I am delighted to introduce you our latest newsletter. This newsletter highlights some of the most significant accomplishments and progress in all areas of scholastic and research activities in our department. Let me just point out two of our proudest accomplishments in 2018. First, based on the US News & World Report, which released their Best Graduate School Rankings 2019, our doctoral program in Chemistry scored 106. In 2011 and 2015, our scores were 123 and 117. Therefore, the quality of our doctoral program has continued to improve. Second, this year our faculty have received a record number of grant awards. In total, our faculty have secured more than 11 million dollars for external grants – see the detail in “Recent Funding Highlights” in this Newsletter.

The number and the amount of these grant awards is a testimony of the excellence of the research scholarship of our faculty. Lastly, but not the least, on behalf of our faculty, staff and students, I would like to thank Dr. Paul Gold who has donated his own money and established an endowed “Paul Gold 75 Chemistry Internship” – see detail about this award and Dr. Gold in the “Alumni News” section. Dr. Gold and his story will forever inspire our faculty and students to do something for the greater good. I would like to thank all the donors for their generosity, which has and continues to have a tremendous impact on our mission of educating the next generation of chemists and biochemists. As we continue to meet challenges ahead, we strive to reach new heights in building better and richer research and educational programs for our students. Enjoy reading the newsletter.

Li Niu, Professor & Department Chair
Glutamic acid is an amino acid used for the biosynthesis of proteins. Glutamic acid is one of the non-essential amino acids which can be synthesized by our body. Amino acids are building blocks of proteins. There are twenty natural amino acids which have both three-letter and one-letter abbreviations. The one-letter abbreviation of glutamic acid is “E” which is why we chose the glutamic acid for our Chem-E-news. Glutamic acid is the most common excitatory neurotransmitter in the central nervous system (CNS).

In the CNS, glutamic acid signals through two different types of glutamate receptors: one is a G-protein coupled receptor and the other is a family of ligand-gate ion channels. Besides its crucial function in the body, glutamic acid is also used in the food industry. Specifically, monosodium glutamate (MSG) is used as flavor enhancer in many eastern culture dishes. MSG is the sodium salt of glutamic acid. In fact, MSG induces umami taste (the Japanese word for a pleasant savory taste) mainly through G-protein coupled glutamate receptors expressed in taste buds on our tongues.

— Contributed by Mebmet Yigit and Li Niu

### Department Highlights

- The department welcomed **23 graduate students** in Fall 2018: 5 Master students and 18 Doctoral students.

- In the past year the department graduated **10 Doctoral students, 7 Master students and 37 undergraduate students**. To date, there are 79 Doctoral students and 27 MS students in our graduate program.

- On May 8, the Department hosted the inaugural AMRI-Chemistry Lecture Series. The speaker was Professor David MacMillan from the Department of Chemistry at Princeton University. He currently holds the James S. McDonnell Distinguished University Professor of Chemistry Professorship. Professor MacMillan’s laboratory has made many outstanding advances in asymmetric **organocatalysis**. He and his coworkers have applied these new methods to the synthesis of a range of complex natural products and molecules with biological and pharmaceutical utility. Dr. MacMillan has received many honors and awards, and in 2018, he was elected a member of the National Academy of Sciences.

- The annual **Life Science Research Symposium** was held in late October 2018. Graduate students from many research groups in Chemistry participated in the symposium and presented their research results in either talks or posters. The Symposium drew graduate students and postdoctoral fellows from several departments in the College of Arts and Sciences, including Biological Sciences, Chemistry and Physics.

- The annual **Undergraduate Chemistry Research Symposium** was held in the mid-October in the Life Science research building (LSRB). Professor Qiang Zhang co-organized the symposium with Professors Gerd-Uwe Flechsig. Dr. Gregory Van Buskirk was our keynote speaker. We wish to thank Dr. Van Buskirk for leading a truly inspirational, engaging conversation with our students. We also want to thank Drs. Zhang and Flechsig for having organized a successful symposium.

- The department gave out **6 Travel Awards** to graduate students in 2017 to sponsor student attendance and presentations at major scientific conferences. Each student received a $500 award.
Department Highlights continued

On August 24, 2018, the department hosted its annual back-to-school BBQ to welcome our faculty, new graduate and undergraduate students, including those new undergraduates from the World of Chemistry and L-LC (Living and Learning Community) for freshman Chemistry Majors. Several raffle prizes were awarded and there was a large turnout for the event. Students had great time!

