



*The Bulletin*  
of the  
Virginia Section  
AMERICAN CHEMICAL SOCIETY

**FEBRUARY MEETING NOTICE**

**University of Richmond  
Richmond, Virginia**

**POWELL LECTURESHIP  
Friday, February 20, 2015**

**FEBRUARY 2015**

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

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

**PROGRAM:**               **7:30 p.m.**  
Auditorium  
Gottwald Center for the Sciences

**MENU:**                   House Salad, Grilled London Broil, Tarragon Chicken, Roasted Vegetables,  
Creamy Risotto, Key Lime Tart, Coffee, Iced Tea  
  
Vegetarian Alternative—Orzo Pasta (**please specify vegetarian  
dinner when making your reservation**)

**PRICE:**                   \$15.00 (no reductions)

**DINNER  
RESERVATIONS:**       Please make reservations for the Dinner by **NOON on Friday,  
February 13** by calling the Chemistry Department at the University of  
Richmond, **(804) 289-8242** or by e-mail to [amallory@richmond.edu](mailto:amallory@richmond.edu).  
**NOTE: Space is limited for the dinner—make your reservation early!**

**HOST:**                   Dr. Raymond Dominey, (804) 289-8761; [rdominey@richmond.edu](mailto:rdominey@richmond.edu)

**SPEAKER:**              **Dr. Joseph DeSimone, University of North Carolina  
at Chapel Hill**

**TOPIC:**                   **“Breakthroughs in Imprint Lithography and 3D Additive  
Fabrication”**

---

## The W. Allan Powell Lectureship in Chemistry

---

### Dr. Joseph DeSimone



**Joseph DeSimone** is the Chancellor's Eminent Professor of Chemistry at the University of North Carolina at Chapel Hill, and William R. Kenan, Jr. Distinguished Professor of Chemical Engineering at North Carolina State University. DeSimone is also an adjunct member at Memorial Sloan-Kettering Cancer Center. DeSimone has published over 300 scientific articles and has over 150 issued patents in his name with over 80 patents pending.

DeSimone is one of only a few individuals who has been elected to all three of the National Academies: Institute of Medicine (2014), National Academy of Sciences (2012) and the National Academy of Engineering (2005). He is also a member of the American Academy of Arts and Sciences (2005). DeSimone has received over 50 major awards and recognitions including the 2015 Dickson Prize from Carnegie Mellon University; 2014 Industrial Research Institute Medal; 2014 Kathryn C. Hach Award for Entrepreneurial Success from the ACS; 2013 Fellow of the National Academy of Inventors; 2012 Walston Chubb Award for Innovation by Sigma Xi; the 2010 AAAS Mentor Award in recognition of his efforts to advance diversity in the chemistry PhD workforce; the 2009 NIH Director's Pioneer Award; the 2009 North Carolina Award; the 2008 \$500,000 Lemelson-MIT Prize for Invention and Innovation; the 2007 Collaboration Success Award from the Council for Chemical Research; the 2005 ACS Award for Creative Invention; the 2002 John Scott Award presented by the City Trusts, Philadelphia, given to "the most deserving" men and women whose inventions have contributed in some outstanding way to the "comfort, welfare and happiness" of mankind; the 2002 Engineering Excellence Award by DuPont; and the 2002 Wallace H. Carothers Award from the Delaware Section of the ACS.

DeSimone, an innovative polymer chemist, has made breakthrough contributions in fluoropolymer synthesis, colloid science, nano-biomaterials, green chemistry and most recently 3D printing. DeSimone is the co-founder of several companies including Micell Technologies, Biostent, Liquidia Technologies and Carbon3D. DeSimone received his BS in Chemistry in 1986 from Ursinus College in Collegeville, PA and his Ph.D. in Chemistry in 1990 from Virginia Tech. Currently DeSimone is on leave from the university and has assumed the CEO role at Carbon3D in Silicon Valley.

