

The Blue Ridge Chemist

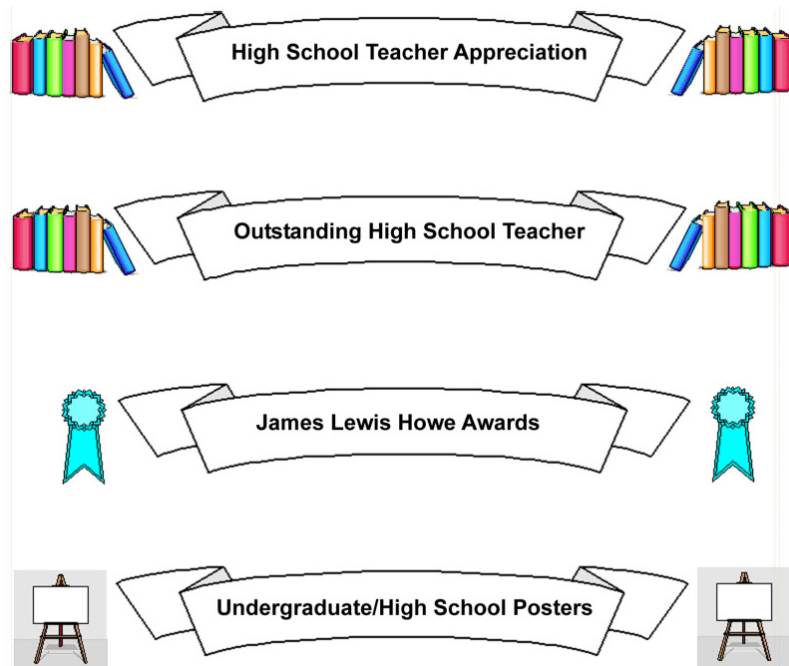
The Blue Ridge Chemist, since 1947 the
Official Local Section Publication of the
Virginia Blue Ridge Section, American Chemical Society



VOLUME LXIX

April 8, 2016

No. 3



Radford University hosts the April Meeting

VIRGINIA BLUE RIDGE SECTION AMERICAN CHEMICAL SOCIETY

677st SECTION MEETING
Hosted by Radford University
Friday, April 8, 2016

PROGRAM:

- 5:00-6:30** Social hour with heavy hors d'oeuvres
Building/lab tours
Planetarium show
Poster session
- 6:30-7:00** Awards
- 7:00-8:00** Talk

All events will take place in Main Street level of Center for the Sciences. The speaker will be Joyce Ni Zhu of Marc Edwards lab at Virginia Tech. She will speak on issues related water quality and analyzing water samples. This talk will revisit the events of the Flint Water Crisis.

Heavy hors d'oeuvres will be served in place of dinner.

To enable planning, RSVP is requested by FRIDAY, APRIL 1, SEVEN DAYS before the meeting, by email to langell@radford.edu or phoning Mrs. Laura Angell at (540) 831-5515.

Dr. Joyce Ni Zhu
Virginia Tech



Ni Zhu is a doctoral student in Civil and Environment Engineering at Virginia Tech. Prior to joining Professor Marc Edwards' group, she has had an undergraduate degree in Environmental Science and Engineering at National University of Singapore and a Masters of Engineering degree in Civil and Environmental Engineering at Massachusetts Institute of Technology. Her doctoral research area focuses on the interplay of water chemistry on the fate and transport of emerging microbial contaminants and antibiotic resistant bacteria in water distribution systems. Since Professor Edwards started independent research on Flint water contamination last summer, she has been a core member of the Flint Water Study Team, helping with sampling processing and analysis in the laboratory. She has also traveled to Flint to sample identified hot spot buildings in Flint.

