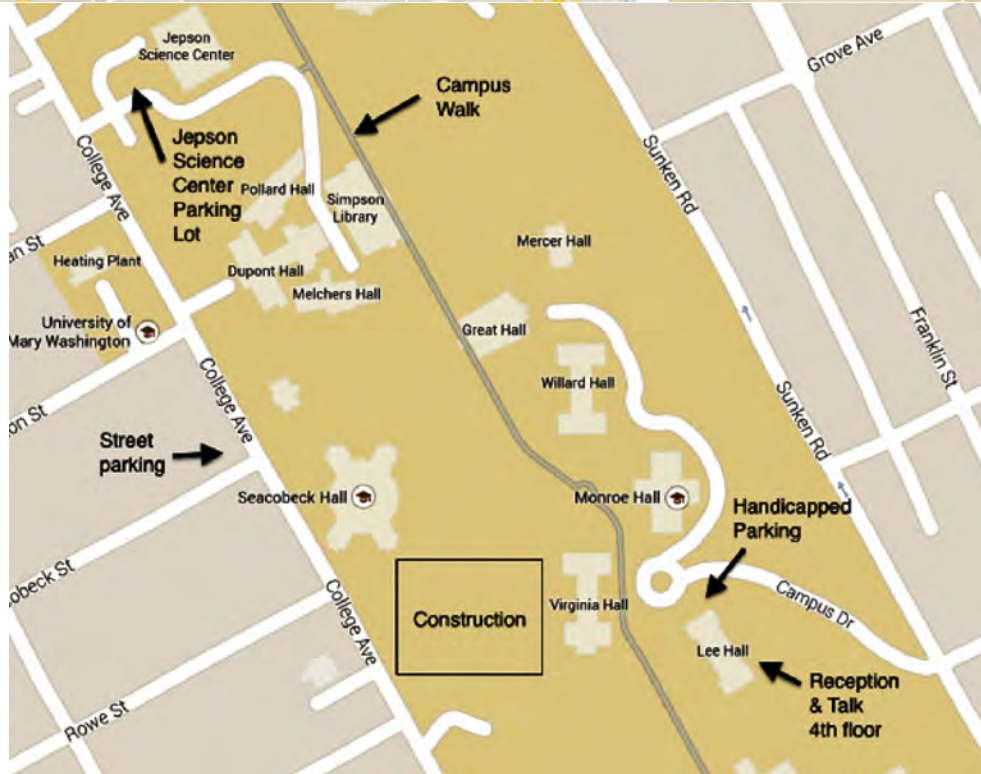
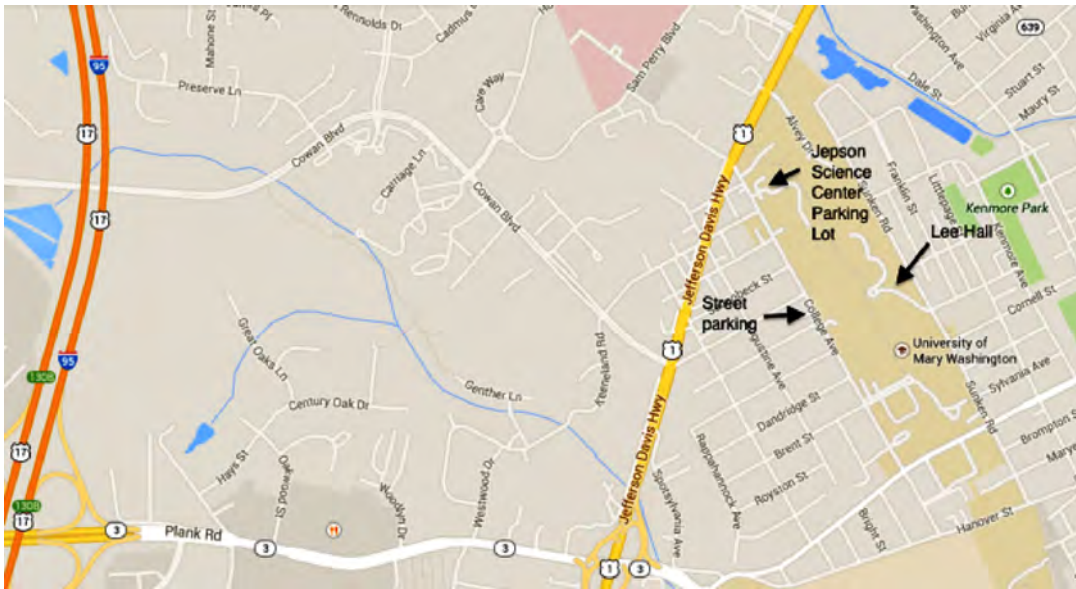
Dr. Petsko is a Phi Beta Kappa Visiting Scholar. His visit to the University of Mary Washington is co-sponsored by Phi Beta Kappa's Kappa of Virginia; the Department of Biological Sciences; the Department of Chemistry; the Department of Psychology; the Honors Program; the Office of the Dean of the College of Arts and Sciences; the Office of the Provost; and the Campus Academic Resources Committee.

