



The Bulletin
of the
Virginia Section
AMERICAN CHEMICAL SOCIETY

OCTOBER MEETING NOTICE

Longwood University

Farmville, Virginia

Friday, October 18, 2013

THE AMAZING CHEMISTRY RACE: 5:00 p.m.
Room G12
Chichester Science Center

RECEPTION: 6:00 p.m.
Ground Floor Lobby
Chichester Science Center

PROGRAM: 7:00 p.m.
Room G12
Chichester Science Center

MENU: Heavy hors-d'oeuvres (many kinds), non-alcoholic beverages, coffee and tea

PRICE: Members/Guests - \$18.00; Students, High School Teachers/Spouses - \$9.00; Retired ACS Members/Spouses, Retired Teachers/Spouses - \$13.00

RESERVATIONS: Please make reservations by NOON on **Friday, October 11** by contacting Mrs. Linda Overstreet at (434) 395-4964, or by e-mail to overstreetlg@longwood.edu

PLEASE HONOR YOUR RECEPTION RESERVATIONS!

HOST: Dr. Melissa Rhoten, (434) 395-2636; rhotenmc@longwood.edu

SPEAKER: **Dr. Christopher Ehrhardt, VCU**

TOPIC: "Biosurveillance and Chemical Analysis of Bacterial Threat Agents: Distinguishing Natural from Man-made Pathogens"

OCTOBER 2013

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Dr. Christopher Ehrhardt



Dr. Ehrhardt holds a B.S. degree in Molecular and Cellular Biology from the University of Connecticut and a PhD in Earth and Environmental Sciences from UC-Santa Barbara. After completing his PhD in 2007, Dr. Ehrhardt held postdoctoral research positions at the Counterterrorism and Forensic Science Research Unit of the FBI in Quantico, Virginia and at the Trace Chemistry and Signature Science Group at Pacific Northwest National Laboratory (PNNL) in Richland, Washington. He is now an Associate Professor in the Department of Forensic Science at Virginia Commonwealth University (VCU).

At VCU, Dr. Ehrhardt's main interests are the forensics associated with pathogen monitoring and specifically how biochemical signatures associated with a bacterial cell can be used to distinguish the occurrences of 'natural' from man-made organisms. He is working on new biosignature systems (e.g. protein and lipid profiles) for organism identification in complex matrices such as soil, air, and environmental water supplies. In addition, Dr. Ehrhardt is intensely interested in multivariate statistical methods to process and interpret the often complex orthogonal data generated from his projects. He continues his collaboration with the FBI and the PNNL as well as with several other universities and private laboratories.

“Biosurveillance and Chemical Analysis of Bacterial Threat Agents: Distinguishing Natural from Man-made Pathogens”

Detecting bacterial pathogens during biosurveillance efforts and characterizing their origin is an important task for many forensic agencies. One of the biggest challenges is distinguishing between pathogens that occur naturally in the environment from those cultured in the laboratory for illicit activity. Pathogens are present almost everywhere in nature, but at low levels. Forensic signature research may allow forensic scientists to distinguish between natural and man-made pathogens. Because of the significant disparity in the nutritional landscape between laboratory cultures and natural reservoirs, targeted biochemical profiling of intracellular lipids and trace metals are promising analytical strategies for differentiating these two pathogen sources.

DIRECTIONS TO MEETING SITE

From Richmond and points north and east: follow U.S. 360 West approximately 35 miles to State Route 307; go about 9 miles on Rt. 307 to U.S. 460 West; take the first Farmville exit (460 Bus.); at the sixth stoplight, make a left on to Main Street; at the next light, make a right on to High Street; at the next light, make a left on to Griffin Blvd.; take the next right on to Chambers St. Make an immediate right into the Wheeler parking lot.