Water Quality Analysis

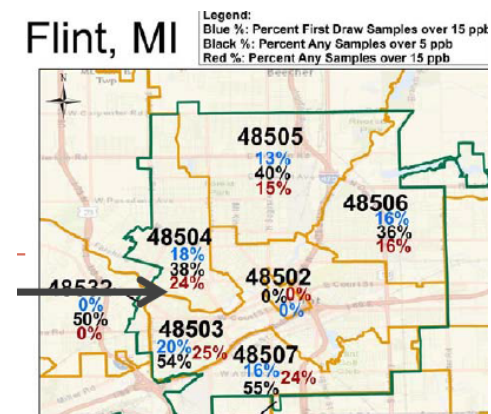
The Flint MI Water Crisis (2014-present) resulted from a state-appointed emergency manager's decision to switch to the corrosive Flint River as a drinking water source, and the Michigan Department of Environmental Quality (MDEQ) failing to enforce federally mandated corrosion control treatment of the water. This created a "perfect storm" of drinking water issues resulting in violations for bacteria and disinfection byproducts, caused unprecedented corrosion of iron mains as well as high levels of

legionella bacteria and lead in water. For 18 months, about 100,000 Flint residents were exposed to unsafe drinking water whilst city and state officials publicly insisted the water was safe to drink.

An "open science" research collaboration between our (Virginia Tech's) Flint Water Study team and Flint residents in Aug-Sep 2015 revealed citywide lead in water contamination as well as high levels of legionella bacteria in bigger buildings. This was followed by Hurley pediatricians proving how the water switch had doubled instances of childhood lead poisoning in the city. Undaunted by attempts to discredit our work, we fought the MDEQ and the U.S. EPA to educate the residents about the severe public health risks of lead-tainted water.

This endeavor led to declaration of a "Public Health Emergency" by President Barack Obama, garnered hundreds of millions of dollars in relief for Flint residents, and brought much needed attention to glaring issues within the current drinking water legislation and aging water infrastructure (especially, lead pipes and leaded plumbing) plaguing the country fueling a natural debate on "safe" drinking water in America.

This talk will revisit the events of the Flint Water Crisis.



James Lewis Howe Awardees

We are again pleased to be able to honor the outstanding students who are majoring in an area of chemistry in the Colleges and Universities in the Virginia Blue Ridge Local Section. These students are listed below.

Tsion Zewge Tafesse

Concord University–Chemistry

HOMETOWN: Addis Ababa, Ethiopia

ANTICIPATED DEGREE: Chemistry, May 2016



Mika Smith

Ferrum College–Chemistry

HOMETOWN: Durham, North Carolina

DEGREE: B.S. Chemistry, May 2016

AWARDS, HONORS, AND

MEMBERSHIPS: USA SOUTH Sportsmanship Award, Dean's List, USA South Academic All-Conference, Alpha Chi Honor Society, Alpha Phi Sigma Criminal Justice Honor Society



Suzanne Allen

Liberty University–Chemistry

HOMETOWN: Lynchburg, VA

ANTICIPATED DEGREE: B.S. Chemistry, May 2016



AWARDS AND MEMBERSHIPS: Best Poster Award at the 2014 Liberty University Research Symposium, ACS.

Angela Yu Gerard

Radford University–Chemistry

HOMETOWN: Prince George, VA

ANTICIPATED DEGREE: B.S. in Chemistry, May 2016

AWARDS AND MEMBERSHIPS: Deans list, American Chemical Society



Chelsea Decker

Randolph College–Chemistry

HOMETOWN: Charlotte, NC

ANTICIPATED DEGREE: B.S. in Chemistry, May 2016

AWARDS AND MEMBERSHIPS: Analytical Chemistry Award, Dean's List, American Chemistry Society



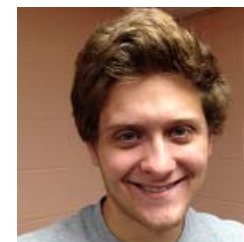
Nicholas Wright

Roanoke College–Biochemistry

HOMETOWN: Harrisonburg, VA

ANTICIPATED DEGREE: B.S. in Biochemistry, May 2016

AWARDS AND HONORS: 2015 ACS Award in Analytical Chemistry, 2015 ASBMB Undergrad Poster Session Honorable Mention, 2015 Scripps Florida Summer Undergraduate Research Fellow, David Bittle Presidential Scholarship, Alpha Lambda Delta



