To all chemistry alumni and friends, welcome to the Fall 2017 issue of Elements. With this issue, we plan to resume a regular schedule of publishing this newsletter twice a year: Fall and Spring. The primary reason the Spring 2017 issue was not published is that our “Editor in Actuality” (EiA) Laurie Good left the department early this year to work with the Molecular Sciences Software Institute (MolSSI) led by Prof. Daniel Crawford. On behalf of the department, we offer our thanks to Laurie for her outstanding contributions to the department, and especially Elements.

I am pleased to announce that we have a new EiA, Ms. Corrin Lundquist. Corrin earned her bachelor’s degree from Virginia Tech majoring in English, minoring in chemistry), and joined us in July 2017. In addition to overseeing the publication of Elements, Corrin oversees all of the departments marketing and media efforts (website, social media, internal signage, Highlands seminars, etc.). There have been a number of other staff changes as well over the past year. Kristen Cox, Roberta Gilbert, Anna Hawthorne, and Angie Kritak have left the department. We thank them for their outstanding service, and wish them the best in their future endeavors. In addition to Corrin, new to the department are Cindy Gautier (Director of Business Operations), Beth Kast (Fiscal Technician), Amy Kollkinakos (Undergraduate Coordinator), and Marmer Haghigi Khosnami (Lecture Demonstrator).

Two new faculty members also joined us this fall. Assistant Professor Michael Schulz earned his B.S. degree in chemistry from the University of Iowa, and concurrently earned his M.S. and Ph.D. at the University of Florida (M.S. in medicinal chemistry working with Prof. Kenneth Sloan; Ph.D. in organic and polymer chemistry working with Prof. Kenneth Wagener. As a Fulbright Scholar, he spent a year with Prof. Klaus Müllen), and most recently worked as a postdoctoral fellow at CalTech (working with Nobel laureate Prof. Robert H. Grubbs). Instructor Aaron Geller earned his B.S. and Ph.D. from the University of Maryland, College Park (where he also served as an instructor and lecturer). Aaron will be teaching non-majors analytical chemistry.

I am pleased to report that for the third consecutive year, and fourth time since 2009, the Department of Chemistry has been named a University Exemplary Department for its efforts “developing and sustaining effective large class instruction.” We were specifically recognized for our efforts in non-major classes such as General Chemistry, Organic Chemistry, and Physical Chemistry for Life Sciences (which is also taken by B.A. chemistry majors). On behalf of the department, I thank the faculty for their efforts and dedication and the numerous students and alumni that provided supporting letters that made this recognition possible.

As many of you know, the department participated in a pilot program through the Office of Annual Giving that led to a chemistry-specific fundraising initiative. First and foremost, we sincerely appreciate you, our alumni, for your generous contributions. I also want to acknowledge and thank the Department of Chemistry Advisory Council (DCAC), and especially three local DCAC members: Tom Piccirello, Ann Norris, and Mike Ogliaruso whose efforts made this drive a success.

Phase II of the renovation of Davidson Hall has begun and is expected to be complete in June 2018. In celebration of the reopening, DCAC is organizing a “Celebration of Chemistry” to be held in Fall 2018. We invite all of our alumni to join us in this celebration. We expect to finalize the date in early 2018, so anticipate a formal announcement in the Spring 2018 issue of Elements. (A feature article about the fundraising effort, the chemistry celebration, DCAC participation, and more—from the personal perspective of Tom, Ann, and Mike appears later in this issue.)

Approximately six months ago, with the help of a colleague in the College of Business, we initiated a thorough examination and reorganization of our business operations. The objective of this effort was to establish a stable administrative & business structure that could function independently of the chair to enable the department to fully realize its vision of having a rotating chair, so that each new chair did not have to “reinvent the wheel.” As part of this effort, a Director of Business Operations position was created. Ms. Cynthia Gautier has assumed that role and will help orchestrate the final stage of reorganization of our business and main office.

Lastly, as some of you may know, the University’s provost has recently resigned and an interim appointed—perhaps under less than ideal circumstances. Despite some turmoil, the Department of Chemistry remains strong, focused on its core mission, and well poised to enjoy an even brighter future. The College of Science, led by Dean Sally Morton, is strong in its support of chemistry and I am extremely optimistic about the future of the department, college, and university, and I invite everyone to join us in Fall 2018 for the “Celebration of Chemistry” to see for yourself.

Sincerely,
For graduate students, months of hard work pay off at national symposium

BY ELEANOR NELSON

Attending national meetings is a rite of passage for graduate students, an opportunity to learn about the newest research in your field and talk to scientists from all over the country. But these meetings can also be intimidating, with a staggering volume of research on display and world-renowned experts surrounded by similarly distinguished peers.