DIRECTIONS AND MAPS

Fredericksburg is located just off I-95, about 50 miles north of Richmond. Lee Hall is on the northeast side of the UMW campus. There is on-street parking along College Avenue. Alternatively, you can park in the Jepson Science Center parking lot; it is a 0.4 mile walk from there to Lee Hall.

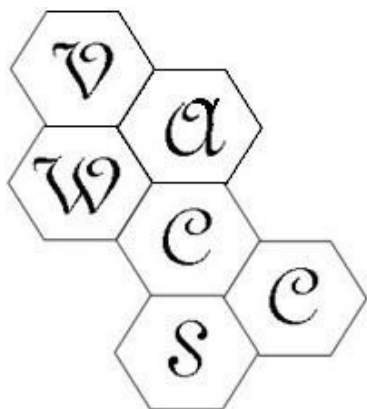
To reach College Avenue and the Jepson parking lot, take Exit 13-A from I-95 and follow Route 3 East Business to the traffic light for William Street. Turn left on to William, then left at the next traffic light on to College Avenue.

There is handicapped parking immediately behind Lee Hall. Take Exit 13-A from I-95 and follow Route 3 East Business to Sunken Road, which is the first right after William Street. Bear left on to Campus Drive (second left) at the brick pillars. Drive up the hill and proceed around the traffic circle to Lee Hall on your left.



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

The Women Chemists Committee Presents



**The Sixth Annual
Chemistry Career
Discussion Panel**

**November 13, 2014
6:00 pm**

**Nichols Lounge
John Tyler Community College
Chester, Virginia**

For students, ACS members, and guests interested in careers in the chemical sciences.

Featured Speaker - **John Worth**, Director of Graduate Professional Development at Virginia Commonwealth University

After the presentation, local chemistry professionals will be available to hold mock interviews and provide feedback to students. Bring your resume!

For more information or to volunteer as an interviewer, please contact Dr. Stephanie Mabry at stephanie.mabry@aftonchemical.com; (804) 788-5280.

2015 MEETINGS OF THE VIRGINIA SECTION

January 16, 2015 - Virginia Union University, Richmond - Virginia Section **Awards Meeting**

February 27, 2015 - University of Richmond, Richmond - Dr. Joseph DeSimone, University of North Carolina at Chapel Hill (**Powell Lectureship**)

CHEMISTRY SEMINARS AT THE UNIVERSITY OF VIRGINIA

Oct. 24 - **Professor Alex MacKerell**, University of Maryland, "Polarizable Empirical Force Field for Macromolecules Based on the Classical Drude Oscillator"



Oct. 31 - **Professor W. Carl Lineberger**, University of Colorado, "Anion Photoelectron Spectroscopy: From Radicals and Transition States to the Reaction Co-ordinate"

Nov. 7 - **Professor Gary Pielak**, University of North Carolina at Chapel Hill, "Unexpected Strength of Protein Quinary Interactions"

Nov. 17 - **Professor Helmut Schwarz**, Technical University of Berlin, "Chemistry with Methane: A Cold Approach to a Hot Problem"

Nov. 18 - **Professor Helmut Schwarz**, Technical University of Berlin, "Metal-mediated C-N Bond Coupling in the Gas Phase: Experiment and Computational Chemistry in Concert"

Nov. 21 - **Professor Giacinto Scoles**, Princeton University, "Contributions to Medicine from a Hard Core Nano-chemical Physicist Leading a Small Heterogeneous Army of Fearless Researchers with All Kinds of College Degrees: Chemistry, Physics, Biology, Biotechnology, Material Science, and MDs."

All seminars are held at 4:00 p.m. in room 304 of the Chemistry Building.

The full seminar schedule can be found at <http://chem.virginia.edu/events-seminars/fall-2014/>

SEMINARS AT VIRGINIA COMMONWEALTH UNIVERSITY

Oct. 23 - **Dr. Phillip Geissler**, University of California at Berkeley, "When Soft Interfaces Go Still: Fluctuating Roughness as a Driving Force in Nanoscale Assembly"

Nov. 4 - **Dr. MaryAnne Drake**, North Carolina State University, "Flavor Considerations in Manufacture of Dried Dairy Ingredients: the Chemistry Behind the Curtain" (**Altria Seminar**)

Nov. 6 - **Dr. Scott E. Lewis**, University of South Florida



VCU Department of Chemistry

Nov. 13 - **Dr. Dudley Herschbach**, Harvard University, "Glimpses of Chemical Wizardry" (**John B. Fenn Memorial Lecture**) - Hibbs Hall, Room 303; 6:30 p.m.