Hayden T. Alford

Virginia Military Institute – Chemistry

HOMETOWN: Dyersburg, Tennessee

ANTICIPATED DEGREE: B.S. in
Chemistry May 2016



AWARDS, HONORS, AND MEMBERSHIPS: Southern Conference All-Academic Team, Top Organic Chemistry Student, Elite Eighteen Recipient, Dean’s List, Letter Award Recipient for Football, NCAA Scholarship Athlete, VMI Division 1- AA Football, Quarterback and Punter Phi Eta Sigma National Honor Society, Gamma Sigma Epsilon National Chemistry Honor Society

William Porzio

Virginia Tech–Biochemistry

HOMETOWN: Richmond, VA

ANTICIPATED DEGREE: B.S. in
Biochemistry, May 2016



HONORS AND MEMBERSHIPS: Class of 2016 Class Officer, Virginia Tech Student Alumni Associate, SGA College of Science Senator, VT New Student and Family Programs, American Student Dental Association, Order of Omega Honor Society, Omicron Delta Kappa Honor Society

Corinne E. Kramer

Virginia Tech – Chemical Engineering

HOMETOWN: Avondale, Pennsylvania

ANTICIPATED DEGREE: B.S. Chemical
Engineering, May 2016



AWARDS, HONORS, AND MEMBERSHIPS: David Wallis Memorial Scholarship, Donald Cox Chemical Engineering Scholarship, Andrew Britton Chemical Engineering Scholarship, Richard Herron Chemical Engineering Scholarship, Pratt Engineering Scholarship, Pratt Study Abroad Scholarship, Ronald Lohr Chemical Engineering Scholarship, Clark Nexsen Engineering Scholarship, VT Scholars Scholarship, First State Alumni Chapter Scholarship, Mary Allison Lang Memorial Scholarship, Distinguished University Scholarship, First-year Engineering Best Prosthetic Hand Design Award, Finalist in First-year Engineering Sustainable Energy Design Competition, Dean’s List with Distinction, Member of Omega Chi Epsilon Chemical Engineering Honor Society, American Institute of Chemical Engineers, and Gamma Beta Phi Honor Society.

Bethany Stratakes

Virginia Tech – Chemistry

HOMETOWN: Leonardtown, MD

ANTICIPATED DEGREE: B.S. in
Chemistry, May 2016



AWARDS AND HONORS: Dean’s List, Department of Chemistry Academic Excellence Award, Undergraduate Award in Analytical Chemistry, from the American Chemical Society’s Division of Analytical Chemistry, Roy H. Bible, Jr. ’48 Memorial Scholarship recipient, Sigma Xi Undergraduate Research Award, Alpha Chi Sigma

Man Bich Dai

Washington and Lee University –
Biochemistry

HOMETOWN: Lawrenceville, GA

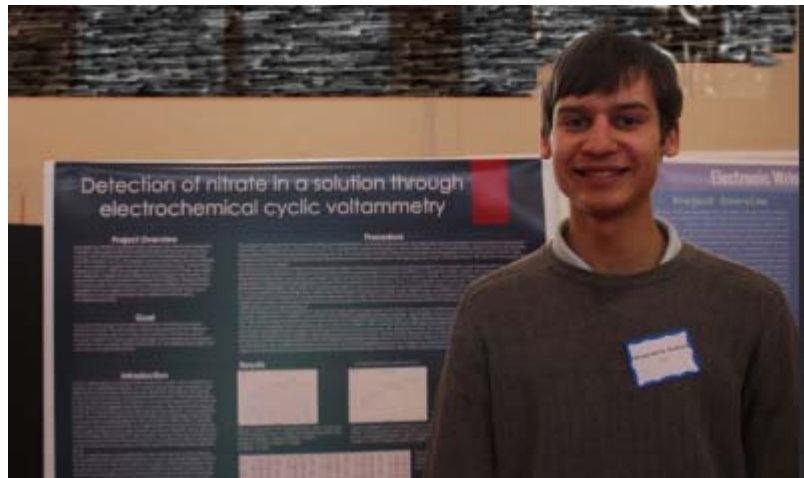
ANTICIPATED DEGREE: B.S. in
Biochemistry, May 2016