A set of T-shirts sporting the label “UALBANY” pieced together using chemical symbols from the Periodic Table of Elements, continues to be popular items for our students. The shirts are for sale and all the proceeds go to supporting student activities in the department.

The 2017 World of Chemistry L-LC

This year’s World of Chemistry (WoC) Learning-Living Community (L-LC) was comprised of 18 enthusiastic UAlbany freshman, our largest cohort to date! WoC members live in the same residence hall, take core science courses together, and attend a weekly seminar led by Prof. Alan Chen. Out-of-classroom activities such as study breaks, community service trips, and social events were coordinated by Community Assistant Audrey Auleley, an M.S. student doing forensic chemistry research in Prof. Jan Halamek’s lab. WoC students attend a weekly luncheon with Prof. Chen and meet invited guests ranging from former L-LC students to scientific professionals from local chemistry-related industries, as well as members of our own faculty potentially looking to take on new undergraduate researchers. All L-LC students participated in the annual Chemistry Undergraduate Research Symposium, where they saw firsthand what impressive work our undergraduate researchers have been able to accomplish during their time at UAlbany. They also greatly enjoyed hearing from keynote speaker Dr. Gregory Van Buskirk, who urged students to think about society’s need to develop sustainable chemistry solutions for the future.

The major goal of the WoC is to encourage active exploration of different careers in the chemical sciences and to expose students to internship and research opportunities as early as possible. Our goal is to actively motivate and steer their education at UAlbany to address pressing real-world problems when they graduate and enter the workforce. Guest speakers were invited from a wide range of chemical professions to talk about what their jobs are like and how they got to where they are today. External speakers this year included: Kyla Frohlich, Ph.D. (Biological Q/C supervisor, Regeneron), Nicolas Peterson (forensic scientist, NYS Police crime lab), Ken Halvorsen, Ph.D. (staff scientist, RNA Institute), Arun Chandrasekharan, Ph.D. (principle scientist, Confer Health), and Katryn Williams, Ph.D. (research scientist, NYS Dept. Environmental Conservation). Several faculty from our own department also presented overviews of their research to encourage L-LC students to participate in research in their labs including Mehmet Yigit, Ting Wang, Jan Halamek, and Jeremy Feldblyum. A hearty thanks to all the speakers who generously took time out of their busy schedules to share their experiences and advice!

We are particularly excited to announce that, supported by an anonymous donation to the Chemistry Department, a WoC student who joins a research lab by spring 2019 can apply for a Chemistry Undergraduate Research Prize to help support a summer research stint with a UAlbany Chemistry faculty! We hope to expand this program in coming years so that all highly engaged students interested in having some research experience can have the opportunity to do so regardless of their financial situation.