Seminars are held at 3:30 p.m. in the Kapp Lecture Hall, Room 1024, in the Physical Science Wing of Oliver Hall, 1001 West Main Street, Richmond (see above for Fenn Lecture on Nov. 13).

For more information, call (804) 828-1298 or email Rhea Miller at rmiller3@vcu.edu.

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. Nominations for all other awards should be submitted to **Yezdi Pithawalla** at yezdi.b.pithawalla@altria.com or (804) 335-2301. The 2014 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.



HAPPY
THANKSGIVING



CENTENNIAL CELEBRATION FOR THE VIRGINIA SECTION

The American Chemical Society issued a charter to the Virginia Section in April, 1915. During 2015, the Section will celebrate its 100th anniversary. Special events are being planned. If you have ideas on ways to celebrate during our centennial year or would like to volunteer to assist in planning and executing the anniversary commemorations, please contact Dr. Todd Koch, who is chairing an *ad hoc* committee for the centennial planning: todd.koch@pfizer.com; (804) 257-2890.

REPORT ON THE YCC FALL SOCIAL EVENT



The ACS **Younger Chemists Committee** hosted a fall social event, “The Chemistry of Beer,” on September 25, 2014. The event included a brewery tour and beer tastings at Legend Brewing Company, in Richmond, Virginia. About thirty members and guests attended the event. The tour was given by Cam, Legend’s lab technician. It was a great night, and everyone enjoyed the beer, food, and company. Young chemists had a chance to learn about the ACS and YCC, as well as to meet other chemists in the Richmond area.



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://acswebinars.org>. Here are a few upcoming webinars:

Oct. 23 - **A Planet of Viruses**

Oct. 30 - **The Future of Drug Discovery – Challenges, Risks, Rewards**

Nov. 6 - **Cannabis Chemistry 201**

Nov. 20 - **Optimizing Potency for Nevirapine: The Drug that Saved Children from AIDS**

...A LOOK BACK...

Some past November meetings of the Virginia Section:

One Year Ago: Nov. 8, 2013 - University of Mary Washington, Fredericksburg - **Janet Asper**, University of Mary Washington, "From Diapers to the *Deepwater Horizon*: Structure, Applications, and Synthesis of Superabsorbent Polymers"

Five Years Ago: Nov. 13, 2009, University of Mary Washington, Fredericksburg - **Catherine Fenselau**, University of Maryland, "New Methods for Proteomics"

Ten Years Ago: Nov. 12, 2004 - University of Mary Washington, Fredericksburg - **Joe Vinson**, University of Scranton, "Chemistry and Biochemistry of Chocolate: A Guilt-Free Food"

25 Years Ago: Nov. 17, 1989 - Mary Washington College, Fredericksburg - **Daniel Longone**, University of Michigan, "The History of Wine and the Vine in America"

50 Years Ago: Nov. 20, 1964 - General Wayne Motor Inn, Waynesboro - **Donald DeFord**, Northwestern University, "Column Efficiency in Gas Chromatography"

60 Years Ago: Nov. 19, 1954 - Union Hall, Hopewell - **Eugene Crittenden**, Allied Chemical and Dye Corporation, "Research and You"

Nov. 12, 1954 - Hotel Albemarle, Charlottesville - **Ward Pigman**, University of Alabama, "The Action of Acids and Bases on Sugars"

QUESTIONS FROM THE PAST

This question was asked in the October Bulletin: Smith is the most common surname in the United States (there are about 2,400,000 Smiths in the country). The Virginia Section has had two Smiths who served as Chair and one who received the Distinguished Service Award. And two Smiths were speakers at Virginia Section meetings. **Can you name any of the Virginia Section Smiths?**



J. Doyle Smith

Farley F. Smith was Chair of the Virginia Section in 1946. He was succeeded by **Clifford M. Smith** in 1947. **J. Doyle Smith** received the Distinguished Service Award in 1980. **Bradley Smith** from the national ACS spoke to the section on March 27, 2009. This was a joint meeting with the Virginia Blue Ridge Section, held in Lynchburg. His topic was "Science Policy for a Better Tomorrow." On September 19, 1980, **J. Doyle Smith** spoke at Virginia Commonwealth University on "A Look at the Chemistry of Chlordecone." In addition to these four Smiths, a Smithey was involved with the Section. **William Smithey** served the Section in many ways, including as a trustee for many years. He received the Distinguished Service Award in 1994 and spoke at the awards meeting on September 19 of that year. His topic was "Remarks on the ACS and the Virginia Section."