AWARDS AND HONORS: Dr. Reid Whites Scholarship, James Keith Shillington Scholarship, The First Year Chemistry Achievement Award, The First Year Physics Award, Phi Beta Kappa Honor Society, Phi Eta Sigma Honor Society, Honor Roll, American Chemical Society, Beta Beta Beta Honor Society, Alpha Epsilon Delta Honor Society

The ACS award at the Blue Ridge Highlands Regional Science Fair was 502:

Alexander E. Dunford *Detection of Nitrate and Nitrite in a Solution Through Electrochemical Cyclic Voltammetry*
Southwest Virginia Governor's School; Sponsor: Jared Brown



**Dr. James Lewis Howe
1859-1955**



James Lewis Howe was for many years Professor of Chemistry and Head of the Department at Washington and Lee University. As one of the most distinguished chemists in the Blue Ridge Section, we have chosen to name our annual awards to outstanding students in his memory.

Dr. Howe was born in Newburyport, Massachusetts in 1859; this is the same year in which Svante Arrhenius was born, and during Dr. Howe's professional career he was to know many of the famous early chemists, such as Liebig, Wohler, Bunsen, and many others. He attended Amherst College, where he pursued his favorite subjects of chemistry, German, and religion. He was selected to deliver the graduation address on the subject of "The Scientific Method and Religion".

He earned his M.S. and Ph.D. degrees at the University of Gottingen, and published his first scientific papers on the subject of aromatic carbon chemistry. He then began an intensive literature search of the platinum metals, beginning a bibliography for which he was to become world famous. He decided that the most interesting and least known metal of the group was ruthenium.

In 1883 he married Henrietta Leavenworth Marvine of Scranton, Pennsylvania. This marked the beginning of a marriage of 60 years duration. The Howes became the parents of two daughters and a son (who was also a chemist). After Mrs. Howe's death in 1944, one of his daughters, Guendolen Howe, became her father's constant companion.

Dr. Howe's teaching career began at Brooks Military Academy in Cleveland, Ohio. From there he went to Central University in Richmond, Kentucky, where he was Professor of Chemistry (and later Physics and Geology as well). In 1894 he accepted the Chair of Chemistry at Washington and Lee University, and for almost half a century he was at that institution.

It was here that he began his intensive bibliographic study of the platinum group and his outstanding research on the element ruthenium. In 1917 he was appointed chairman of a special subcommittee on platinum of the National Research Council. His work led to the development of platinum alloys, and averted a potentially crucial shortage in platinum, threatening our efforts during World War I. He later received several presidential commissions dealing with the platinum metals.

Dr. Howe was beloved by his students and colleagues at W&L. For the first fifteen years he was a one person department. His lectures were informal, but completely up to date. He was known for his extreme congeniality, charming personality, mild manner, and even temper. He was unceasingly helpful, and believed that more could be learned in the laboratory than from lectures.

Dr. Howe's unflagging energy found him serving in many capacities outside the scientific field. He was an Elder of the Lexington Presbyterian Church, an active Mason, and held positions in the Town Council in Lexington and the People's National Bank of Lexington.

Outstanding High School Teacher Awardee *Emily Muterspaugh*



Emily Muterspaugh received her Bachelor of Science degree in Biology from Roanoke College in 2000. She received her M.Ed. in Curriculum and Instruction from the University of Virginia in 2008 and has dual enrollment certification in both chemistry and biology through her coursework from the University of Maryland. Over the last fifteen years, she has taught Biology, Chemistry, AP Biology, and Dual Enrollment Chemistry at the high school level. She is also an adjunct faculty member at Dabney S. Lancaster Community College.

Emily is a native of Alleghany County and has been teaching at Alleghany High School, her alma mater, since 2007. She has been married for almost fifteen years to Ryan Muterspaugh and they have two amazing children, Kylie and Caleb. Emily enjoys being involved in her children's activities such as soccer and baseball. She also enjoys running, reading, and kayaking with her family.