At the biannual American Chemical Society meeting, the Graduate Student Symposium, organized entirely by and for graduate students, offers a respite from the overwhelm. This year, at the Fall 2017 ACS meeting in Washington, D.C., the planning committee, were attending their first ACS meeting when they heard from Lindsay Johnson, who earned her undergraduate degree in chemistry from Virginia Tech. By then a doctoral student at the University of Minnesota, Johnson was on the committee hosting that year’s graduate student symposium and told Mondschein and Sirrine about the competition. “We started brainstorming right then and there,” Mondschein said.

Mondschein assembled a committee, and the eight students distributed the long list of tasks that go into pulling off an all-day event: recruiting speakers, creating a budget, fundraising, marketing. The group met every other week for more than a year, with each committee member leading their own projects and contributing ideas to other members’ initiatives, too.

“Seeing how everyone came together, and seeing how much we got done as a team, was really gratifying,” Mondschein said.

The students welcomed the opportunity to develop from scratch an event they were excited about, one that they thought would appeal to other graduate students, as well.

“You get to put on a symposium, a program that you find interesting, invite speakers that you want to see talk,” Mondschein said.

The students netted an impressive slate of speakers spanning a broad range of research areas. All nationally recognized experts, the speakers were excited to be recruited by graduate students, who are on the front lines of research executing innovative experiments and making groundbreaking discoveries.

The talk given by Phil Baran, a professor of chemistry at Scripps University and the winner of a MacArthur Genius Fellowship, attracted more than 200 attendees and quickly filled the lecture hall to standing-room-only.

To cover the costs of the symposium and provide travel funding for students hoping to attend the meeting, the planning committee raised nearly $35,000, including a highly competitive grant from the National Institutes of Health.

The students welcomed the opportunity to develop from scratch an event they were excited about, one that they thought would appeal to other graduate students, as well.

“The students expected that the skills they honed throughout the planning process will pay dividends throughout their careers.”

Graduate students Lindsey Anderson, Kyle Arrington, Yifan Dong, Chad Powell, Justin Sirrine and Samantha Talley completed the committee. Anderson and Talley work with Robert Moore, a professor of chemistry; Arrington and Powell work with John Matson, an assistant professor of chemistry; Dong and Nichols work with Kevin Edgar, a professor of sustainable biomaterials; and Mondschein and Sirrine work with Timothy Long, a professor of chemistry and the director of the Macromolecules Innovation Institute.

The group also won funding from chemical company BASF, the American Chemical Society, academic journals, and several groups on campus, including the Department of Chemistry, the Department of Materials Science and Engineering, the College of Science, the College of Natural Resources and Environment and the Institute for Critical Technology and Applied Science.

As part of the symposium’s student-friendly atmosphere, the committee planned an evening networking event smaller and more informal than some of the meeting’s other social gatherings, where attendees will have a chance to talk with the symposium speakers.

“This experience gave us all these different skills that you may not get just from going to class and doing your research, and that you can apply to a job later on,” Nichols said.

Mondschein agreed. “There are so many little minor details that you would never get any other way than doing it yourself,” he said.

The Fall 2017 Graduate Student Symposium Planning Committee (left to right): Yifan Dong, Chad Powell, Samantha Talley, Ryan Mondschein, Justin Sirrine, Lindsey Anderson, Kyle Arrington, and Brittany Nichols.

Story originally appeared on Virginia Tech News on August 27, 2017
Virginia Tech researchers have created a novel way to 3-D print the type of high-temperature polymeric materials commonly used to insulate spacecraft and satellites from extreme heat and cold.

Previously, the polyimide could be made only in sheets. This new polymer maintains its properties about 680 degrees Fahrenheit, the research team said. “We are now able to print the highest temperature polymer ever – about 285 degrees Fahrenheit higher in deflection temperature than any other existing printable polymer. Additionally, our 3-D printed material has equivalent strength to the conventionally processed thin-film Kapton material,” Williams said.

(The material’s heat-resistant ceiling before degradation is 1,020 degrees Fahrenheit.)

“We can imagine this being used for printing a satellite structure, serving as a high-temp filter or a high-temp flow nozzle,” said Williams, the Electro-Mechanical Corporation Senior Faculty Fellow in Advanced Manufacturing Systems. “We can imagine using the wide geometric and microscale possibilities offered by 3-D printing to further improve existing designs - say, a more lightweight satellite, a filter that provides optimum/efficient flow, a nozzle with a designed flow path that allows greater exit velocity and efficiency.”

A key early breakthrough in the project occurred in the laboratory of Timothy Long, a professor with the Department of Chemistry, part of the College of Science, and also the Director of the Macromolecules Innovation Institute (MII), located within Virginia Tech’s Institute for Critical Technology and Applied Science. Williams is the associate director of MII.

There, Long, working with then-post-doctorate research Maruti Hodge, now a research associate at the University of North Carolina at Chapel Hill, was exploring the possibility of making 3-D printed shapes from aromatic polymers, such as Kapton.