— Contributed by Professor Alan Chen
The Chemistry Department hosted the fourth annual Chemistry Undergraduate Research Symposium on October 18, 2018. Professors Qiang Zhang and Gerd-Uwe Flechsig in the department co-organized this event. The symposium provided our undergraduate researchers with opportunities to present talks and posters of their research projects resulting from their hard work. A total of 78 undergraduate researchers from UAlbany, SUNY Plattsburgh, and SUNY New Paltz registered as participants. Many of our department’s faculty, graduate students, staff, and postdocs were also in attendance. Students from the 2018 World of Chemistry attended as well. The opening remarks were given by Professor Jeanette Altarriba, the Vice Provost & the Dean of the Office of Undergraduate Education, and by Professor James Dias, the Vice President for Research. Professor Edelgard Wulfert, the Dean of the College of Arts and Sciences, sent her well wishes to our students. Allix Coon, one of the most successful undergraduate researchers and now a doctoral student in our department, delivered a student keynote address, sharing her personal experience in getting involved in undergraduate research. We also heard many professional and exciting presentations from our current undergraduate students. The highlight of the symposium is the keynote lecture “Sustainable Chemistry – Respecting our Social Contract,” given by Dr. Gregory van Buskirk (Founding Consultant, SageWay Solutions, LLC, California). We also had the pleasure to enjoy a presentation on “Student Career Development” that Dr. Sharon Kantor presented together with her husband Dr. van Buskirk. Dr. Kantor graduated cum laude from UAlbany in 1973 with a B.S. in Chemistry and in Mathematics. The lunch provided opportunities for faculty and graduate students to talk with all participating undergraduate students and to visit and discuss posters presented by our undergraduate researchers. Prizes for the best presentations were awarded to Beza Tuga (SUNY Plattsburgh) “Synthesis and Characterization of Cationic Cellulose Nanocrystals as Potential Vaccine Adjuvants” and Nana-Hawwa Abdul-Rahman (SUNY Albany) “Development of Mass Spectrometric and Chemometric Tools for the Forensic Identification of ‘Legal High’ Psychoactive Seeds from Solanaceae Plants.” The best poster, “Raman Spectroscopy for Forensic Bloodstain Identification: Method Validation vs. Environmental Interferences,” was presented by Robert Rosenblatt (SUNY Albany). Now in its fourth year, the Chemistry Undergraduate Research Symposium has been established as an annual highlight to celebrate undergraduate research activities and accomplishments not only in our department, but also in other institutions in Upstate New York. We look forward to organizing the next symposium in 2019! Thanks to all who participated and helped make this important symposium a big success!

We would like to congratulate Dr. Sharon Kantor as well who has just been awarded the Alumni Association Excellence in Alumni Service Award. The formal award presentation will take place in May 2019. Dr. Kantor truly deserves this recognition in light of all that she has contributed to Chemistry and to UAlbany over the years.

— Contributed by Qiang Zhang and Gerd-Uwe Flechsig
As a member of the Honors College at the University at Albany, I realized very early on that I wanted to get involved with research as an undergraduate. My research career at the University at Albany began the summer after my freshman year when I was fortunate enough to be invited to join Professor Alan Chen’s research lab to conduct molecular dynamics studies on RNA. However, while I remained enthralled with the opportunity and thrilled to have Professor Chen as a research advisor, I realized that I was not passionate about continuing with computational research. Instead I yearned for the opportunity to engage in more traditional bench chemistry, and perhaps gain experience in using analytical instruments. I realized that I had to be the one to take the initiative in changing my research path, and thus I reached out to Professor Rabi Musah who was conducting research in both the bioorganic and analytical chemistry fields in which I was interested. I still remember my apprehension as we began our first meeting. It was intimidating to be sitting one-on-one across from such a distinguished faculty member. After all, I was an inexperienced sophomore who had just completed the organic chemistry course sequence, and I thought I would be perceived as not yet having developed enough of the skills required to join a research lab. However, my concerns seemed to evaporate as our conversation unfolded. I realized that Professor Musah, like all the other professors in this department, was focused on my best interests and success. Shortly after our meeting, I was invited to join her lab. This invitation has been one of my greatest opportunities. I had secured a mentor to whom I could turn to for guidance not only about research and school, but also regarding my future and career in science.

In being engaged in undergraduate research, I was being directly trained by an expert in the field to use a variety of sophisticated techniques besides those to which I had been exposed to in my lab courses. The skills I developed provided a strong foundation, and I have now been using them for years. In addition, this research opportunity allowed me to work with graduate students who were always supportive and encouraging, and who were very generous in offering their guidance as I was navigating my way through my undergraduate career. With respect to my research, I found myself gaining hands-on experience with concepts I was learning in the classroom, and this further cemented my understanding of my coursework. In addition, I was continually afforded opportunities to present my research, and was provided with the support to do so. Thus, as an undergraduate, I presented my research at nine conferences, including two regional Eastern New York ACS meetings. The fine-tuning of my presentation skills resulted in several awards, most notably the American Chemical Society’s Division of Organic Chemistry Outstanding Senior Organic Chemistry Student Award, as well as the Derk V. Tieszen Award presented by the University at Albany’s Chemistry Department. In addition, my undergraduate honors thesis project resulted in a first author publication that has recently appeared in *Journal*.