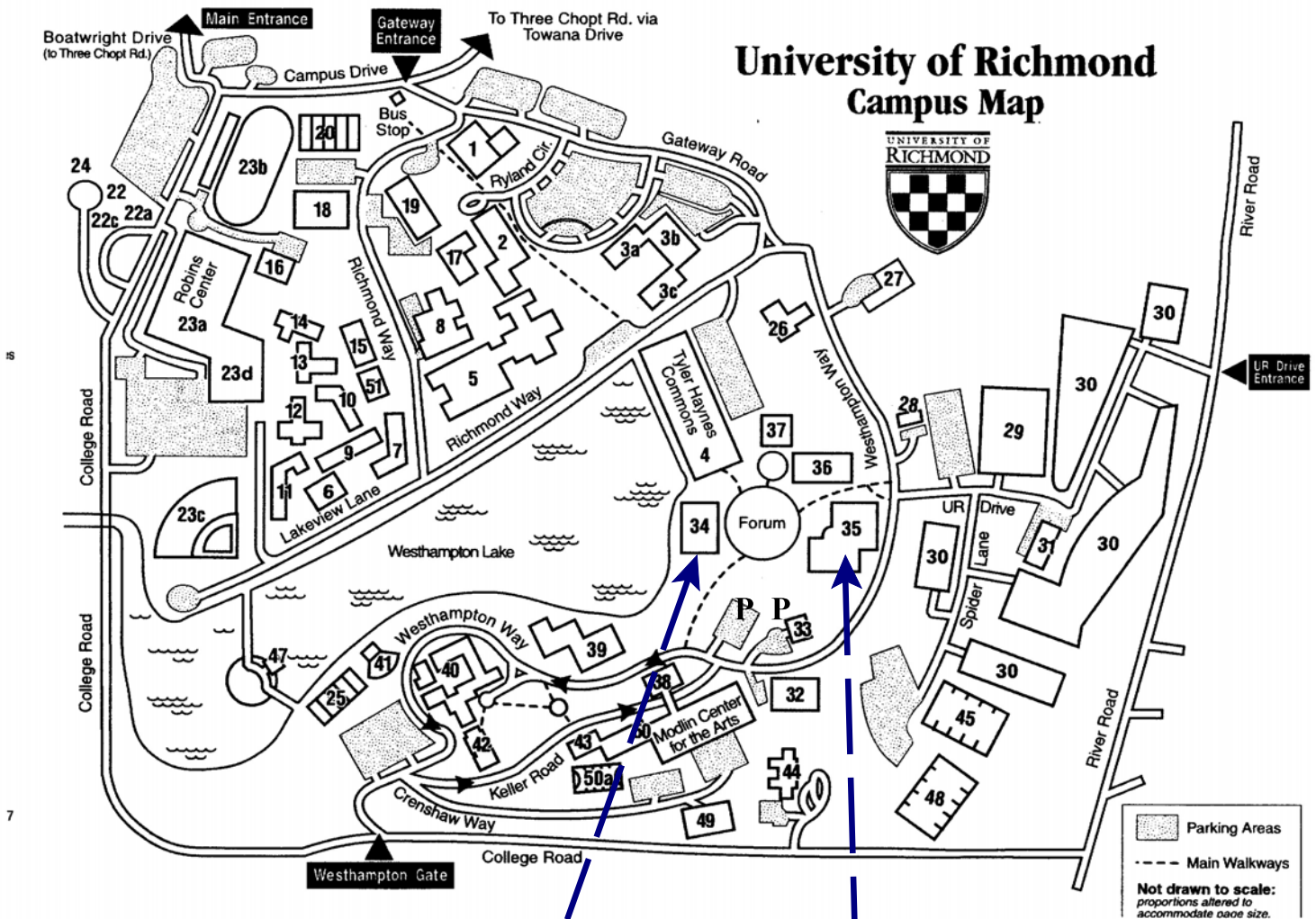
### **“Breakthroughs in Imprint Lithography and 3D Additive Fabrication”**