From points north and west: Take Route 20 South to U.S. 15 South; follow U.S. 15 South to Farmville; turn left onto Business 15/460 at stop light (Executive Inn); proceed several miles and turn right onto Business 15 (Oak Street) at Centra Southside Community Hospital. At traffic light, turn left onto High Street. Immediately turn right onto Griffin Blvd.; take the next right on to Chambers St. Make an immediate right into the Wheeler parking lot.

LONGWOOD CAMPUS MAP



15 = Chichester Science Center

Parking



CHEMISTRY AT LONGWOOD UNIVERSITY



Longwood University, which was founded in 1839, is a coeducational, comprehensive, state institution offering programs leading to bachelor's and master's degrees in a wide variety of subjects. Longwood has an undergraduate enrollment of 4,350 students, which combines the ambiance of a small, private college with the cost benefits of a public institution. The average class size is 21 and the university-wide faculty to student ratio is 1:17. The Chichester Science Center (approximately 71,000 sq. ft.) houses the Departments of Chemistry & Physics and Biological & Environmental Sciences. This new facility gives the science faculty dedicated research space as well as access to state-of-the-art teaching technology. The chemistry program at Longwood University is particularly well-equipped with modern instrumentation that all students learn to use properly.

The Chemistry faculty at Longwood are actively involved in research with undergraduates in a variety of areas. Chemistry graduates have been accepted at and have completed advanced degrees in graduate programs in chemistry, medicine, dentistry, pharmacy, toxicology, and other programs at universities within Virginia and beyond. Organizations such as Virginia Power, Merck, Pfizer, NIH, U.S. Naval Surface Weapons Center, and BI Chemical are among the many companies that have employed Longwood chemistry graduates.

The Gamma Chi chapter of Alpha Chi Sigma is highly active in the scientific community. The chapter sponsors seminar speakers, travels to seminars at other institutions, and provides chemistry-related opportunities to the surrounding community. In recent years, members have traveled to ACS national and regional meetings to present undergraduate research and to Conclave to discuss chapter activities.



Summer Research Group at Longwood

THE CHAIR'S CORNER



Last week, the Virginia Section won **FIVE ChemLuminary awards** for 2012. Those awards are thanks to the efforts of many people. If I tried to name them all here, I would leave someone out. A fantastic job! As we approach the end of 2013, it is time to be thinking about the annual report which is due in January. I'd like all of the executive committee members to be preparing their reports and pulling out those items which we should put forward as ChemLuminary nominations. For those not on the executive committee, send me your information and we'll see where it fits.

Also, for all of the members of the section—if you are interested in becoming more involved in section activities and learning how the section is run, consider serving on the executive committee or working with one of the existing committees. Volunteer! You will never regret it.

...Joseph M Crockett, Section Chair, 2013

WORDS OF WISDOM FOR OCTOBER: “Nothing In Life Is
To Be Feared—It Is Only To Be Understood

***** VIRGINIA SECTION NEWS *******THE AMAZING CHEMISTRY RACE**

*The Alpha Chi Chapter of Alpha Chi Sigma is sponsoring the **Amazing Chemistry Race** at the Longwood University meeting on October 18. College students from the Virginia Section are invited to participate in a challenge course that will test knowledge of chemistry and biology. Teams will compete in several activities and there will be a trivia contest. The Race is scheduled for 5:00 p.m. in Room G12 of the Chichester Science Center. More information will be provided to ACS Student affiliate and Alpha Chi Sigma chapters. Contact Dr. Melissa Rhoten at (434) 395-2636; rhotenmc@longwood.edu.*

FUTURE MEETING OF THE SECTION

DATE: November 8, 2013
LOCATION: University of Mary Washington
Fredericksburg, Virginia
HOST: Dr. Janet Asper
PHONE: (540) 654-1143
E-MAIL: jasper@umw.edu
SPEAKER: Dr. Janet Asper
TOPIC: "From Diapers to Deepwater Horizon:
Structure, Applications, and Synthesis
of Superabsorbant Polymers"