It was the combination of the skill-sets that I gained through undergraduate research that gave me a competitive edge in my graduate school applications, and resulted in my acceptance into multiple Ivy League and prestigious chemistry graduate programs. I ultimately decided to continue my education here at the University at Albany because of the wonderful mentorship that I had received and would continue to receive from Professor Musah, as well as the research project that I would be working on. My undergraduate research experience has truly shaped the beginning of my career as a scientist. I cannot express enough to undergraduates how important and beneficial such research experience is. You learn how to solve problems, work independently and communicate your findings effectively – all of which are essential skills to have as you move forward in your career.

— Contributed by Allix Coon

We are pleased to welcome Kelli Allen to the University at Albany and to the Department of Chemistry. Kelli joined the Chemistry Department in 2018 and provides instructional support for the Organic Chemistry teaching laboratories. Kelli holds a B.S. degree in Chemistry from Siena College. Kelli oversees organic teaching labs in the department. About 400 students enroll in these labs each semester. Part of her work is to help oversee and train teaching assistants and work study students, and to provide support for running and maintaining instruments, such as gas chromatographs and infrared spectrophotometers. Kelli has also started to assist with our popular “Chemistry of Sex, Drugs and Sports” course and our senior level Advanced Synthesis course.
Graduate Student Activities, Accomplishments and Awards

Megan Chambers co-authored a publication in *Analytical Chemistry* that reported the use of ambient ionization mass spectrometry to monitor plant chemical defense mechanisms. She also presented a poster on forensic identification of legal highs at the Northeastern Association of Forensic Scientists (NEAFS) annual meeting. Allix Coon was first author on a paper in *Talanta*, which featured her work on the development of a statistical analysis workflow for the analysis of sexual assault evidence. She also gave a talk at the 2018 Northeastern Association of Forensic Scientists meeting, and received the United Development Corporation Life Sciences Graduate Fellowship, the Initiatives for Women Susan Van Horn-Shipherd ’64 Women in Science Scholarship, and a Celebration of Scholarship recognition.

Meghan Fogerty was awarded a National Institute of Justice Graduate Research Fellowship, as well as the College of Arts and Sciences Lawrence and Marie Shore Graduate Scholarship. She presented her research as a poster at the PITTCON 2018 Annual Conference and at the Multidisciplinary Approaches to Forensic Investigations Symposium at Boston University. She also gave an oral presentation of her research at the 2018 Northeastern Association of Forensic Scientists annual conference where she won the Peter R. De Forest Best Graduate Student Presentation. Meghan was recently awarded the Forensic Sciences Foundation Student Travel Grant and Student Scholarship Award. Kristen Fowble was awarded a National Institute of Justice Graduate Research Fellowship and was first author on two articles published in the journals *Talanta* and *Food Research International*. She was also co-author on two book chapters in *Methods in Molecular Biology: Analysis of Drugs of Abuse*. Kristen presented her work on ambient ionization imaging mass spectrometry at the American Society for Mass Spectrometry and the Northeastern Association of Forensic Scientists annual meetings. Sarasi Galagedera received the Lawrence & Marie Shore Graduate Scholarship in Fall 2018. Sarasi received two travel awards from RNA Institute (for 256th ACS National Meeting & Exposition) and from International Society of Electrochemistry, Division 1, to attend the 69th Annual Meeting of the ISE in Bologna, Italy. She presented two oral presentations at the 256th ACS National Meeting & Exposition in Boston (August 2018) and in Conference on Bioelectrochemistry and Bioelectronics of Macromolecules in Brno, Czech Republic (June 2018). She also presented two posters at PITTCON Conference and Expo (June 2018), Orlando, Florida and at the 69th Annual Meeting of the International Society of Electrochemistry (September 2018), Bologna, Italy. Sarasi publishes one first author paper in *Electroanalysis* (January 2018) and two co-author papers in *ChemElectroChem* and *Electroanalysis*. Justine Giffen was featured in the University at Albany’s 2018 Research Report for her work on novel mass spectrometric approaches to identifying necrophagous insects. She was also an author on a paper published in *Analytical Chemistry*. She presented her work at the American Society of Mass Spectrometry Annual Meeting in June in San Diego, CA.

