The Blue Ridge Chemist

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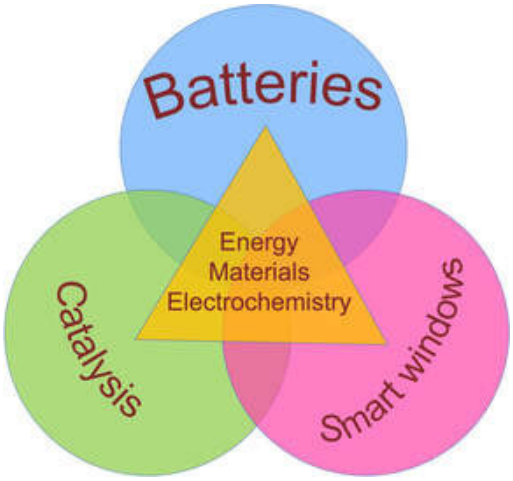
Radford University Hosts the April Meeting

- High school & undergraduate posters!
- James Lewis Howe Awards!
- High School Teacher Award!
- Keynote speaker: Prof. Feng Lin, Virginia Tech
- Presentation: *The Present and Future of Battery Science*



VIRGINIA BLUE RIDGE SECTION

AMERICAN CHEMICAL SOCIETY

710th SECTION MEETING

Radford University

Friday, April 14, 2023

PROGRAM:

5:00 to 5:30 PM Poster Setup, Center for the Sciences, Main Lobby

5:30 to 6:45 Social Hour & Poster Session, Center for the Sciences, Main Lobby

7:00 to 7:15 Awards Ceremony, Center for the Sciences, Room M73

7:15 to 8:15 Keynote Presentation, Room M73

The Virginia Blue Ridge Section proudly announces its flagship event – the annual awards celebration and student poster session!

The social hour and poster session will take place in the lobby at Main Street level in Center for the Sciences. The awards recognition and keynote presentation will take place in the adjacent auditorium, Room M73, in Center for the Sciences.

Heavy hors d'oeuvres will be served during the social hour in place of a sit-down dinner.

To enable planning, an RSVP is requested by Friday, April 7, **seven days** before the meeting by emailing Laura Angell langell@radford.edu, or calling her at (540) 831-5515.

Maps and directions are on the last page of this Newsletter.

Are you – or one of your students – presenting a poster?
Instructions and a poster-session registration form are on p. 13.

Our Keynote Speaker: Feng Lin

Feng Lin is Associate Professor of Chemistry and Leo & Melva Harris Faculty Fellow at Virginia Tech. Dr. Lin grew up in Fujian Province, near the northern entrance of the Taiwan Strait. He received his B.S. in Materials Science & Engineering at Tianjin University in China in 2009 and his Ph.D. in Materials Science from Colorado School of Mines in 2012. He then spent two years as a postdoctoral researcher at Lawrence Berkeley National Lab, and another year at Quantumscape, a battery technology company in Silicon Valley. He joined Virginia Tech in 2016 and was promoted to Associate Professor in 2021. In 2022, Dr. Lin founded Fermi Energy Inc. to focus on new cathode technologies for electric vehicles. Dr. Lin is the recipient of numerous awards including the Early Career Award of the Electrochemical Society, the NSF Career Award, and the Young Scientist Award from *Energy Storage Materials*. He was named a Rising Star of Science by Research.com and an Emerging Investigator by the *Journal of Materials Chemistry*. Dr. Lin is the author of over 140 peer-reviewed research articles. His research into fundamental and practical aspects of energy storage has been recognized on journal covers and highlighted in secondary publications and trade magazines.

Keynote Abstract

The Present and Future of Battery Science

Renewable energy sources, such as solar and wind, can minimize our dependence on fossil fuels and reduce greenhouse gas emission. However, solar and wind are uncertain and intermittent. As we bring renewable energy to the forefront, we also need to develop efficient and cost-effective solutions to energy storage and energy conversion. Storing electricity in batteries or converting electrical energy to simple fuels such as hydrocarbons and energy-rich chemicals like ammonia can overcome the mismatch between production and demand. In this lecture, I will illustrate some of the most important principles of battery technology that every scientist or engineer needs to understand, so that together we can advance the frontier of knowledge and reap many benefits in the form of new technologies. I hope also to convey the tremendous excitement that drives energy science research forward today, not only in my own laboratories but across the globe.

