

The Blue Ridge Chemist

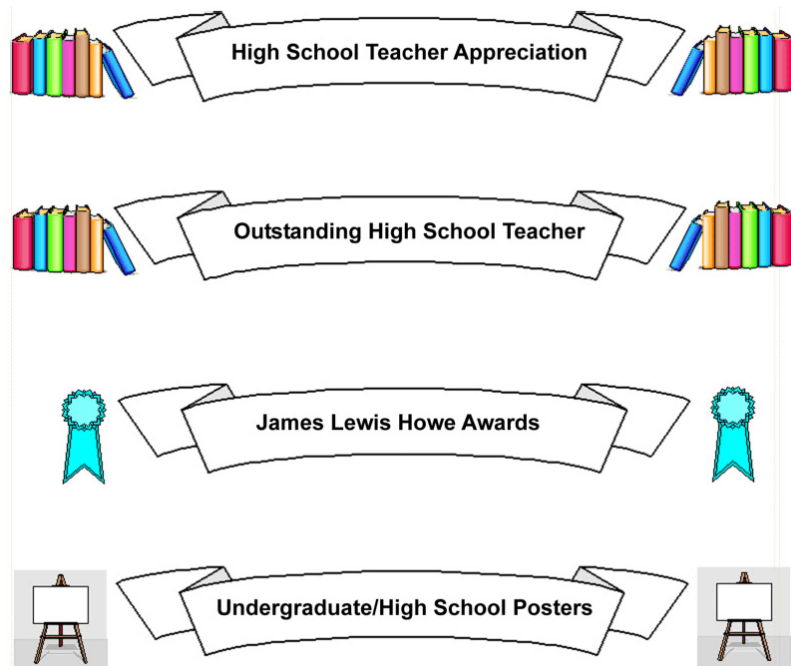
The Blue Ridge Chemist, since 1947 the
Official Local Section Publication of the
Virginia Blue Ridge Section, American Chemical Society



VOLUME LXVI

April 10, 2013

No. 4



Radford University hosts the April Meeting

VIRGINIA BLUE RIDGE SECTION AMERICAN CHEMICAL SOCIETY

655th SECTION MEETING
Hosted by Radford University
Wednesday, April 10, 2013

PROGRAM:

5:30-6:30 Social hour/poster session
6:30-7:30 Dinner
7:30- Awards and talk

All events will take place in Muse Banquet Hall, located in the basement of Muse Hall. The speaker will be Dr. Michael Fox. The buffet dinner will have an Asian theme – Szechwan chicken stir fry, beef and broccoli, egg drop soup, egg rolls, vegetable fried rice, lo Mein noodles, Asian slaw, fortune cookies, sticky rolls, hot mustard, chili sauce, soy sauce, iced tea, and water. Special diets can be accommodated by mentioning it when the reservations are made.

Cost for the dinner is \$14.00, with students and retired ACS members being half price. Poster presenters receive a free meal. High school teachers are guests of the section with a complementary meal for themselves and a companion. Reservations for the dinner must be made by WEDNESDAY, APRIL 3, SEVEN DAYS before the meeting, by phoning Chris Hermann at 540-831-5413, or by email to chermann@radford.edu.

Dr. Michael Fox
Associate Professor, VTC Research Institute
Associate Professor, Biological Sciences, College of
Science at Virginia Tech



Dr. Michael A. Fox was an undergraduate chemistry major at the United States Military Academy and the College of William and Mary before receiving his PhD in Anatomy and Neurobiology from Virginia Commonwealth University Medical Center. After a postdoctoral fellowship at Harvard University, Dr. Fox was recruited back to VCU as an Assistant Professor where he built his developmental neurobiology lab. After 5 years, Dr. Fox joined the Virginia Tech Carilion Research Institute and the Department of Biological Sciences at Virginia Tech as an Associate Professor. All of the projects that are ongoing in Dr. Fox's lab involve exploring the molecular mechanisms that underlie the formation and maintenance of neural circuits and are funded by the NIH. Dr. Fox is active in science advocacy and has won several prestigious awards including the VCU Leadership Award, the Marian Kies Memorial Award from the American Society of Neurochemistry, and a Young Investigator Award from the International Society for Neurochemistry.