Mindy Hair was first author on a publication in *Analytical Chemistry* and presented her research at AAFS and PITTCON in 2018. Haixiang Han gave two oral talks of projects in the New Orleans and Boston ACS National Meetings. He received an ACS-Division on Inorganic Chemistry Travel Award from American Chemical Society and Graduate Student Travel Award for the Chemistry Department. Haixiang published two first-author papers in *Chemical Science*; both of them were selected as journal cover pages, as well as a co-author paper in *Polybedron*, also selected as a journal cover page.

Phensinee Haruehanroengra received the Graduate Student Award for Excellence in Research for the 2017-2018 academic year from the Department of Chemistry, SUNY. She was the recipient of the Ford Foundation IFW Women in Science Fellowships 2018. She was awarded the RNA Institute Travel Award for Spring 2018 for a poster presentation at the RNA Therapeutics Conference in Worcester, MA. She was also awarded the RNA Institute Travel Award for Fall 2018 for an oral presentation at the 2018 ACS National Meeting and Exposition in Albany and at Northeast Nanomaterials Materials (NENM 2018) in Lake Placid, NY. She was selected to present her research progress at the Life Sciences Symposium X, UAlbany. She co-authored six papers published in *Nature Genetics*, *NAR*, *Electroanalysis*, *J. Biomol. Struct. Dyn*, *Chembiochem* and *Organic Chemistry Frontiers*. Tianyu He was first author on three articles appearing in *Analytical Chemistry*, *Scientific Reports* and *ACS Chemical Neuroscience*, with the latter two focusing on development of novel carboranes that may have potential use as boron neutron capture therapy agents for cancer treatment. He also presented his work at the ACS meeting in New Orleans, LA.

Thomas Kenderdine was a contributing author on a publication in *Bioconjugate Chemistry* and first author on a publication in *Analytical Chemistry*. Johnsi Mathivanan presented a poster at PITTCON-2018 in Orlando, Florida. She also published a paper entitled “Thermoelectrochemistry of Paracetamol-Studied at Directly Heated Micro-wire and Rotating Disk Electrodes.” Ewelina Mistek received her second-year, Graduate Research Fellowship in STEM from the National Institute of Justice. She received the 2017 International Coblentz Student Award, the 2018 Francis Dunstan travel award to present at the International Conference on Raman Spectroscopy (ICORS) 2018 in Jeju, South Korea, and the Ford Foundation Initiatives for Women in Science Fellowship. She also presented her research at the AAFS, Pitzcon, SciX 2018 in Glasgow, United Kingdom. She also presented at the 9th Annual Life Sciences Research Symposium, and the Sex, Genes, and Behavior Conference at the University at Albany. Ewelina published two review articles as a first author, and co-authored two review articles.
Graduate Student Activities, Accomplishments and Awards continued

and a book chapter. She was nominated by the Chair of the Chemistry Department for the AAAS/Science Program for Excellence in Science, and was nominated for recognition at the Celebration of Scholarship at the University at Albany. **Amy Osborne** recently attended the annual meeting for the Northeastern Association of Forensic Scientists (NEAFS), presenting a poster on her research entitled: “Species Identification of Necrophagus Insects by Chemometric Processing of DART-HRMS Chemical Signatures of Ethanol-Insect Suspensions.” She was awarded Best Poster Presentation in the Graduate Student Category. **Nicole Raibovsky** gave an oral presentation at the 10th Annual Life Sciences Symposium in October 2018 and at the Eastern Analytical Symposium in November of 2018. Nicole was awarded both the Harry L. Frisch Memorial Scholarship in Chemistry as well as a Graduate Student Association Professional Development grant. **Zheng Zhou** received the 2018 Chemistry Department Graduate Student Travel Award and presented his first oral talk at the National ACS meeting in Boston (Aug 19-23, 2018).

The **UAlbany Chemistry Club (UCC)**

The University at Albany Undergraduate Chemistry Club is a social organization for students majoring in Chemistry, Biochemistry, and anyone who has an interest in chemistry. We host many events centered around chemistry topics throughout school year, including social events, talks, and tutoring help. If you are looking for a great club on campus, Chemistry Club has the right formula for you!