The researchers, along with a graduate student team, were able to derive the novel polymer synthesis design, allowing the polyimide to be 3-D printed. Williams’ lab, led by College of Engineering doctoral students Viswanath Meenakshisundaram, of Bangalore, India, and Nicholas Chartrain, of Westfield, New Jersey, then exacted the process for 3-D printing.

“We chose a fairly ubiquitous high-temperature and high-strength polymer because we wanted to enable a rapid impact on existing technologies,” Long said, adding that being able to create such 3-D printed materials in any shape could serve a key market, such as the aerospace industry. Indeed, Long said companies have already shown early interest in the new material, which has a U.S. patent filed.

Materials currently used in 3-D printing do not have the high strength and stiffness across broad hot-cold temperature ranges necessary for the extremes of space. Typically, printable polymers start to lose their mechanical strength at about 300 degrees Fahrenheit.

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“Conventional processing routes have limited engineers to make only thin films from these materials,” said Christopher Williams, an associate professor with the Department of Mechanical Engineering in the College of Engineering and leader of the Design Research and Education for Additive Manufacturing Systems (DREAMS) Laboratory. “Now that we can 3-D print these materials, we can start designing and printing them into much more complex 3-D shapes, which allows us to take advantage of their excellent properties over a much broader range of applications.”

Researchers from the College of Engineering and College of Science were able to synthesize the macromolecules, allowing them to remain stable and maintain their thermal properties for processing in 3-D printing. The high-performance polymer now could theoretically be used in any shape, size or structure, with small chess pieces and lattice pricks already produced inside Virginia Tech labs. Possible future uses are not limited to the aerospace industry. The same material can be found in scores of Virginia Tech labs.

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The Celebration of Chemistry, What is DCAC, and Why are We Celebrating Anyway?

BY CORRIN LUNDQUIST AND J.M. TANKO

The Department of Chemistry Advisory Council (DCAC) was formed in 1998 and next fall will mark its 20th year serving the department. This all-volunteer organization made up of alumni and friends has helped the department in countless ways, including advocating for the department with upper administration, helping to improve alumni relations, and more. Like most advisory councils, DCAC has also been involved in fundraising for the department as part of its mission. This involvement takes many forms ranging from developing fundraising strategies to the behind-the-scenes work involved with setting up lectureships or scholarship funds.

DCAC meetings take place in Blacksburg once a semester, and about a year ago, the council met with Charlie Pilgar, the Vice President for Advancement for Virginia Tech, as well as Jenny Orzolek, the Director of Development for the College of Science, to open avenues of communication between University Advancement, the College of Science, the Department of Chemistry, and DCAC. This meeting and discussion set the stage for an unprecedented fundraising effort an outstanding success. In addition to DCAC and the Department of Chemistry receiving support from the department’s annual fund.

Over the course of several meetings, Tom Piccariello (DCAC chairman), Ann Norris (DCAC vice-chair), and Jenny Orzolek worked together with the chemistry leadership team to draft the message and encourage DCAC participation to the campaign. As part of this effort, 90% of the DCAC members helped make this fundraising effort an outstanding success. In addition to DCAC members, we sincerely thank all of our alumni who contributed to this successful effort.

The Department of Chemistry Annual Fund provides discretionary money to the department and is used to support and enhance activities that could not be supported otherwise. The activities that are supported by the fund include but are not limited to: the Highlands in Chemistry seminar series; outreach including visits to local schools; support of the Blue Ridge Regional Science Fair; the departmental Undergraduate Research Symposium and Poster Session; faculty, staff, and student awards; and faculty and student recruiting.

Directly or indirectly, these funds have contributed to activities that have helped the department receive three consecutive University Exemplary Department Awards, recognizing our efforts in undergraduate research, service/outreach, and education. For example, a graduate student-organized symposium held at the ACS National Meeting in Washington, D.C. (page 4) was supported by funds from the department’s annual fund.

DCAC members have helped in other ways as well. Two of our endowed lectureships that allow highly regarded and prestigious speakers to be brought in for the departmental Highlands in Chemistry Seminar Series exist because of the direct involvement of DCAC members. The Friends of Larry Taylor Lectureship and the J.P. Wightman Lectureship. In addition, DCAC helped fully fund the Harold McNaill endowed fund which is used to attract high-quality students to our graduate program.

Three members of DCAC, affectionately referred to as the “DCAC locals” have been particularly active, and are the subject of this feature article: Dr. Tom Piccariello, Dr. Ann Norris, and Prof. Mike Ogliaruso. Several years ago, the DCAC locals met with the Department Chair to pitch an idea of having a Celebration of Chemistry event to celebrate the completion of Phase 2 of the Davidson Hall renovation, to bring other chemistry alumni back to the department, and to initiate a major fundraising effort in support of the department.