There is a renaissance underway today in research that is being fueled by the DIY (do-it-yourself) culture that is generally referred to as the “Makers Movement”. The maker culture exploits new tools for fabrication and encourages invention and rapid prototyping. Such tools in combination with an innovative mindset will make major impacts in many fields, including drug delivery technologies. This lecture will describe breakthroughs in the Makers Movement—including an off-shoot of imprint lithography used to mold individual drug particles and drug delivery vehicles, and a pioneering advance in 3D additive manufacturing that is continuous, moldless and no longer layer-by-layer.

# 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 on to Gateway Road. Continue on Gateway Road to the traffic island. Turn left on to Westhampton Way. Continue on Westhampton Way to the top of the hill. Parking is available in the three 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 (# 35). Note—there is no parking available in front of the Science Center. See the map below.

## U OF R CAMPUS MAP



**34 - HEILMAN DINING CENTER    35 - GOTTWALD SCIENCE CENTER**

**P = PARKING**

## 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 Biochemistry/Molecular Biology, the department provides excellent preparation for work or professional studies in chemistry, biochemistry, the health sciences, and chemical engineering, as well as for teaching or for legal careers. The department meets certification requirements by the American Chemical Society for the B.S. in Chemistry and in Chemistry/ Biochemistry.



Our students receive a strong background in chemistry in an atmosphere 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 research experiences. 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 setting, and when their undergraduate days are over, they find that they are well prepared for their next endeavor.

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 an excellent background for studies in medicine, the allied health professions, and law. The number of students graduating with a major in chemistry has been between 15 and 22 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 was completed in 2005. New space (approximately 28,000 sq. ft.) was added to the south and west sides of the building to provide faculty offices and research labs, and the original space (162,000 sq. ft.) was renovated to include the addition of cutting-edge technology and space for scientific equipment. Our facility includes a new atrium, new and renovated research laboratories, and an entrance more closely aligned with the Collegiate Gothic architecture of other campus buildings. Flexibility to add future teaching and research technologies was designed into the project. Upgrading Gottwald was 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. Over this decade, the University has added 18 new faculty positions and placed greater emphasis on interdisciplinary studies and innovative science classes for non-majors.

**\*\*\* VIRGINIA SECTION NEWS \*\*\*****FUTURE MEETINGS**

DATE: **March 13, 2015**  
LOCATION: Randolph-Macon College  
Ashland, Virginia  
HOST: Dr. Serge Schreiner  
PHONE: (804) 752-7206  
EMAIL: sschrein@rmc.edu  
SPEAKER: **Dr. Douglas Friedman**  
TOPIC: "Safe Science: Promoting a Culture of  
Safety in Academic Chemical Research"



DATE: **April 18, 2015**  
LOCATION: University of Virginia  
Charlottesville, Virginia  
HOST: Dr. James Demas  
PHONE: (434)924-3343  
EMAIL: demas@virginia.edu  
SPEAKER: **Dr. Nelson Ayala**  
**(UNDERGRADUATE RESEARCH POSTER SESSION)**

**THE CHAIR'S CORNER**

Attending the January meeting was a great pleasure as we recognized some of our members for their contributions to chemistry and to the Virginia section. Joe Crockett and David Giamalva are just two outstanding examples of the caliber of scientists that make up our chemistry community. Both have had successful careers that have spanned several decades during which each has contributed to the field of chemistry as well as to the chemical community in the Virginia section. Please join me in congratulating Joe and David.

On Saturday January 17<sup>th</sup>, we held the first Executive Committee meeting of the year. I am always impressed with the energy and passion the Executive Committee members bring to the Virginia Section. As we reviewed the reports submitted by the committee leaders, I was reminded of all the great events the section supports in order to share the world of chemistry with those outside of our profession. Each committee has some great events planned for 2015; I would challenge each and every member of the section to get involved with our committees and actively participate in the events throughout the year. I think you will find the experience both exciting and rewarding.