**The neurochemical basis for autism and the hunt for
synaptic organizing molecules**

Autism spectrum disorders (ASDs) are a set of behaviorally defined disorders that affect the brain's normal development. ASDs involve a continuum of symptoms and severities, which include impairment of social skill and language development in the first three years of life. The prevalence of ASDs is quite high, with as many as 1 in 150 children being diagnosed with ASDs in the United States. Although a series of epidemiological studies strongly suggest autism is a genetic disorder, mutations have been identified in only a minority of patients with ASDs. Of those genes linked to ASD many are known to be important for the formation and maintenance of synapses – the specialized inter-neuronal connections that mediate information processing in the mammalian nervous system. Based on the link of ASDs with synaptic organization, we have been seeking to understand the mechanisms underlying synapse formation in the mammalian brain. We are particularly interested in a family of unconventional collagens based upon their roles in the peripheral nervous system and the fact that their molecular and macromolecular architecture render them susceptible to phenotype-inducing mutation in the human genome. Moreover, one of these collagens – collagen XVIII – is mutated in Knobloch Syndrome, a rare disease that affects the development of several organs including the brain. Here, I will demonstrate that collagen XVIII is generated in the mammalian brain and is required for the normal formation of synapses. Endogenous enzymatic cleavage of this collagen produces a bio-active peptide (termed endostatin) that is sufficient to induce synapse formation in vitro by binding and signaling through $\alpha 3 \beta 1$ integrin heterodimers. Taken together, these studies reveal novel roles for unconventional collagens in the organization of brain synapses and suggest that mutation of collagen XVIII may contribute to ASDs.

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.

Shannon Renee Emmert
Concord University–Chemistry

HOMETOWN: Charleston, WV
ANTICIPATED DEGREE: B.S. in
Chemistry, May 2013

HONORS: Dean's List 2009, 2010,
2012



Terry Hall
Ferrum College–Chemistry, Biology,
and Pre-professional science

HOMETOWN: Rocky Mount, VA

ANTICIPATED DEGREE: B.S. in
Chemistry, Biology, and Pre-
professional science, 2013



AWARDS, HONORS, AND MEMBERSHIPS: Chemistry
Award at Ferrum College, Boones Honor Society, Dean's List,
SA-ACS

Patricia Thrun

Hollins University–Chemistry with a
concentration in Biochemistry

HOMETOWN: Ionia, MI

ANTICIPATED DEGREE: B.S. in
Chemistry with a concentration in
Biochemistry, May 19, 2013



AWARDS, HONORS: ACS Division of Analytical Chemistry
Undergraduate Award, Judith Gregory Smith Award (Honorable
Mention) for demonstrated excellence in the natural sciences,
Honor Student

Samantha Meiser

Lynchburg College–Chemistry

HOMETOWN: Keysville, Virginia

ANTICIPATED DEGREE: B.S. in
Chemistry; May 2013



AWARDS, HONORS, AND
MEMBERSHIPS: Tutor of the Year (2011-2012); Student
Scholar Showcase first place oral presentation (2012); Student
Scholar Showcase Dean's Award (2011); Outstanding General
Chemistry Student (2009-2010), Dean's List (2009-present);
American Chemical Society; Iota Sigma Pi; Phi Kappa Phi; Phi
Eta Sigma

Jacob L. Shelton

Radford University–Chemistry

HOMETOWN: Altavista, VA

ANTICIPATED DEGREE: B.S. in
Chemistry, May 2013

AWARDS, HONORS, AND
MEMBERSHIPS: Radford University Dean's List; Radford
University Distinguished Service Award, Student Scholarship;
American Chemical Society; Student Affiliates of the ACS,
(Vice President 2011-2012, President 2012-present)



Madeline Carmain

Randolph College–Chemistry

HOMETOWN: Toms Brook, VA

ANTICIPATED DEGREE: B.S. in
Chemistry May 2013

AWARDS, HONORS, AND
MEMBERSHIPS: Analytical Chemistry Award, Phi Beta
Kappa Book Award, Chemistry Department Award for
Outstanding Achievement, American Chemical Society Award
for Inorganic Chemistry ; Chair of the Judiciary Committee,
Dean's List; Member of Iota Sigma Pi, National Honor Society
for Women in Chemistry, Sigma Tau Delta, International
English Honor Society