The “Celebration of Chemistry”, to be held in fall 2018, has morphed into a reunion for alumni to see the new Davidson Hall. Attendees of the Celebration of Chemistry will be able to tour the newly renovated building, meet with faculty members, both current and retired, as well as be invited to partake in more university-oriented events.

Recently, we sat down and talked with Tom, Ann and Mike to learn more about them, why they serve on DCAC, and hear their thoughts about the upcoming Celebration.

The desire to support both the department and its students, was one of the reasons alumni Ann Norris became involved with DCAC. After a career in industry, working for Dow Corning, she knew she wanted to be involved with the department in any way she could, as part of her “grand retirement plan”. Her reasons were two-fold: wanting to help cultivate talented students for an industry that needs them, and to give back to the department, which she feels contributed to her success and her career.

In 1982, Ann was working at Dow Corning, a manufacturing company that specializes in silicone production. Ann had gotten the job with a bachelor’s degree in chemistry from the University of Wisconsin at Lacrosse and was looking to get a graduate degree in polymer chemistry. One of the scientists at Dow Corning, a polymer rheologist named Neil Langley, heard that Ann was interested in graduate school, and mentioned that if she was really interested in polymer chemistry, that she needed to consider Virginia Tech.

“I came down here for a visit, and I said, ‘I’m coming’. There was no question about it. I wanted to pursue polymer science, and I fell in love with the area and the campus and the people I met.”

For Tom Piccariello, his involvement is cut-and-dry. After receiving a bachelor’s of science in biology from Virginia Tech, Tom went to work for Federal-Mogul as a metallurgist and electrochemist. They wanted to promote him, but he needed a degree in chemistry. After he got into the master’s program, he began working for Professor David Kingston.

Tom remembers a conversation he had with Prof. Kingston. “He said, ‘You know, it can’t hurt for you to take the prelims in the fall. If you take the prelims and fail, you’re still a master’s student; if you pass, you can be a Ph.D. student.’” That fall, Tom passed the prelims and became a Ph.D. student. Tom is now the President and Chief Science Officer at Synthomics, a start-up that specializes in pharmaceuticals that incorporate their propriety metal coordination chemistry.

Still, Tom wanted to be more involved with the university and the department. “As an alumni [sic], the department gave me something special; it gave me a great education,” Tom explained. “I just wanted to participate in whatever the department needed to be a success. So to me, joining DCAC was a no brainer.”

While not a Virginia Tech alum, Prof. Mike Ogliaruso is a former faculty member of the department (Professor Emeritus). Mike, known by his students as Dr. O, received his Bachelor of Science in 1960 and his Ph.D. in 1965, both from the now-defunct Polytechnic Institute of New York in Brooklyn. After earning his Ph.D., he worked as a Postdoctoral Research Associate with Professor Saul Winstein at UCLA. He came to Virginia Tech as an organic chemist in 1967.

As local members of DCAC, Mike, Ann, and Tom have been heavily involved in coming up with different strategies to get other alumni, who may not be local, back to the department.

When Mike was asked why alumni should come to the Celebration of Chemistry, he replied, “other than to meet their old professors and some of their classmates, I think they should see what has happened to the old Davidson Hall, I think they should get a real feel for the equipment that’s now in the building and the kind of research that’s going on. It’s not only the hands-on research that they used to do in the lab. A lot of them would be impressed.”

What should participants expect? Tom replied that attendees can look forward to a myriad of activities for the whole family, including a tour of Davidson Hall and getting to see old classmates and faculty members, and even a trip to the Cascades.

For more information, look forward to the Spring 2018 issue of Elements, and in the meantime, visit our website and follow us on Facebook!
DEPARTMENT NEWS

Department achieves three-peat with third consecutive University Exemplary Department Award

This January, the chemistry department became the first academic unit to be a three-peat winner of the University Exemplary Department Awards after receiving one of three 2016 awards, along with the physics and biological sciences departments.

Presented annually since 1994, the University Exemplary Department Awards program and ceremony are funded through the Office of the Provost and facilitated by the Center for Instructional Development and Educational Research (CIDER). The award recognizes the work of programs and/or departments that maintain exemplary teaching and learning environments for students and faculty, and, in particular, accomplish this through collaborative, group efforts.

The theme for the 2016 award recognized exceptional efforts in “developing and sustaining effective large class instruction”. In the mission to develop and deliver large class instruction, the chemistry department stressed consistency of both depth and coverage across all sections of a course, an approach that also facilitates group learning through the design of assignments that assist visual learners.

The theme for the 2016 award recognized exceptional efforts in “developing and sustaining effective large class instruction”. The department encouraged students to engage in class discussions and demonstrations to make learning enjoyable, to provide an interactive atmosphere and to assist visual learners.