As stated above, the UAlbany Undergraduate Chemistry Club is a club not only for students with chemistry majors, but also for those who have a passion for chemistry and all the exciting, and creative ideas it has to offer. Our first event of this semester started off with a bang – or shall we say a blast – of freezing cold liquid nitrogen! In conjunction with the Physics Club, the Chemistry Club made liquid nitrogen ice cream, and boy was it delicious! Mixing milk, cream, sugar, just a touch of vanilla and, our main ingredient, liquid nitrogen, we were able to make yummy, creamy ice cream! Chocolate sauce, and other toppings were, of course, there for the picking as well.

Our second event took place during National Chemistry Week (October 21-27). We went to the New York State Museum and performed an experiment for the young children in attendance. The purpose of this event was getting the kids to have fun and be inspired, and hopefully get them to have a little better of an understanding of the world around them. We decided to recreate the baking soda-powered bottle boat experiment. Materials used were a plastic water bottle, baking soda, vinegar, a straw, glue and scissors. A hole is cut in the bottom of the bottle near the edge with scissors for the straw to go through. This hole is then sealed with glue with the straw in it so that the only escape out of the bottle would be through the straw. Vinegar and baking soda are then added, and the cap is quickly screwed back on. A chemical reaction is made when vinegar and baking soda are mixed; this creates carbon dioxide. This gas only has one way of escape; through the straw. The carbon dioxide gas rushes through the straw to escape, in turn pushing the bottle boat forward. This is related to how an airplane jet engine works!

The third main event that the UAlbany Chemistry Club put on was making our own ooey gooey slime! Glue, hot water, and borax are mixed to make this slime. Of course, an array of food coloring and glitter were there for the choosing to spice things up. We had so much fun bouncing, stretching, squishing, and squashing our very own slime!

The University at Albany Chemistry Club’s main goal is to bring together those that love chemistry; whether it is their major, passion or both. We’ve listened to our member’s thoughts and concerns, and this is also their main goal overall. We want people with like interests and classes to meet, to both help each other and hopefully connect on a higher level. We have been “revamped” this semester with the help of both experienced board members, as well as new board members. We are developing plans to this club even more engaging and more fun than it has been, including hosting more events and speakers both this semester and next semester. We hope to see many familiar faces, as well as new ones! UAlbany Chemistry Club is for everyone! Join today!

Social Media:
**Facebook:** UAlbany Undergraduate Chemistry Club
**Instagram:** ualbanychemistryclub
The Chemistry Department is proud to announce the addition of a Bruker Ascend 500 MHz Nuclear Magnetic Resonance (NMR) spectrometer located in the NMR facility in Chemistry B39. The instrument is equipped with a state-of-the-art low-temperature Prodigy cryoprobe that provides a more than two-fold increase in sensitivity over conventional room temperature probes. In combination with the greater magnetic field, the new spectrometer will enhance research productivity by providing faster data acquisition and greater spectral resolution. The instrument will support investigations of natural products, plant chemical defense, heterometallic molecular precursors for the preparation of energy-related materials, carbon-rich pi-bowls and nanobelts, semiconducting polymers, as well as studies of peptides, proteins and RNA nucleosides. The instrument will also enable us to continue with our core mission of providing excellent training to ungraduated, graduate student and postdoctoral trainees, and it serves as an important resource for Capital District area researchers. Funding for the $700,000 instrument was provided through an NSF instrumentation grant spearheaded by Professor Rabi Musah. The Co-PIs are Professors Evgeny Dikarev, Marina Petrukhina and Eric Block.

**New Equipment and Facilities**

The University recently broke ground on the construction of the Emerging Technology and Entrepreneurship Complex (ETEC) – see an artistic rendering. The $180 million complex is being built on the southwest corner of the Harriman Campus and will be the future home of UAlbany’s first-in-the-nation College of Emergency Preparedness, Homeland Security and Cybersecurity. The Chemistry Department will have six research laboratories and a subset of instrument and equipment rooms in the ETEC building. Once completed in 2021, ETEC will have the capacity to house more than 200 full-time faculty and researchers, 100 research and industry partners, and as many as 800 students. We are excited about the new building and new space to expand our educational and research opportunities.