Looking forward to February, we have the Powell Lecture at the University of Richmond. This meeting provides a great opportunity for students and members to interact with the eminent chemist Dr. Joseph De Simone. Please join us on February 20 for another outstanding section meeting.

## REPORT ON THE JANUARY 16 AWARDS MEETING

The September 16, 2015 meeting of the Virginia Section was held at Virginia Union University in Richmond. **Dr. Todd Koch**, Chair of the Section, presided at the Annual Awards Meeting. **Dr. Denise Walters**, Chair-Elect, assisted with the award presentations. **Dr. Dorothy Eseonu**, meeting host, welcomed the Section to Virginia Union University. Nearly 70 persons attended the meeting.

**Dr. David Giamalva**, Research Fellow at Pfizer Consumer Healthcare in Richmond, received the Industrial Leadership Award. He was introduced by **Dr. Denise Walters**, a colleague at Pfizer. Dr. Giamalva's award presentation was titled "Some 'New' Challenges in Cough/Cold Products Containing Phenylephrine."

The Section's Distinguished Service Award was presented to **Dr. Joseph Crockett**, Professor of Chemistry at Bridgewater College and a past chair (twice!) of the Virginia Section. He was introduced by **Mr. Larry White**, who is a colleague at Bridgewater. Dr. Crockett's award presentation was titled "Laboratory Safety: Past, Present, and Future." Dr. Crockett was accompanied by his wife Jane, their two sons Will and Mack, and their granddaughter Avery.

**Mr. Larry White**, Chair of the History Committee for the Section, gave a brief presentation on the plans to update the Section's history. The last version of the history was prepared by Dr. Alan Powell and covered the first 75 years of the Section, 1915 – 1990. During 2015, the Section will be celebrating its centennial.

The awards program was preceded by a social hour and dinner at Virginia Union. Special thanks to **Dr. Dorothy Eseonu** and her colleagues and students at VUU for organizing this outstanding meeting. Thanks also to **Yezdi Pithawalla**, Chair of the Awards Committee for the Section, for his work in preparing for the awards presentations, and to Todd Koch, Yezdi Pithawalla, and Denise Walters for their photographs of the meeting.



Left-to-right:

**Denise Walters, Virginia  
Section Chair-Elect**

**Joseph Crockett, Distin-  
guished Service Award**

**David Giamalva, Industrial  
Leadership Award**

**Todd Koch, Virginia Section  
Chair**

## ADDITIONAL PHOTOS FROM THE AWARDS MEETING



Todd Koch and Joe Crockett



David Giamalva and Denise Walters



Dorothy Eseonu



Larry White



## CHEMISTRY SEMINARS AT THE UNIVERSITY OF VIRGINIA

February 13 - **Professor Min Chen**, University of Massachusetts, "A Hole on the Membrane: Using Pore-forming Proteins to Attack and Sense"

February 20 - **Professor Chris Arumainayagam**, Wellesley College, "The Role of Low-Energy (<20 eV) Electrons in Astrochemistry"

February 27 - **Professor Steve Mayer**, University of Portland

March 27 - **Professor Stephen Hannessian**, University of Montreal (**Hecht Lecture**)

April 3 - **Dr. Morris Bullock**, Pacific Northwest National Laboratory, "Design of Molecular Electrocatalysts for the Production and Oxidation of Hydrogen: Shoving Protons Around with Proton Relays"

April 10 - **Dr. Steve Vogel**, National Institutes of Health

April 17 - **Professor Emad Tajkhorshid**, University of Illinois at Urbana-Champaign, Beckman Institute

April 24 - **Professor Jeffrey Johnson**, University of North Carolina at Chapel Hill

May 1 - **Professor Alan Marshall**, Florida State University, "Reading Chemical 'Fine Print': The Key to Exploiting Nature's Compositional Complexity" (**Jefferson Lecture**)

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/>.