The department’s success in teaching large classes would not be achievable without the dedication of faculty members who are caring, innovative, enthusiastic and exceptionally talented. In the nomination package, a number of faculty members were singled out for their teaching contributions to the department: Professors Amateis and Arachchige (general chemistry), Professors Berg, Marson, Goundour, Bump, and Josan (organic chemistry), and Professors Troya and Marand (physical chemistry).

The department was also recognized for this award in 2009, 2014 and 2015, and with this 2016 addition, Chemistry has now earned a “three-peat” and has become the academic unit with the most Exemplary Department Awards at Virginia Tech.

Tier 1 Canada Research Chair Tomáš Hudlický returns to Virginia Tech to teach short course on Research Ethics

On a rainy August morning this past summer, 20+ graduate students and several faculty gathered in Hahn Hall on the campus of Virginia Tech to take part in a short course taught by Dr. Tomáš Hudlický.

Previously a professor of organic chemistry in our department and a Virginia Tech alumnus (B.S. ’73), Dr. Hudlický now teaches at Brock University in Ontario, Canada, and is a Tier 1 Canada Research Chair, a distinction given to researchers that are “acknowledged by their peers as world leaders in their fields.”

While no discipline is immune to the problem, the more researchers there are in a field, for example nanomedicine, biology and oncology, the higher the pressure to publish and win grants. That’s why it’s important to nip the problem in the bud. “The only way to solve the problem is if everyone commits to the responsibility of being ethical.”

By teaching the short course to graduate students who are just starting to figure out their research interests and are publishing for the first time, there’s hope that they will be more aware of the problems and how to stick to being ethical.

Hudlický has had an ongoing interest in research ethics, particularly in the realm of organic synthesis, and the hope for a better, more ethical scientific future is what brought Hudlický back to Virginia Tech this summer.

Department hosts two Nobel Laureates for Highlands in Chemistry seminar, supported by the Friends of Larry Taylor Chemistry Excellence Fund

This spring, Nobel Laureate Robert Grubbs (pictured at right) stopped by the department on April 28th, followed by Nobel Laureate Sir Fraser Stoddart’s (pictured below) fall semester visit on November 3rd.

The Victor and Elizabeth Atkins Professor of Chemistry at the California Institute of Technology (Caltech), Grubbs won the Nobel Prize in Chemistry in 2005 for developing the metathesis method in organic synthesis. In the years since, he has mentored several of the department’s faculty members to receive their Ph.D.s, including Professors John Marson and Michael Schultz.

His talk at Virginia Tech focused on his research into olefin metathesis.

Sir Fraser Stoddart, a professor of chemistry at Northwestern University, was appointed by Her Majesty Queen Elizabeth II as a Knight Bachelor in 2007. He went on to win the 2016 Nobel Prize in Chemistry for his design and synthesis of molecular machines. As with Robert Grubbs, Stoddart has a personal connection to the department, and is a longtime friend to Professor Harry Gibson.

Stoddart’s talk to the department focused on the molecular bond. Both talks were supported by the Friends of Larry Taylor Chemistry Excellence Fund, an endowed fund that was established by the Department of Chemistry Advisory Council in June 2004 and has been supported by numerous alumni and friends.

An adjunct professor for Virginia Tech, Hudlický has enjoyed an interesting connection to the department. After dropping out of high school, the future professor of chemistry enrolled provisionally at Virginia Tech, graduating with a Bachelor of Science in Chemistry in 1973. He earned his Ph.D. from Rice University in 1977 under the guidance of Professor Ernest Winkett, before returning to Virginia Tech as a professor in 1982.

By 1988, Prof. Hudlický had risen to the rank of full professor, and in 1989 he retroactively received his high school diploma from Blacksburg High School. He has been at Brock University since 2003, where he studies organic synthesis.

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In Memoriam

It is with profound sadness that we announce the passing of Brandon Meerscheidt (B.S. ‘16). Brandon passed away in the early hours of February 24th as the result of a tragic climbing accident in Grayson Highlands State Park. Not only was Brandon a stellar student in the department, but he was also an employee, working closely with Tom Wertalk and Dr. Mehdi Ashraf-Khorasani in the Glass Shop and MS/Chromatography Center, respectively. Those who knew him recognized his incredible work ethic and positive outlook during his years with the department, and Brandon was even featured in the Fall 2014 issue of Elements that highlighted not only his dedication to the department, but his hard work and passion for the Virginia Tech Crew team. After graduating in 2016, Brandon worked as a Field Service Engineer with Agilent Chemlab Group and was an avid volunteer who cared about the environment.

In the wake of his passing, his mother Jeanine, with Brandon’s sister Kiera, was inspired to participate in a Rappahannock River restoration this past summer in his memory. “I can’t be angry about what happened. I just have to make the difference for him that he would have been able to make if he were alive... If I can put forth as much effort as my son did throughout his entire short life, then I must believe there is nothing I cannot accomplish from here on out.”