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**Chemistry’s Graduate Student Group: The Atomic Danes**

The Atomic Danes is a graduate student organization involved in professional development, science outreach and social activities for graduate students in the Chemistry Department. The group has organized several social and professional development events each semester since its inception. In Spring 2018, the Atomic Danes held their first union awareness event, where representatives from the UUP and GSEU attended to answer questions about union representation of chemistry graduate students. To welcome incoming graduate students into the Department of Chemistry, the Atomic Danes hosted a Board Game Night in August, which allowed new students to get to know current graduate students. In September, the Atomic Danes organized a Symposium of Alternative Careers for Women in STEM, hosting two accomplished professionals: Rachel Cassidy, a patent licensing professional at General Electric, and Bethany Halford, a senior correspondent for Chemical and Engineering News from ACS. In October, the Atomic Danes hosted the Chemistry Graduate Halloween Party, which was well attended and gave some much needed stress relief after midterms! In December, the Atomic Danes plan to host their semi-annual Bowling night to celebrate the end of the fall semester.

The Atomic Danes will soon hold elections for all executive board positions. Currently the executive board includes Rebecca D’Esposito (President), Erica Brunelle (Vice President), Nidhi Nandu (Treasurer), Meghan Fogherty (Secretary/Social Media Chair), Nicole Ralbovsky (PR Chair), Mindy Hair (RGSO Committee Representative) and Muhan He (RGSO Senate Representative). In addition, the Atomic Danes has expanded its club roster to 39 members and plans to recruit more members in 2019.

— Contributed by Rebecca D’Esposito and Nidi Nand
Evgeny Dikarev received a second grant from the US Civilian Research and Development Foundation for collaborative work with Russian scientists from the Skolkovo Institute of Technology on protective coating of high-voltage cathode materials for rechargeable batteries.

Dan Fabris received an R01 from NIH/NIGMS, and another R01 from NIH/NIDA; he received an R21 from NIH/NIAID. Dr. Fabris also received a grant from SUNY Central. Together these grants come close to $4M.

Jeremy Feldblyum has received an American Chemical Society Petroleum Research Fund Doctoral New Investigator (ACS PRF NDI) worth $110,000. The funds will support a project titled “Pervaoprative Separation of Refinery Streams by Membranes from Exfoliated Two-Dimensional Metal-Organic Frameworks.” During the funding period, he will investigate new ways to separate mixtures of industrially important molecules using materials called metal-organic frameworks. These materials have small pores that can separate molecules very precisely based on size and chemistry.

Rabi Musah, as Principle Investigator, and in collaboration with Co-PIs Evgeny Dikarev, Marina Petrukhina and Eric Block, received a grant from NSF for the acquisition of a Bruker 500 MHz NMR instrument, which will be used to advance our teaching mission and pursue a broad range of interdisciplinary research studies. She also received 3 grants from the National Institute of Justice for studies on the forensic identification of drugs of abuse, as well as for development of a new small-molecule imaging mass spectrometry technology. This brings to >$1.7M the funding that has been received in support of these projects.

Li Niu received an R21 grant from NIH/NINDS for testing RNA aptamers developed in his lab on ALS mouse models. These RNA aptamers are potential drug candidates for ALS.

Jayanti Pande received an R21 grant from the National Institutes of Health in February 2018. Alpha crystallin, a molecular chaperone, forms complexes with client crystallins in the eye lens and prevents their unfolding and aggregation. These complexes bind to cell membranes during aging and cataract formation. Here we examine the structural and thermodynamic basis of complex formation and how the membrane structure is affected by the binding of such complexes.

Maksim Royzen received a 3-year $612,573 NIH R21 grant titled: “Development of Catch and Release Approach for Multidrug Local Delivery of Chemotherapies.” The project will develop a new materials-based approach for treatment of local tumors that will have lower side effects and minimally alter the regular cancer treatment workflow.

Alexander Shekhtman received an R01 grant, 5R01GM085006, titled “Real Time (RT) In-Cell NMR Technology to Study Protein Interactions in Live Cells” from the National Institutes of Health in the amount of $1,200,000 to study protein structure and function, and develop effective drug screening technology.

Jun Wang is the PI for a NIGMS R01 grant (2018-2022). The project is about development of single-cell multiplexing in situ tagging microtechnology for comprehensive profiling of functionally diverse subpopulations and their signaling pathways. He is also the PI for a NYSTEM grant (2018-2020) with the title “Optimizing Replacement Cell Therapies through Microchip Analysis of Cell Cooperativity.”