## **CHEMISTRY SEMINARS AT VIRGINIA COMMONWEALTH UNIVERSITY**

February 20 - **Dr. Dennis Liotta**, Emory University (**J. D. Smith/Larry Winters Lecture - Joint Seminar with Medicinal Chemistry**)

March 19 - **Dr. Holly Walter Kerby**, Madison Technical College, Wisconsin

April 7 - **Dr. James M. Mayer**, Yale University (**38<sup>th</sup> Annual Kapp Lecture**)

April 9 - **Dr. Omar Farha**, Northwestern University

April 21 - **Dr. Alan K. Soper**, ISIS Science & Technology Facilities Council, UK



Seminars are held at 3:30 p.m. in Room 1024, in the Physical Science Wing of Oliver Hall, 1001 West Main Street, Richmond. For more information, call (804) 828-1298.

## **THE POWELL LECTURESHIP**



Dr. W. Allan Powell served the University of Richmond continuously for 34 years. For 23 of those years, he was chairman of the Chemistry Department. Dr. Powell served as the premedical and pre-dental advisor from 1959 to 1986. He was a very important part of the scientific community in Virginia, serving both on a national and regional basis in the American Chemical Society and in numerous capacities for the Virginia Academy of Sciences.

In honor of Dr. Powell, the Department of Chemistry established the W. Allan Powell Lectureship. The endowed lectureship is a regional program devoted to specific advances in the chemical sciences and each year complements the Virginia Section of the American Chemical Society at the University of Richmond. Dr. Powell passed away in 2010, but his legacy lives on in the annual W. Allan Powell Lectureship.



## NEW OFFICERS OF THE VIRGINIA SECTION



left-to-right:

**Todd Koch - Chair**

**Colleen Taylor - Vice Chair**

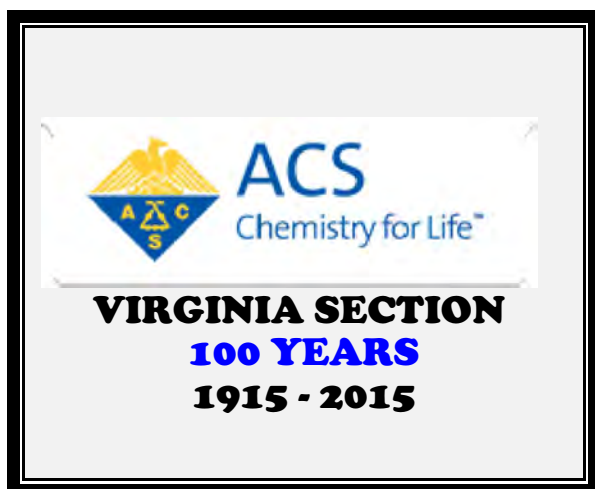
**Denise Walters - Chair Elect**

**Christine Farthing - Secretary**

**Scott Gronert - Past Chair**

**Thad Hannel - Treasurer**

## CENTENNIAL CELEBRATION FOR THE VIRGINIA SECTION



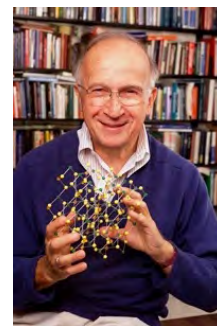
The American Chemical Society issued a charter to the Virginia Section in April, 1915. During 2015, the Section will celebrate its 100<sup>th</sup> anniversary. Special events are being planned. If you have ideas on ways to celebrate during our centennial year or would like to volunteer to assist in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