In honor of Brandon, the department has set up a fund to establish a scholarship in his name. If you would like to contribute, the family has set up a GoFundMe page here: https://www.gofundme.com/brandons-memorial-park-bench. Thank you in advance for your contribution.

Class Notes

1 Robert D. Allen (McGrath Ph.D. ‘95), a distinguished research staff member and senior manager of the Materials Discovery and Innovation Department at the IBM Almaden Research Center in San Jose, California, received the 2017 Virginia Tech Graduate School Distinguished Alumni Achievement Award. The award recognizes achievements of national distinction in any field of enduring significant enduring significance to society. Allen, who earned his Ph.D. under the direction of Professor Jim McGrath (McGrath Ph.D. ‘85), a distinguished research staff member and senior manager of the Materials Discovery and Innovation Department at the IBM Almaden Research Center in San Jose, California, received the 2017 Virginia Tech Graduate School Distinguished Alumni Achievement Award.

2 Earlier this year, Fred Mitchell (B.S. ’97) was awarded the McGlohillin Award for Excellence in Education for the secondary level. This prestigious award is given by the McGlohillin Foundation of Bristol, Virginia, and winning it is synonymous with being named the most outstanding teacher in the Blue Ridge region. Fred has been teaching high school and dual-credit chemistry for 20 years at Carroll County High School in Hillsville, Virginia. The award comes with a $25,000 check to take the international trip of their dreams. In late November, Fred traveled to Buenos Aires and visited Tierra del Fuego, a volcanic island on the tip of southern Chile, before departing to Antarctica with National Geographic.

3 Rachel Warnock (B.S. ’16 Biology and Nanoscience) has been awarded an Erasmus Mundus Fellowship for 2017–2019 for study in the area of Molecular and Developmental Nanophotonics (monabiphotonics). Rachel will be spending her time in the Eurozone at Paris Descartes University, Paris, Complutense University, Madrid, Wroclaw University, Warsaw, and another Erasmus-affiliated lab to be determined. This year, there were only three non-European awardees, and of them, Rachel was the only American. At Virginia Tech, she worked on the enhancement of algal photosynthesis by in-situ/in-vivo created nanoparticles under a Dreyfus Senior Science Mentor Award with Professor Ray Desy. Congratulations and good luck, Rachel!

4 Kristina Roth (Grove Ph.D. ’17) has started a position as an assistant professor in the Department of Chemistry at Radford University. In a continuation of her eventful year, Kristina is getting married to someone she met while at Virginia Tech!
New Faculty Members

Dr. Michael D. Schulz has joined the faculty as an assistant professor of organic and polymer chemistry. Prof. Schulz received his Ph.D. from the University of Florida in 2014, and was awarded a Fulbright Fellowship which he completed at the Max Planck Institute for Polymer Research in Mainz, Germany under Professor Klaus Müllen. In Germany, his work focused on synthesizing polymer nanoparticles for drug delivery. He subsequently studied as a postdoctoral scholar under Nobel Laureate Robert Grubbs at Caltech, where, among other things, he developed materials to reduce the side effects of chemotherapy. Dr. Schulz and his research group are interested in polymer synthesis as an alternative to design solutions to real-world challenges. He has been married for six years to his wife Angie, who currently works at Salem Montessori School. Welcome Professor Schulz!

Dr. Aaron Geller has joined the faculty as an instructor of analytical chemistry. In 2016, he received his Ph.D. in Physical and Materials Chemistry from the University of Maryland (UMD) at College Park for his research on the Solid Oxide Electrochemical Cells (SOCs). This work focused on developing protocols for conducting in operando heterogeneous electrocatalytic studies on SOCs to better understand fundamental chemical processes occurring during operation. He was also the unofficial leader of his boss’ band, Ben Zene and the Key Tones. This musical project was one of several that Aaron was involved with during his time in graduate school as he had previously spent six years as a professional guitarist. While he was grateful for the opportunity to continue playing music and found interest in his research, what Aaron truly loved at UMD was teaching. His dedication led to several teaching awards/fellowships and a temporary instructor position at UMD following the completion of his Ph.D. while he looked for a new home. He has found that home at Virginia Tech and is looking forward to working many semesters here. Welcome Dr. Geller!

Faculty Research

Professor Webster Santos, along with Professors Alban Gaultier and Kevin Lynch at UVA, received pilot funding to study drugs developed in the Santos lab as potential multiple sclerosis (MS) therapy. MS is an unpredictable, often disabling disease of the central nervous system that disrupts the flow of information within the brain, and between the brain and body. He has been married for six years to his wife Angie, who currently works at Salem Montessori School. Welcome Professor Schulz!