WCC ANNUAL CHEMISTRY CAREERS DISCUSSION PANEL

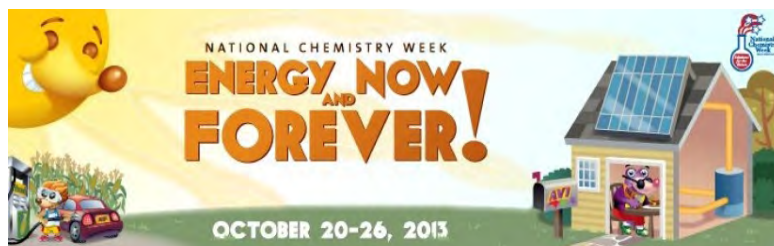
NOTE: There will not be a Section meeting in December.

WCC MEETING

The Women's Chemist Committee will be holding its fifth annual Chemistry Careers Discussion Panel on **Friday, November 8, 2013** at the University of Mary Washington in Fredericksburg. Panelists representing a variety of chemistry fields will share their career stories and answer questions. For more information, contact the meeting host, Dr. Janet Asper, (540) 654-1143, jasper@umw.edu.

NATIONAL CHEMISTRY WEEK

The Virginia Section will be celebrating **National Chemistry Week on Sunday, October 20** with an afternoon of exhibits and activities at the Science Museum of Virginia in Richmond. The theme for 2012 is "Energy: Now and Forever!" This marks the 26th year of National Chemistry Week celebrations.



Dr. Kristine Smetana will be coordinating the event for the Virginia Section. She can be reached at (804) 706-5143; ksmetana@jtcc.edu. "Energy Sunday," the program at the Science Museum on October 20, will be from noon until 4:00 p.m. More information about the national NCW celebration can be found on the ACS website (ACS.org, search for NCW) or from the ACS Department of Volunteer Support, (800) 227-5558; outreach@acs.org.

ELECTION OF 2014 OFFICERS

Dr. Karen Carter, Chair of the Nominations Committee, has announced the slate of officers for 2014:

Chair: Dr. Scott Gronert– Virginia Commonwealth University

Chair Elect: Dr. Todd Koch– Pfizer Consumer Healthcare

Vice Chair: Ms. Denise Walters– Pfizer Consumer Healthcare

Secretary: Mr. Dustin Haddenham– AIBiotech

Treasurer: Dr. Stephanie Mabry– Afton Chemical

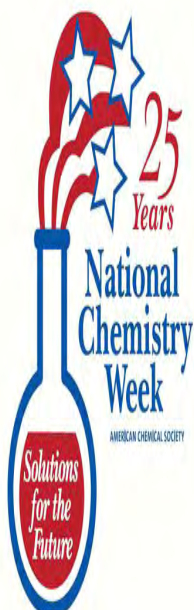
Councilor (three-year term): Dr. Ann Sullivan– J. Sargeant Reynolds Community College

Alternate Councilor (three-year term): Dr. Janet Asper– University of Mary Washington

Alternate Councilor (one-year term): Dr. Joseph Crockett– Bridgewater College

Trustee (three-year term): Dr. Philip Burks– The DuPont Company (retired)

Balloting will be done electronically. You should receive an email notification with biographies of candidates and voting instructions. Voting must be completed by November 8. If you have questions or wish to receive a paper ballot, contact Dr. Karen Carter at (804) 521-7369; kcarter@aibiotech.com.