Mehmet Yigit was the principal investigator for the externally funded NIFA/USDA Agriculture & Food Research Initiative (AFRI) Competitive Grants Program award (2018-67021-27973) Nanotechnology for Agricultural and Food Systems $460,000 (2018-2021). In addition, he was the principal investigator for a NIH R15 GM128115-01 Academic and Research Enhancement Award of $460,386. This grant is received in collaboration with Professor Royzen, and runs from 2018-2021.

Qiang Zhang was the principal investigator for NSF grant 171074: “Studies towards Peptides and Protein Chemical Synthesis using Strained Thiolactones” (2017-2020). The goal of this study is to utilize strained molecular such as the $\beta$-thiolactones facilitating peptidyl ligation. The strategy will enable the one-pot ligation and dethionylation for efficient peptide and protein synthesis.
HONOR ROLL OF DONORS

The Department of Chemistry thanks all of the donors for their generous support.

The following donors have contributed to The University at Albany’s Department of Chemistry from September 1, 2017 to November 1, 2018

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Assistant Professor
I came to SUNY Albany in the fall of 1971 as a Chemistry major. In the beginning of my sophomore year, two professors came to our Chem 231 class one morning with an unusual offer. We were invited to work in the labs “upstairs” and conduct actual chemistry research. I was one of the students who jumped at the chance – even though I had no idea what it really meant to work in a lab. Dr. George Eadon, a young assistant professor who needed a “pair of hands” to pursue his research interests, chose me to be those hands. He turned out to be a great mentor.

During my first week in Prof. Eadon’s lab, I was given the task of clearing out a hood which looked like it hadn’t been cleaned since the Middle Ages. With youthful enthusiasm I began moving the soiled glassware into a sink filled with soapy water. After a few minutes, the sound of hissing warned me to hit the floor only seconds before the sink exploded, filling the lab with smoke and shards of glass. A moment later, Prof. Eadon came around the corner, ascertained that I was not injured, commented “very impressive, Gold” and, shaking his head, returned to his office. He had neglected to label a beaker containing a small chunk of metallic potassium (K) he had left dry, which I naively threw into warm water…

Despite this (and a few other misadventures that are best shared in person), we did valuable research over the next 2+ years, ultimately resulting in publications in JACS and JOC. That certainly helped me get into graduate school at the University of Wisconsin Madison, where I earned my MS in synthetic organic chemistry after 16 months. I then joined the pharmaceutical industry, where I initially conducted research on new molecular entities.

Over a 40+ year career in pharma, I was given the opportunity to work in many different areas – to invent, to innovate and to create practical solutions to some of the more daunting challenges the industry faced. Working and/or leading – always as part of a team – I focused on delivering results that would impact our patients and our colleagues. I helped create new products, novel formulations, and new technologies to produce complex, sterile injectable medicines. Ultimately, I worked to design, build and operate new R&D and manufacturing facilities. Today I continue to advise pharma companies as a consultant. My SUNYA chemistry education has been invaluable – solid knowledge of the fundamentals of chemistry always played a significant role in my success at every stage of my career, no matter the job title or discipline within which I worked.

My time at SUNYA became the foundation of every career success that I have achieved. The encouragement and support of the faculty, the opportunities to try (and sometimes fail, at first) to do something new and useful, helped develop my drive to understand challenges and to find answers throughout my career.

When I attended SUNYA, I did so without family financial support. Thanks to loans, a Regent’s Scholarship and numerous break/summer jobs, I managed to earn my BS in 4 years. The summer between my junior and senior years, my mentor was able to fund 10 weeks of full-time research (at minimum wage) during which I was able to focus and obtain results critical to our first publication. Unfortunately, when that funding ran out I had to leave the lab and find a job (also at minimum wage!) I have often wondered what more might have been achieved had I been able to remain at the bench for the rest of that summer. I’m certain that there are chemistry majors now who have the drive and the passion to fully participate in undergraduate research, but also need financial help to avoid needing to take a summer job in an unrelated field. It is with that in mind that I’ve established the “Paul Gold 75 Chemistry Internship.” It is my hope that the recipients of this Internship will soon become innovators, inventors, and leaders in whatever field they pursue.
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