James Lewis Howe

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 Virginia Blue Ridge Section, we have chosen to name our annual awards to outstanding college seniors in his memory.

Howe was born in Newburyport, Massachusetts in 1859 – the birth year of Svante Arrhenius. During Howe's career he came to know many of the famous early chemists, such as Liebig, Wohler, Bunsen, and others. He attended Amherst College, where he pursued his favorite subjects of chemistry, German, and religion. He delivered the commencement address on the subject of "The Scientific Method and Religion".

Howe 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 Howe 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 their 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 at W&L that Howe 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.

Howe Awardees 2023

	**Emma Brubaker –** Ferrum College **Hometown**: Ferrum, VA **Degree**: BS in Chemistry and BS in Ecotourism, May 2023 **Honors**: Ferrum College Chemistry Award; Boone Honors Program
	**Uyen Nguyen Thanh –** Hollins University **Hometown**: Ho Chi Minh City, Vietnam **Degree**: BS in Chemistry, May 2023 **Honors**: ACS Analytical Chemistry Award; ACS Judith Gregory Smith Natural Sciences Award; International Friendship Award; Runner Up for Individual Performance Award in the Vietnam Youth Initiative Conference. Member of ACS and Sigma Xi.
	**Chloe Elizabeth Vernon –** Liberty University **Hometown**: Fredericksburg, VA **Degree**: BS in Chemistry, May 2023 **Honors**: First Place, Liberty Research Week Undergraduate Poster Presentation; Dean's List; Liberty University Honors Graduate. Member of ACS.
	**Cora Handy –** Radford University **Hometown**: Christiansburg, VA **Degree**: BS Chemistry, May 2023 **Honors**: Dean's List; Edna Speidel Scholarship; Undergraduate Award in Analytical Chemistry 2023.

Howe Awardees 2023, continued.

Jennifer Moore – Randolph College

Hometown: Roanoke, VA

Degree: BS in Chemistry, May 2023; BS in Biology, January 2024

Honors: All-Academic Team in the ODAC (Old Dominion Athletic Conference); Randolph College Track & Field Impact Award; Dean's List; SUPER Program at Randolph College. Member of Chi Alpha Sigma (Randolph College Athletics Honor Society).

Natalie Konst – Roanoke College

Hometown: Cary, NC

Degree: BS in Chemistry, May 2023

Honors: ACS Organic Award; Virginia Foundation for Independent Colleges Research Fellow; Phi Beta Kappa Honor Society Member; Omicron Delta Kappa, Roanoke College Chapter Treasurer; Alpha Lambda Delta Honor Society; SAACS Award; President's List; Dean's List. Member of ACS.

Katica Kotany – Sweet Briar College

Hometown: Érd, Hungary

Degree: BS in Chemistry and Honors BS in Environmental Science, May 2023

Honors: Nancy Godwin Baldwin '57 Academic Scholar, Gill Scholar Award, Freshmen Chemistry Award. McVea Scholar Award (First in Freshman Class), Dean's List. Member of Iota Sigma Pi, Chi Alpha Sigma, Alpha Lambda Delta National Honors Society.

Ethan John Bello – Virginia Military Institute

Hometown: Midlothian, VA

Degree: BS in Chemistry, Pre-Med Track, May 2023.

Honors: Dean's List; Academic Stars senior year at VMI; 1st Place in Commonwealth of Virginia two years in a row for Medical Math competitions. Member of Health Occupational Students of America (HOSA).

Howe Awardees 2023, continued.