VAS FALL UNDERGRADUATE RESEARCH MEETING

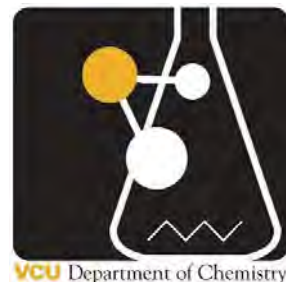
The Virginia Academy of Science Fall Undergraduate Research Meeting will be held on October 26 at the Parham Road Campus of J. Sargeant Reynolds Community College, 1651 East Parham Road, Richmond. The sessions will be held from 9:00 a.m. until 3:00 p.m. in the Gallery (Room B101) of Georgiadis Hall. At the conclusion of the meeting, five \$500 research grants will be awarded to undergraduate students to support their research during the 2013-14 academic year. In order to be eligible for a research award, the student(s) must submit an application electronically to dcrosby@vsu.edu by **October 4, 2013**. Note that the faculty mentor for the project must be a member in good standing of the Virginia Academy of Science by the October 4 deadline for submission of the application. Applications and other information is available on the VAS website: <http://www.vacadsci.org>.

SEMINARS AT VIRGINIA COMMONWEALTH UNIVERSITY

November 12 - **Dr. Joel Harris**, University of Utah - **John B. Fenn Memorial Lecture**

November 21 - **Dr. Frank Gupton**, Virginia Commonwealth University, "Record Keeping and Patents"

November 26 - **Dr. Richard Kiethley**, Roanoke College, "Eavesdropping on Biology, One Cell at a Time"



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



CHEMISTRY SEMINARS AT THE UNIVERSITY OF VIRGINIA

October 4 - **Professor Jeff Peng**, University of Notre Dame

October 11 - **Professor Joanna Aizenberg**, Harvard University - "Hydrogel-Actuated Integrated Responsive Systems (HAIRS): Moving Towards Adaptive, Homeostatic Materials" (**GWATHMEY LECTURE**)

October 18 - **Professor Richard Baxter**, Yale University

October 25 - **Professor Robert Bryant**, University of Virginia - "Molecular Dynamics, Spin Relaxation, and Magnetic Image Contrast"

November 8 - **Professor Puru Jena**, Virginia Commonwealth University - "Beyond the Periodic Table: Role of Superatoms"

November 15 - **Professor Michel Etienne**, University of Toulouse, "From C-C Agostic Interactions to C-H Bond Activation"

Chemistry colloquia are held at 4:00 p.m. in Room 304 of the Chemistry Building. The complete colloquium schedule is on-line at <http://chem.virginia.edu/events-seminars/>.

...A LOOK BACK...

Some past meetings of the Virginia Section:

One Year Ago: October 19, 2012, Bridgewater College - **Howard and Sally Peters**, PARC, "Death by Chocolate"

Five Years Ago: October 17, 2008, Center for Research and Technology - **Jane Lewis**, Altria Client Services, "In Pursuit of Reduced Risk Cigarettes--A Story of Leadership in a Technical Organization"

Ten Years Ago: October 24, 2003, Bridgewater College - **Robert Lowry**, Harris Semiconductor, "The Chemistry of Microelectronics"

25 Years Ago: October 28, 1988, Shenandoah College - **Lawrence Dahl**, University of Wisconsin-Madison, "Symmetry and Its Importance in Art and Science"

50 Years Ago: October 18, 1963, Hopewell - **John Malmsted**, Argonne National Laboratory, "Chemistry of Xenon and the Perxenates"

60 Years Ago: October 16, 1953, Hopewell - **Farrington Daniels**, University of Wisconsin, "Our Future Sources of Energy"

QUESTIONS FROM THE PAST

This question was asked in the September Bulletin: "The Virginia Section did not meet in September, 2003. **Why did the Virginia Section not have a meeting that month?**" The Section meeting that was scheduled for September 19, 2003 was cancelled due to hurricane Isabel. Nobel Laureate John Fenn was scheduled to receive the Distinguished Service Award on that night and a Kapp Symposium scheduled for that afternoon was to be a special tribute to Dr. Fenn. Dr. Fenn received his Distinguished Service Award from the Virginia Section on September 17, 2004. His address then was titled "Electrospray Wings for Molecular Elephants."

A new question from the past: The Virginia Section has been giving Outstanding Innovation awards since 1997. Twelve persons have received this award. However, only two individuals hold both an Outstanding Innovation Award and a Distinguished Service Award from the Virginia Section. **Who are the two persons who have received both awards?**

CAN YOU IDENTIFY THESE PERSONS?