Jeremy A Johnson

Roanoke College–Chemistry

HOMETOWN: Bluefield, Virginia

ANTICIPATED DEGREE: B.S. in
Chemistry, May 2013

AWARDS AND HONORS: Ronald
Oetgen Award in Organic Chemistry,
Freshman Chemistry Award, Senior Scholar; Goldwater
Fellowship



Katie Bitting

Sweet Briar College–Biochemistry and
Molecular Biology

HOMETOWN: Elizabethtown, PA

ANTICIPATED DEGREE: B.S. in
Biochemistry and Molecular Biology,
May, 2013

AWARDS, HONORS, AND MEMBERSHIPS: McVea Scholar,
Iota Sigma Pi, Alpha Lambda Delta; ACS member



Carolyn Shirey

Virginia Tech – Biochemistry

HOMETOWN: Downingtown, PA

ANTICIPATED DEGREE: B.S. in
Biochemistry, May 2013

AWARDS AND HONORS: Hess
Educational Fund Travel Grant, 2013;
Rachel Hill Memorial Scholarship, 2010; Deans List all 4 years



Kacey Christine Hall
Virginia Military Institute–Chemistry

HOMETOWN: Fredericksburg,
Virginia

ANTICIPATED DEGREE: B.S. in
chemistry, May 2013



AWARDS, HONORS, AND MEMBERSHIPS: 2012 ACS Undergraduate Award in Inorganic Chemistry, Ralph Bowen Linville Award for Excellence in Chemistry, George Pickral Award for Excellence in Inorganic Chemistry; Dean's List, Academic Stars (Distinguished in Academic Merit); Phi Eta Sigma, Phi Kappa Phi, Gamma Sigma Epsilon

Tyler Motley
Virginia Tech – Chemistry

HOMETOWN: Ringgold, VA

ANTICIPATED DEGREE: B.S. in
Chemistry, May 2013



HONORS AND AWARDS: Virginia Tech Chemistry Outstanding Senior; "Featured Undergraduate" in Spring 2013 Department of Chemistry newsletter, ELEMENTS; Virginia Tech's Presidential Global Scholar; American Chemical Society Division of Analytical Chemistry Undergraduate Award; Gamma Beta Phi Honors Fraternity; Chemistry Undergraduate Research Award; Virginia Tech's Honors Program Member; CRC Press Chemistry Award; Pamplin Leader Award; Virginia Tech's Dean's List; Eagle Scout Award

William Taylor Smith
Virginia Tech – Chemical
Engineering

HOMETOWN: Yorktown, VA
ANTICIPATED DEGREE: B.S. in
Chemical Engineering, (Minors:
Nuclear Engineering, Chemistry),
May 2013



AWARDS, HONORS, AND MEMBERSHIPS: Donald M. Cox Scholarship, Ronald Lohr and R. H. Bogle Scholarship; Phi Beta Kappa, Liberal Arts and Sciences Honor Society Omega Chi Epsilon, Chemical Engineering Honor Society, American Institute of Chemical Engineers

Derek Arthur George Barisas
Washington and Lee University –
Biochemistry

HOMETOWN: Fort Collins, Colorado

ANTICIPATED DEGREE: B.S. in
Biochemistry, May 23, 2013



AWARDS, HONORS, AND MEMBERSHIPS: James Keith Shillington Scholarship, R. E. Lee Summer Scholarship, American Chemical Society, Todd Jones Scholarship, Alpha Epsilon Delta, Beta Beta Beta, Dean's List, Honor Roll

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.

Science Fair Awards

Each year the Virginia Blue Ridge Section awards a gift certificate to the project selected as the best overall chemistry project at science fairs in its boundaries. This year's winners are listed below.

Blue Ridge Highlands Regional Science Fair
Taylor Duncan

Effects of Autoclaving on Suture Material
Southwest Virginia Governor's School/Pulaski County
High School
Faculty Mentor: Gregory Riffe

Central Virginia Regional Science Fair
Logan Merkle, Jefferson Forest High School
The effect of electrolytes on the efficiency of hydrogen production
Faculty Mentor: Dr. Cheryl Lindeman

Western Virginia Regional Science Fair
Levi Helm and Tyler Ambrose, Roanoke Valley Governor's
School and William Fleming
The Development of a Field Test for Poison Ivy
Faculty Mentor: Steve Smith

Earth Day is April 22!