## 2015 CHEMISTRY OLYMPIAD

The Virginia Section will host the 2015 Chemistry Olympiad for all high school chemistry teachers and students who are interested in participating (both first- and second-year exams will be given). The Local Section competition will be held in March, 2015 (**registration deadline is February 23**). The students who do well in the local competition will be nominated to compete in the national competition; that examination will be given on April 18 at James Madison University in Harrisonburg. Twenty students from across the U.S. will be selected to attend the study camp at the U.S. Air Force Academy in Colorado, June 2-17. Four of these students will be chosen to represent the U.S. at the 47<sup>th</sup> International Chemistry Olympiad in Baku, Azerbaijan, July 20-28. For more information and the application forms, go to the Virginia Section website site at <http://www.virginia.sites.acs.org/>. The Virginia Section recognizes students, teachers, and schools with certificates, pins, plaques, and gift certificates. **Dr. Ann Sullivan** is the coordinator for the Chemistry Olympiad in the Virginia Section: [asullivan@reynolds.edu](mailto:asullivan@reynolds.edu); (804) 943-2591 or (804) 523-5777.

## QUESTIONS FROM THE PAST

This question was asked in the January Bulletin: On February 8, 2008, a renowned theoretical chemist addressed the Virginia Section on “Antoine and Marie Ann Lavoisier.” The speaker received the Nobel Prize in Chemistry in 1981 and the Priestley Medal from the ACS in 1990. **Who was this Powell Lectureship speaker?** Extra credit if you can give the source of his first name. The speaker was **Dr. Roald Hoffman**, the Frank H. T. Rhodes Professor Emeritus of Humane Letters at Cornell University. He was named for the famous Norwegian explorer Roald Amundsen, who led the first successful expedition to the South Pole (his team reached the Pole on December 14, 1911).



A new question from the past: In 1989, the Virginia Section received a prestigious award. It was presented by Clayton Callis to Sheryl Baldwin in Miami Beach, Florida. **What was the nature of this award?**

## CAN YOU IDENTIFY THIS PERSON?



The photograph is from April 13, 2007 and was taken in the Chemistry Building at the University of Virginia. The subject, a senior chemistry major at UVA, had just received a certificate of recognition and a copy of the *Merck Index* from Dr. Will Lewis, Chair of the Virginia Section. A short time later, she introduced Dr. William Bare of Randolph College, the speaker for the Section meeting. His topic was “Why Matter Matters: An Overview of the Two Thousand Year Debate on the Atomic Theory.”

The “mystery person” shown in the January Bulletin was **Dr. Carl Trindle**, Professor Emeritus of Chemistry at the University of Virginia and recipient of the Distinguished Service Award from the Virginia Section in 2000.



## 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:

February 12 - **Sweet Science: Chocolate Chemistry for Valentine’s Day**

February 19 - **Chemistry in the Courtroom: Demystifying Science for Judge and Jury**

February 26 - **Strategies to Improve Solubility of Drug Candidates**

March 5 - **Making Plastic Greener Through Next Generation Polymers**

March 12 - **Communicating Carbon Science**

**WORDS OF WISDOM FOR FEBRUARY:**

**“Never Mistake  
Motion for Action”**

## **Historical Sketch of the Virginia Section of the American Chemical Society**

*As the Virginia Section celebrates its 100<sup>th</sup> year of existence in 2015, some reflections on its history will be included in the Bulletin. One of the earliest records of the history of the Section is this summary of the early years by Robert F. McCracken that appeared in the April, 1927 issue of the Virginia Section Bulletin.*

“The Virginia Section of the American Chemical Society grew out of the Virginia Chemists' Club, a small but active group of scientists, that met monthly for several years. For a while the club published its proceedings and papers in bound form. One of its outstanding contributions to progress was the publication of a thirty page catalogue of chemical literature in Virginia, through a committee composed of Eugene C. Bingham, A. M. Forrester, and J. B. Robb. And to this club was due the credit for bringing about the organization of the chemists of the state into the Virginia Section of the American Chemical Society. The committee appointed to engineer this was E. W. Magruder, A. M. Forrester, and F. B. Carpenter. In February, 1909, they reported that the nine Richmond members of the society, and nineteen others outside of Richmond, and eighteen members of the club, favored organizing the section. The council, however, disapproved the first application, and the chartering of the section embracing all of Virginia, except Alexandria County, was not an accomplished fact until 1915.