Distinguished Service Award in 2009; Jeff received the same award in 2007.

The photo is from November, 2002 when one of the subjects was the speaker at the Virginia Section meeting in Fredericksburg. His topic was "Design, Despair, and Deceit in Scientific Discovery. He was a Professor Emeritus of Chemistry at Wilkes University. The other person is a Professor of Chemistry at the University of Virginia and is a Trustee for the Virginia Section. In 1999, he received the Section's Distinguished Service Award.

The "mystery persons" shown in the September Bulletin are Dr. Will Lewis (left) and Dr. Jeffrey Seeman (right). Will received the Virginia Section's



REPORT ON THE SEPTEMBER MEETING

Highlights of the September 20 meeting at Virginia Commonwealth University were the presentation of Section awards to outstanding science teachers and an exciting talk by noted author Sam Kean. Over 200 persons attended the program, held in the state-of-the-art auditorium of the new Academic Learning Commons at VCU. The program was preceded by a reception at the historic Scott House.



Dr. Joseph Crockett, Chair of the Virginia Section, presided at the meeting. The program began with some words of welcome by Dr. Scott Gronert, Chair of the Department of Chemistry at VCU, Chair Elect of the Virginia Section, and host for the September meeting. Dr. Crockett announced that the Virginia Section has been awarded five ChemLuminary awards by the American Chemical Society. The stylish awards, which were presented at the recent national meeting in Indianapolis, were on display at the reception in The Scott House and at the program in the Academic Learning Commons. Section Councilors Dr. Jerry Bass, Dr. Kristine Smetana, and Dr. Ann Sullivan were in Indianapolis to receive the awards. The five ChemLuminary awards are the most that the Section has ever received; the Section was nominated for eight awards, also a record number. (More information on the ChemLuminary awards can be found in an article below.)

The Chair then recognized three new 50-year members of the Virginia Section: Kenneth Chapman, Lidia Vallarino, and Leonard Vance. Dr. Crockett presented certificates to Dr. Vallarino and Dr. Vance; Mr. Chapman had received his earlier.



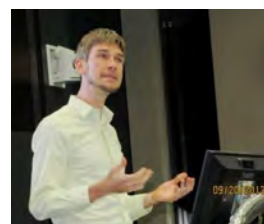
The Distinguished Elementary School Science Teacher Award was presented to Ms. Laura Shifflett, an Upper Elementary Teacher and Science Lab Professor at the Academy of Academic Excellence in Henrico County. Ms. Shifflett was introduced by her colleague Laura Watkins. Dr. Crockett presented her with a plaque, a bouquet of flowers, and a check for \$300. Ms. Watkins received a check for \$300 to be used by CC Wells Elementary School in Chesterfield County (Ms. Shifflett's former place of employment) in their science program. Laura's husband, Douglas Shifflett, accompanied her at the meeting.

Ms. Linda Herron, science teacher at Kate Collins Middle School in Waynesboro, received the Distinguished Middle School Science Teacher Award. She was introduced by Ms. Tammy Hipes, Assistant Principal at Kate Collins Middle School, who received the \$300 check to support the school's science program. Ms. Herron received a check for \$300, a plaque and flowers. She was accompanied by her husband Harry, her son Matt, and her daughter-in-law Meghan.



The Franklin D. Kizer Distinguished High School Chemistry Teacher Award was given to Ms. Tammy Stone, chemistry teacher and science department head at East Rockingham High School in Rockingham County. Ms. Julie Maxwell, Assistant Principal, at East Rockingham High School, introduced the award winner. Ms. Stone received a plaque, flowers, and a check for \$300. Ms. Maxwell accepted a check for \$300 for use by the science department at East Rockingham. Husband Robert Stone and daughters Reagan and Chloe Stone were there to support Tammy.