In July, Prof. Matson, along with Professor Ronit Bitton of Ben-Gurion University in Beer-Sheva, Israel, was awarded a four-year, $198,000 collaborative grant from the BiNational Science Foundation (BSF). The BSF supports joint research efforts between U.S. and Israeli scientists. The two research groups will work together on peptide-based hydrogel materials with applications in tissue engineering and regenerative medicine.

Faculty Awards

It has been a big year for Professor Emeritus Harold McNair. This summer, Prof. McNair was named an American Chemical Society Fellow in a class of just 65 members worldwide. ACS Fellows are honored for their outstanding achievements in and contributions to the profession and the Society. Prof. McNair was recognized for Basic Gas Chromatography, originally published in 1967, now in its second edition. His contributions to the Society include recognition as the father of the ACS short course, which provides intensive, area-specific training to professionals. Over the course of his career as a professor, he supervised 61 graduate theses and received many research and teaching awards, including one of the first two Virginia Tech Alumni Teaching Awards.

This past fall, Prof. McNair was named to The Analytical Scientist's Magnificent Tens Power List for 2017. The year, the list was separated into 10 categories, from Separation Scientists to Inventors. Prof. McNair earned the #2 spot in the Mentors category, which recognizes “supervisors, colleagues, or teachers inspiring the next generation of scientists”. He was nominated for “his charismatic nature, his style of open inquiry, and his caring nature [that] have made him a mentor to emulate”.

1 Professor Feng Lin 2017 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associate Universities
2 Professor Gordon Yee 2017 Alumni Award for Excellence in Undergraduate Academic Advising, Virginia Tech Office of the Provost; 2017 Alumni Teaching Award, Virginia Tech Academy of Teaching Excellence; 2017 Outstanding Advising Award - Faculty Academic Advising category, NACADA
3 Professor Brian Tissue 2017 Virginia Tech Award for Safety Excellence
4 Professor Amanda Morris Kavli Frontiers of Science Fellow, National Academies of Science
5 Professor Maggie Bump Outreach Excellence Award, 2017, Virginia Tech College of Science
6 Professor Webster Santos Cliff and Agnes Lilly Faculty Fellow, reappointed by President Timothy Sands
Undergraduate Research Symposium features record number of student research posters

Undergraduate research has been a cornerstone of the Virginia Tech chemistry program since its inception, as it provides undergraduates with critical hands-on experience in the lab. Although many programs offer research opportunities at the undergraduate level, few offer ways for students to hone another skill: presenting that research and engaging in discussion.

Several years ago, the undergraduate research symposium was structured so that each undergraduate would present their research in the form of an oral presentation at the end of each semester. As the symposium expanded, it switched to a poster session instead of oral presentations, taking a note from ACS National Meetings.

This benefits students in two ways, says Professor Joe Merola, who has been organizing the poster session since 2011. Oral presentations are set up to allow for 15 minutes of the student sharing his/her research with only five minutes for the audience to ask questions. In a poster session format, the students are standing by their poster for two hours, allowing for more practical, direct feedback.

The biannual event, still held at the end of both the fall and spring semesters, is open to anyone doing undergraduate research. The spring session is typically bigger and boasts lunch and prizes for best poster, as judged by the Department of Chemistry Advisory Council, which also meets around the same time.

This April, the symposium featured 43 posters, the most since its inception. While this is very exciting for the students who are presenting, this left Prof. Merola with a predicament. A few years ago, members of Alpha Chi Sigma, the chemistry fraternity on campus, built 14 double-sided plywood poster holders, enough to hold 28 posters. Even with these, Prof. Merola still switched to a poster session instead of oral presentations.

Chi Sigma, the chemistry fraternity on campus, built double-sided plywood poster holders. Even with these, Prof. Merola still had 15 posters that needed to be displayed. He ended up purchasing a temporary solution online, and they arrived just in time.

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It’s the little things like this that make the research symposium a success in supporting the department’s mission to provide a firm foundation for all of its students.

Spring 2017 Symposium Poster winners

First place Adrianna Wilson (David Kington) “The Isolation and Identification of Antimicrobial Compounds from Native Southwest Virginia Plants”

Second place John Waugh (John Matson) “Compatibilizing Methylcellulose and Polyethylene with a MC/PE ABA Triblock Copolymer”

Third place Bobby Hollingsworth (Richard Gandour) “Molecular Dynamics Simulations of gp120 Elucidate Conformational Ensembles of Several HIV Strains and Inform Selective Inhibition by a Polyanion”

Honorable Mentions


Allison “Allie” H. Stefan (Felicia Erzkorn) “Chlorotoxin Peptide Synthesis”

Department of Chemistry Undergraduate Research Award

Quentin R. Luong “Electrocheluminescence of Ru Doped Metal-Organic Frameworks”

Graduate Student News

Johnathan Bowen became the first recipient of a graduate student award funded by the Harold M. McNair Alumni endowed fund. Johnathan, a first-year graduate student, graduated from Wake Forest University this past spring, where he was awarded the department’s Harton Scholarship for Chemical Industry and the Hypercube Scholar Award. His research interests lie in organic synthesis and its applications in addressing biological questions. Congratulations, Johnathan!