The membership of the section has fluctuated greatly. It began with fifty-nine full members in 1915, reached 74 the next year, and 97 in 1917. The next year it passed the hundred mark, and for a while the section had two councilors. In 1918 there were sixteen chemists at City Point, but in 1924 there were none, and there has been a slump in full memberships below the hundred mark. The section has always had associate members who pay a fee of two dollars, and recently students have been allowed to join, paying a fee of but one dollar.

At the close of the War the section obligated itself to pay a hundred dollars a year to the support of a French war orphan, which obligation was met for five years with small private subscriptions raised through special committees. In 1923 the publication of THE BULLETIN OF THE VIRGINIA SECTION OF THE AMERICAN CHEMICAL SOCIETY was begun. Practically all the meetings of the section, until recently, have been in Richmond. Occasionally joint meetings have been held with other groups of scientists. The section met in Richmond with the American Association of Engineers and affiliating engineering organizations March, 1922; with the American Institute of Chemical Engineers in Richmond December, 1922; with the Virginia Academy of Science in Richmond May, 1925, and at Charlottesville May, 1926; at Washington and Lee University May, 1924; at the University of Virginia April, 1925; at Hopewell March, 1926; and with the Hampton Roads Chemists' Club, Norfolk, April, 1926.

The speakers before the section from places in Virginia have been too numerous to mention. At least two, however, should be named because of their long association with the American Chemical Society: J. L. Howe, who joined 1893; and F. P. Dunnington, who joined 1894. The speakers from outside Virginia have been quite numerous too. Most of the living or recent past presidents of the society have addressed the Virginia Section or the club that preceded it one or more times. The list includes H. W. Wiley, Alexander Smith, C. H. Herty, W. D. Bancroft, W. A. Noyes, E. C. Franklin, Edgar F. Smith, and James F. Norris. Others from outside Virginia who have addressed the section one or more times are: E. V. McCollum, Arthur W. Thomas, H. E. Howe, Hugh S. Taylor, E. C. Bingham, E. E. Reid, W. M. Corse, E. R. Weidlein, W. O. Collins, James G. Vail, Thomas Midgley, Jr., Arthur L. Walters, Gen. Amos A. Fries, W. D. Bigelow, H. C. Sherman, C. L. Alsberg, Walter A. Patrick, Neil Gordon and Charles L. Parsons.

The chairmen of the section, with the years they joined the society, have been: J. B. Robb (1908), R. B. Arnold (1902), A. H. Allen (1916), Charles M. Bradbury (1915), Garnett Ryland (1901), Dr. E. C. L. Miller (1920), W. Catesby Jones (1921), Graham Edgar (1916), W. F. Rudd (1917), Hall Canter (1905), H. K. McConnell (1911), and Wm. Clift (1923); and the councilors have been F. B. Carpenter (1898), E. W. Magruder (1896), R. M. Bird (1902), W. F. Rudd, Garnett Ryland, Graham Edgar, and H. K. McConnell.

Many members of the section now scattered throughout the nation are still pleasantly remembered in Virginia, and every one that can do so is expected to show up at the April meeting.”

## **OFFICERS OF THE VIRGINIA SECTION OF THE ACS**

**Chair - Dr. Todd Koch (804) 257-2890**

---



**Todd Koch**

**Chair Elect - Dr. Denise Walters (804) 257-2828**

**Vice Chair - Dr. Colleen M. Taylor (804) 524-5481**

**Secretary - Dr. Christine Farthing (804) 257-2385**

**Treasurer - Dr. Thaddeus S. (Thad) Hannel (804) 335-2552**

**Bulletin Editor - Dr. James Beck (804) 733-5286**

**Bulletin Publisher - Dr. Will Lewis (804) 274-5869**