	**Valerie Ballard –** Virginia Tech Department of Biochemistry **Hometown**: Salem, VA **Degree**: BS in Biochemistry and BA in Chemistry, May 2023 **Honors**: Dean's List, Most Valuable Resident Advisor. Member of American Society for Biochemistry and Molecular Biology (ASBMB), American Medical Student Association (AMSA).
	**Piper MacNicol –** Virginia Tech Department of Chemistry **Hometown**: Vienna, VA **Degree**: BS in Chemistry and BS in Environmental Science, May 2023 **Honors**: ACS Analytical Chemistry Award; Clare Boothe Luce Research Award, Sigma Xi Research Award, Dennis Dean Research Scholarship, James E. McGrath Polymer Research Award, Fralin Research Fellowship, National Science Foundation Graduate Research Fellowship. Member of ACS.
	**Joanne Ko –** Washington and Lee University **Hometown**: Bristow, VA **Degree**: BS in Chemistry, May 2023 **Honors**: Northeastern Chemical Association Scholarship, ACS Physical Chemistry Award, President's List, Virginia Foundation for Independent Colleges Summer Undergraduate Science Research Fellowship, Earl T. Jones Merit Scholarship, Phi Beta Kappa National Honor Society, Omicron Delta Kappa National Honor Society, Phi Eta Sigma National Honor Society.

VBRS-ACS Award at the 2023 Blue Ridge Highlands Regional Science Fair

Charlotte Phillips received the award for her project entitled *Investigating Degradation of Polyhydroxyalkanoate Drinking Straws in Freshwater and Saltwater Systems*. Charlotte is a student at George Wythe High School. Her faculty sponsor is Lucas Phillips.

VBRS-ACS Outstanding High School Teacher Award for 2023

Ryan Adams is a high school science teacher, teaching both chemistry and biology, at William Byrd High School of Roanoke County Public Schools. He received a bachelor's degree in biological sciences with a minor in chemistry from Virginia Tech and a master's degree in education, curriculum, and instruction from Virginia Tech. Ryan implements inquiry-based learning opportunities to challenge his students as they learn chemistry concepts, and he provides many opportunities for students to collaborate and to engage in discourse as they explore the course content. Additionally, he serves as a teacher mentor for numerous science fair research projects each year to further students' understanding of the scientific inquiry process, as students plan their own investigations, collect and analyze data, generate research posters, and present their findings. Ryan strives to provide meaningful learning experiences in his chemistry courses to help his students grow as learners, to embrace challenges, and to be prepared for their future endeavors.

Virginia Blue Ridge Section of the American Chemical Society

Undergraduate and High School Poster Submission Form

As part of the April 14, 2023, meeting at Radford University, the Virginia Blue Ridge Section of the American Chemical Society is sponsoring the 29th Annual Undergraduate/High School Poster Session. Note that poster boards will be provided.

If you have a student or students who will be participating, please submit the following information by email to Dr. Christine Hermann (chermann@radford.edu) by April 7, 2023. This is a firm deadline. No submissions will be accepted after this date. All students and faculty will receive 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):_____

Mark each student above with his or her class: Freshman (1), Sophomore (2), Junior (3), Senior (4)

Affiliation (name of school or institution): _____

Student(s) email address:_____

Advisor's Name: _____

Advisor's Mailing Address: _____

_____

Advisor's Telephone Number: _____

Advisor's Email Address: _____

48" by 36" poster board on a tripod or on a table will be provided. Please specify what you need.

_____ poster board with tripod _____ table needed

All poster presenters will be included in the list for the meal (heavy hors d'oeuvres will be served during the Social Hour, see below). Please list any other faculty, parents, friends, or other students that will be coming to the poster session as your guest(s). We need to get an accurate count for catering.

_____

_____

Meeting Schedule: 5:00 – 5:30 pm: Poster setup 5:30 – 6:45 pm: Social hour/poster session

7:00 – 7:15 pm: Awards 7:15 – 8:15 pm: Keynote presentation

The poster session will take place in the Main Street Lobby of Center for the Sciences. The awards ceremony and keynote presentation will take place in adjacent Room M73, Center for the Sciences,.

If you are scanning this form, please make sure the scan is legible.

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 in front of McConnell Library, and beside Center for the Sciences (white arrow). The poster session / social hour starts at 5:30 pm in the Center for the Sciences. The talk follows the poster session in Center for the Sciences Room M73, immediately adjacent to the poster area in the main lobby of the building.

The parking pass for the meeting can be found here:

http://chermann.asp.radford.edu/Chemical%20Society%2004-14-23.pdf

A map to the campus is here:

https://www.radford.edu/content/radfordcore/home/contact/maps-and-directions.html