Each academic year, the Graduate School, through the College of Science, provides assistantships through the Graduate School Doctoral Assistantship program. In the Department of Chemistry, the awardees are nominated by their research advisors and selected based on strong evidence of research productivity, demonstrated leadership, creativity and independence; and excellent academic performance in the core and foundation requirements. This fall, the Department of Chemistry awardees are (pictured at left, from left to right): Mingjun Zhou from the Matson Group, Fahrijan Pavoevskic from the Valeev Group, Shu Liu from the Edgar Group and Jie Zhu from the A. Morris Group.
2017 AWARD CEREMONY

Each spring, the Department of Chemistry hosts an award ceremony to recognize the achievements of students, faculty, and staff. Many of the awards would not be possible without the support and philanthropy of generous alumni and friends.

Student Awards
Undergraduate Awards
ACS Analytical Chemistry Award
Quentin Loague
ACS Inorganic Chemistry Award
Rachel Lewis
ACS Organic Chemistry Award
Matthew McGuire
ACS Physical Chemistry Award
Sarah Wollman
ACS-Hach Land Grant Undergraduate Scholarship
Emily Barritt
Ann Marie May
ACS-Virginia Blue Ridge Section James Lewis Howe Award
Bobbi Hollingsworth
Academic Excellence Award
Joseph Badlato
Jacob Broome
Noah Griggs
Bobbi Hollingsworth
John Knox
Maggie McAndrew
Matthew McGuire
Steven Miller
Rob-Ulrich
Sarah Wollman
General Chemistry Viers Achievement Award
Katrinna Lane
Matthew Lefkowitz
Josh Rasco
Shuyu Zhang
Kaley Priest
Ogliaruso Family Scholarship
Linda Allworth
Karen J. Brewer Memorial Award
Esther Wisdom
Madison Bardot
Department of Chemistry Undergraduate Research Scholarships - Summer 2017
Donald Clark
Quentin Loague
Graduate Awards
Graduate Research Award
Elizabeth Childress
Ashutosh Kumar
Scott Radzinski
Graduate Teaching Award
Chad Bernier
Justin Grams
Cecilia Smith
Graduate Service Award
José Rodriguez Corrales
Faculty and Staff Awards
Harold M. McNair Staff Service Award
Thomas Wenzlach
Alan F. Clifford Faculty Service Award
Patricia Amateis
John C. Schug Research Award
Tim Long
Jimmy W. Viers Teaching Award
Paul Cailler
Undergraduate Academic Scholarship Recipients
Dr. Roy H. Bible ’48 Memorial Scholarship
Matthew McGuire
Julius P. Billoody Endowed Scholarship
Sarah Wollman
John B. and Sarah Hopper Harvie Endowed Scholarship
Jacob Broome
Dallas A. Kinser & Robert T. Johnson Scholarship
Mustafa Ahmed
John William May ’42 Scholarship
Joseph Badlato
Charles B. Walker Scholarship
John Knox
Harold M. McNair Undergraduate Student Award
Madison Bardot
Hypercube Scholar award
Ryan Corkill
Timothy E. and Victoria K. Long Undergraduate Science Scholarships
Danny Marron
John Waugh
James E. McGrath Undergraduate Research Award
Anastasia Voilokhova
James P. Wightman Macromolecules and Interfaces Institute Student Award
Sarah Wollman
ACS-Virginia Blue Ridge Section James Lewis Howe Award
Bobbi Hollingsworth

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PHOTO ALBUM

Chemistry students with Nobel Laureate Robert Grubbs in April 2017.

Faculty group picture at the annual Faculty Retreat at Peaks of Otter Lodge in August 2017.

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SUPPORT THE
Department of Chemistry
Annual Fund

As we approach the end of 2017 and you consider your philanthropic gifts, we encourage you to support the department’s annual fund. Your support is critical to the department’s future success. Contributions from our alumni and friends help our many deserving students, provide state-of-the-art facilities, expand research activities and allow our students to explore a wide array of career opportunities. Gifts made without restriction allow departmental leaders to respond to opportunities immediately and to allocate resources where they can have the greatest impact.

When you receive your College of Science Annual Fund letter or phone call, please earmark your support for the Department of Chemistry Annual Fund. Simply make a notation on the gift card or let the caller know that you want to direct your donation to Chemistry.

To make an immediate contribution, you may visit the university's website at givingto.vt.edu or contact the Office of Gift Accounting at (800) 533-1144.

For more information or to learn about other ways to support the College of Science, please contact Wade Stokes, Assistant Dean of Advancement, at (540) 231-4033 or lwstokes@vt.edu

We thank you in advance for your support.