Dr. Gronert introduced Sam Kean who delivered an interesting and informative address on the periodic table. His talk was filled with interesting facts on various chemical elements. Mr. Kean is the author of two best-selling books, "The Disappearing Spoon" and "The Violinist's Thumb." After his presentation, he entertained questions and signed copies of his books.



Special thanks to Scott Gronert and the Department of Chemistry at Virginia Commonwealth University for organizing this excellent meeting and for providing financial support. Also, the Section appreciates the financial contribution from Boehringer Ingelheim. BI Chemicals has supported the section's teacher awards for several years.



Teaching Award Winners with Chair Joe Crockett
Left-to-right: Linda Herron, Laura Shifflett, Tammy Stone, Joe Crockett



One of the Five ChemLuminary Awards
Left-to-Right: Ann Sullivan, Joe Crockett, Stephanie Mabry, Kristine Smetana



Laura and Douglas Shifflett



Meghan, Matt, Linda, and Harry Herron



Chloe, Tammy, Reagan, and Robert Stone



Reagan and Chloe Stone



Periodic Table ties were popular on September 20. Here are Tom DeVore, Larry White, and Joe Crockett with Sam Kean, who spoke on the Periodic Table



Folks lined up to get Sam Kean to personalize and autograph his books

VIRGINIA SECTION WINS FIVE CHEMLUMINARY AWARDS

Each year, the American Chemical Society recognizes outstanding achievements by local sections and divisions by awarding ChemLuminary awards. While the Virginia Section has been fortunate to receive several of these awards in the past, 2013 was a record breaking year, with the Section receiving five ChemLuminary awards. These were presented to Virginia Section councilors Kristine Smetana, Ann Sullivan, and Jerry Bass at the Fall Meeting of the Society in Indianapolis. Here is a list of the Section's awards.



Outstanding Program Aimed at Retaining Women in the Chemical Enterprise

A panel of women chemists featuring chemist and author Jeanette Brown encouraged students to interact with chemists who have followed diverse career paths and who were at different stages of their careers. Transportation was arranged for students from local universities and community colleges to attend.

Chemists with Disabilities Inclusion Award

The Down Syndrome Association 5K Run and Family Festival were hosted with help from the Chemistry Club, ACS members, and faculty from John Tyler Community College. Seven hands-on activities helped children learn about the science of light, color and dyes, weather, polymers, and fossils. Additionally, ACS science kits were distributed to schools for children with disabilities.

Creative & Innovative Use of Chemists Celebrate Earth Day Theme

The Virginia Section partnered with the Chesterfield County, and John Tyler Community College's Fool for Art event featuring local artists who displayed artwork made from recycled materials. Volunteers included ACS members, faculty and students from local colleges as well as high school chemistry club students.

Outstanding NCW Event for a Specific Audience

Virginia participated in a three-week celebration of National Chemistry Week that included raising scholarship money for community college students, sponsoring tables at the Down Syndrome Association 5K run, and distributing ACS science kits to schools for children with disabilities.

Outstanding On-going NCW Event

The Virginia Local Section has carried out a three-week National Chemistry Week celebration on an on-going basis for the past decade.

Dr. Kristine Smetana is chair of the Virginia Section's Community Activities Committee. She coordinates the activities for National Chemistry Week (NCW) in the fall and Chemists Celebrate Earth Day (CCED) in the spring. She is also a Section Councilor. Dr. Stephanie Mabry is chair of the Women Chemists Committee (WCC) and is the Section Treasurer. The activities that earned these five awards occurred during 2012. Dr. Karen Carter was chair of the Section last year.

Councilors Jerry Bass, Kristine Smetana, and Ann Sullivan at the ChemLuminary Awards celebration, held in September at the national meeting in Indianapolis. They are standing in front of the Virginia Section poster that describes and shows many of the Section's activities during 2012.



THE BULLETIN

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Joe Crockett

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