A new question from the past: Except for 1983, 1991 and 2011, the Virginia Section has met in Fredericksburg every November since 1978. **What happened in 1983, 1991, and 2011?**

FREE WANT ADS AND SITUATIONS WANTED

Employers are reminded that the **Bulletin** publishes free ads for positions that are available. ACS members may place free "situation wanted" ads. Send the pertinent information to Dr. James Beck, 1977 Vesonder Road, Petersburg, VA 23805, call (804) 733-5286, or send it via e-mail to beckjd1977@comcast.net.

CHEMISTRY AT THE UNIVERSITY OF MARY WASHINGTON



where great minds get to work

The chemistry program at the University of Mary Washington is beginning its fourteenth year in the Jepson Science Center. The facility provides student research space; modern teaching labs, including an organic chemistry lab with hood space for every student; and state-of-the-art multimedia and Internet capabilities. 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 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, and a scanning probe microscope. 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, MIT, Princeton, Florida, Johns Hopkins, and Maryland and medical degrees at UVA, MCV, and EVA. Other graduates have gone directly to work at government labs including NIH, the Naval Research Lab, and the Patent Office, or for industries such as Dow Chemical, Philip Morris, Wyeth, and Virginia Power.



CAN YOU IDENTIFY THESE PERSONS?



The photo is from December 3, 2004, taken at a Virginia Section meeting held at the Science Museum of Virginia in Richmond. Dr. Brian Moores and Dr. John Thoburn of Randolph-Macon College presented "An Evening of Chemical Diversions." The five persons have something in common that involves the Virginia Section.



The "mystery persons" shown in the October issue of the Bulletin were **Stephanie Mabry** (on left) and **Heather Campbell**. Stephanie served as Chair of the Virginia Section in 2011 and received the Distinguished Service Award in 2012. She is currently the Treasurer of the Section. Heather Campbell was the Educational Events Coordinator at the Science Museum of Virginia in Richmond at the time the photo was taken at the National Chemistry Week event in 2004. She is now the Curator of Museum Programs at the University of Richmond.



VIRGINIA SECTION TEACHING AWARD WINNERS

The Virginia Section of the ACS presents these three teaching awards annually: the Franklin D. Kizer Distinguished High School Chemistry Teacher Award, the Distinguished Middle School Science Teacher Award, and the Distinguished Elementary School Science Teacher Award. Here are the award recipients since 1990:

<u>YEAR</u>	<u>HIGH SCHOOL</u>	<u>MIDDLE SCHOOL</u>	<u>ELEMENTARY SCHOOL</u>
1990	Eugene Shepherd	Jeannie Bishop	
1991	Larry White	Carole Forkey	
1992	Daniel Lynch	Ronnie Sours	
1993	Robert Jones	Patricia Zahl	
1994	Judith Bohince	Leslie Deane	
1995	Janet Farmer	Alpheus Stafford	
1996	Anne Stowe	Daniel Avent	
1997	Christy Thomas	John Stenz	
1998	Linda Cook	Brian Hall	
1999	Cynthia Wall	Dixie Leathers	
2000	Susan N. Price	Sarah Datovech	
2001	Joy Ann Ross	Bonnie Stinson	
2002	Christine Bierwirth	Betsy Ameen	
2003	Leonard Klein	Robert Pennington	
2004	Pamela Gentry	George Fohl, Jr.	
2005	Pam Edwards	Gary Graham	
2006	Ram Bhagat	Mary Holmgren	
2007	Liza Schmieder	Dianne Nolan	
2008	Leslie A. Kovach	Mary P. Younger	
2009	Wesley James	Denise Yvette Stanton	
2010	Michael Farabaugh	Elizabeth Coffman	Judy Fitzpatrick
2011	Meg Van Liew	Denise Oppenhagen	Jessica Skeens
2012	Sandra Bennett	Michael Kenney	Laura Van Gelder
2013	Tammy Stone	Linda Herron	Laura Shifflett
2014	Heather Warkentien	Nate Shotwell	Rita Larson

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 paper copies. 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, or send it to James Beck, 1977 Vesonder Rd, Petersburg, VA 23805. Please include your nine-digit extended zipcode, 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.

CURRENT CONTACT INFORMATION

Does the ACS have your correct contact information? If you have had a change in address, phone number, or e-mail address, contact ACS to update your information. Please include both the old and new contact information and your membership ID (the 8-digit number in the upper left hand corner of the C&E News address label. Telephone (800) 333-9511 or e-mail service@acs.org.

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Scott Gronert

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