Emily thanks her entire family for all the encouragement and support they have given her over the years. She also thanks her parents, Mac and Sarah Campbell, and her grandfather, John Talton, for instilling in her a love of learning and the importance of good character.

As a part of the April 8, 2016 meeting at Radford University, the Virginia Blue Ridge Section of the American Chemical Society is sponsoring the twenty-first Annual Undergraduate/High School Poster Session. Note that poster boards will be provided.

If you have a student or students, who will be participating, submit the following information by email to Chris Hermann (chermann@radford.edu) by April 1, 2016. This is a firm deadline. No poster submissions will be accepted after this time. All students and faculty will get email confirmation. If you did not get an email reply, then your submission was not received and you cannot present.

Name of Project _____

Name(s) of Student(s): _____

Affiliation (name of high school, college, or university): _____

Class of Student(s) (freshman, sophomore, junior, senior): _____

Student(s) email address: _____

Advisor's Name, Address, Telephone Number, and email address: _____

48" by 48" poster board with tripod on table or just table will be provided. Please specify what you need.

_____ poster board with tripod on table

_____ table needed

Directions to Radford University

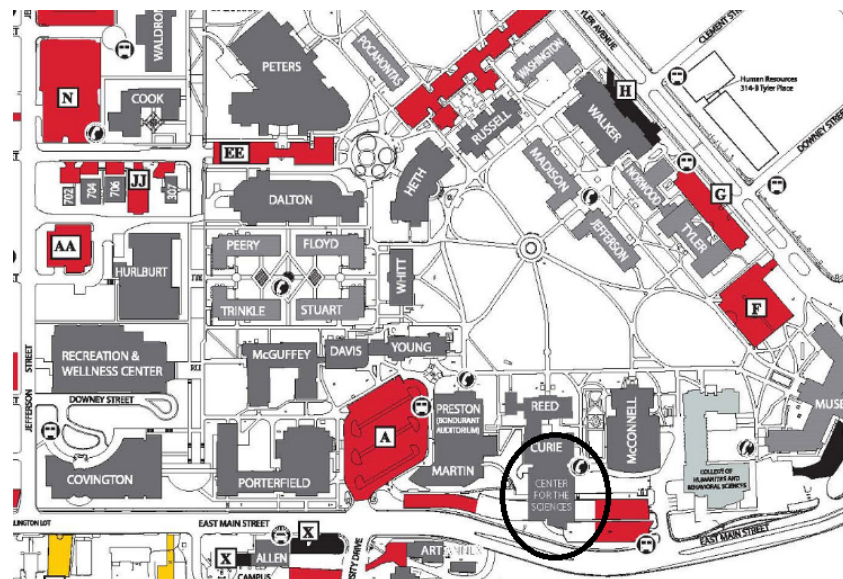
Directions: Take I-81 to exit 109 and follow Route 177 (Tyler Ave) to Main Street. Make a right onto Main Street. Go into the first parking lot on the right -- it is besides College of Humanities and Behavioral Science building (under construction), in front of McConnell Library, and besides Center for the Sciences. The map is available at

<http://chermann.asp.radford.edu/RadfordU%20Parking%20Map.jpg>

The parking pass is available at

<http://chermann.asp.radford.edu/Chemical%20Society04-08-16.pdf>

Map of Radford University



(Adapted from Radford University Website)

Postcard Information:



VIRGINIA BLUE RIDGE SECTION
AMERICAN CHEMICAL SOCIETY



677TH SECTION MEETING
Hosted by Radford University

Friday, April 8, 2016
Speaker: Joyce Ni Zhou *Water Quality Analysis*

5:00-6:30pm

Social Hour, posters

Lecture Hall

6:30-7:30pm

Awards

Lecture Hall

7-8pm

Talk

Lecture Hall

RSVP to Mrs. Laura Angell at (540) 831-5515, or by email to
langell@radford.edu.

Go to <http://acs-vbrs.org/newsletter.html> for complete newsletter

*****For the May meeting a tour of Novozymes is planned.*****

Details will be in the next issue of the Blue Ridge Chemist