For more information on Chemists Celebrating Earth Day,
go to acs.org > Education > Community Outreach >
[Chemists Celebrate Earth Day](#)



Outstanding High School Teacher Awardee

James Garst

Salem High School



I have spent much of my life in the community of Salem, VA, a closely-knit town in the Roanoke Valley. My family, which has always been a major influence in my life and my life decisions, consists of my parents Toby and Carolyn Garst and two brothers, David and Kevin.

Sports played an important role in my life while I was in high school. Once I reached college, I knew that playing sports was not what I wanted. Although I had some doubts about the challenges a major in science would present, I decided to pursue a major in Biochemistry. I worked hard for my degree; after my undergraduate degree, I applied for graduate work at Va Tech. I completed a Masters degree in Biochemistry. Once I knew I wanted to teach, I completed a second Masters Degree, this time in education – Curriculum and Instruction.

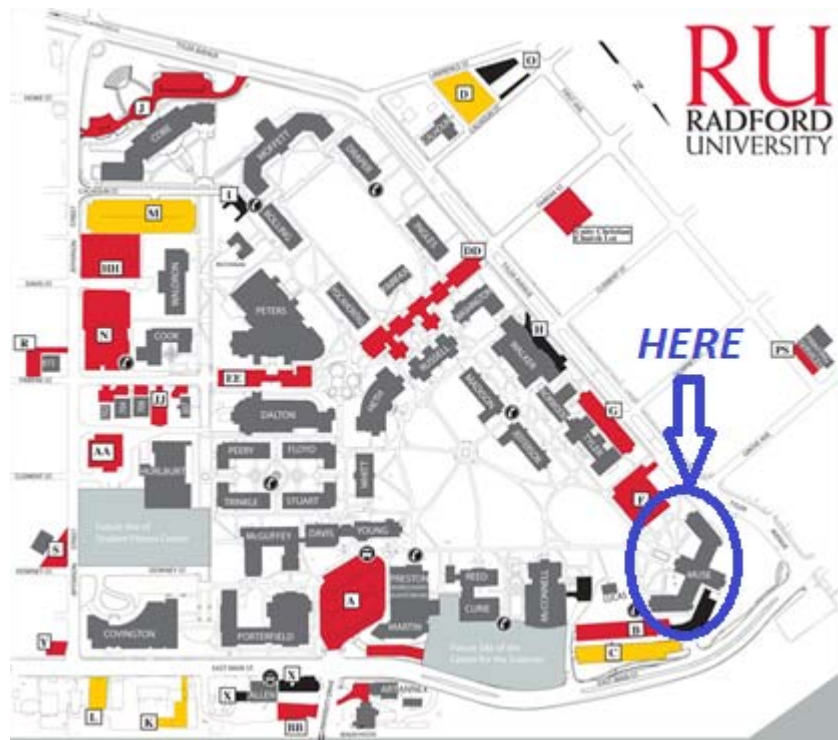
I have a beautiful wife, Sarah, and the greatest gift I could ever imagine having, a son named Jackson.

Directions to Radford University

Directions: Take I-81 to exit 109 and follow Route 177 (Tyler Ave) to Main Street. Go straight into the parking lot beside the bank or make a right, then another right and go into the parking lot. All events will take place in Muse Banquet Hall, located in the basement of [Muse Hall](#). CAUTION: Parking permits are required before 6:00. Parking passes will be sent when dinner reservations and poster submissions are made.

Map of Radford University

(Adapted from Radford University Website)



Non-Prof. Org.
U.S. Postage
PAID
Salem, VA 24153
Permit No. 31

Nancy Richardson and Vernon Miller, Co-editors
VA Blue Ridge Section, American Chemical Soc.
Chemistry Dept., Roanoke College
Salem, VA 24153-3789

Return Service Requested

The May meeting will be a tour of the Western Virginia Regional Water Pollution Control Plant on May 21.
Tour will start at 4:00 pm. Further details will be in the next Blue Ridge Chemist.