

BLUE HEN Chemist

DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY ALUMNI NEWSLETTER

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Editor: John Burmeister



Munson Departs!

UNIVERSITY OF
DELAWARE

Munson Departs!

It seems as if some folks go on forever. They seem to have always been and will always be.

But there comes a time for every departure. Burnaby Munson, the C. Eugene Bennett Professor of Chemistry and Biochemistry, has decided that, after fifty years of educating thousands of students, he will retire. He taught his last class in the Spring of 2017.

Burnaby leaves behind a legacy of educational excellence and a cadre of students, both undergraduate and graduate, who have, through coaxing, cajoling, threatening, and patience, developed an appreciation for chemistry and its place in the world. Were it that he just educated students about chemistry, his contribution would have been exceptional, but he did much more than that in fifty years at Delaware. In so many ways, he has taught us how to laugh, how to think, how to appreciate life around us, and how to do the things that make humans human. His mark on the Department and the University is indelible.



Munson was actually a child at one time, although he will tell you that he was “born old”. Indeed, the sign on his office door warns students, faculty, and visitors alike that “Old Age and Treachery Will Overcome Youth and Skill”. That’s Burnaby at his finest sarcasm. (Or is he serious? One can never be sure.)

From Wharton, Texas, near Houston, Burnaby made his way first to Tartleton State University, and then to the University of Texas at Austin, to study chemistry. After graduation, he went off to the University of Wisconsin for graduate studies, but quickly returned to UT, as he has said “because of the cold winters up

North”. His doctoral dissertation, overseen by Robbin Anderson, was on flame spectroscopy.

With the Ph.D. in hand, he headed off to Humble Research in Houston (later to be a part of Exxon Research), where he first encountered what was to become his life-long area of expertise, mass spectrometry.

During his time there, he and Frank Field made the discovery for which they have been justifiably famous, chemical ionization mass spectrometry.

Without any doubt, chemical ionization mass spectrometry has had a major impact on analyses because of the ease with which it allows measurement of molar mass, thereby providing a basis for interpreting structure of molecules large and small. In the advanced description of the 2002 Nobel Prize in Chemistry given to John Fenn and Koichi Tanaka for applications of mass spectrometry to analysis of biomolecules, the very first reference is to the foundational importance of Munson’s contribution of chemical ionization mass spectrometry that made future applications of mass spectrometry to a whole host of interesting problems possible. To quote from the Nobel Prize document: “One early major breakthrough, described by M. S. B. Munson and F. H. Field in 1966, was the use of chemical ionization (CI), which for the first time made it possible to ionize thermolabile biomolecules.” That utility of CI-MS is seen in thousands of uses over the last 50 years.

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Hello to our Alumni and Friends!

I am happy to report that our Department is healthy and continues to progress in all respects. With each year, it seems that we set a new record in the number of degree majors at the graduate and undergraduate levels, enrollments in our courses, and/or research funding. If you haven't visited in a while, please come so that you can experience this beehive of activity first hand. It has been said that the one "constant" in a university is "change". That is certainly the case this past year as we have the excitement of saying hello and the sadness of saying goodbye to many of our faculty and staff.

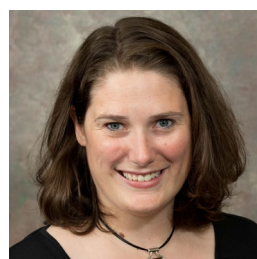
First and foremost among our faculty, **Lars Gundlach** was promoted to Associate Professor with tenure. Over the past several years, Lars has developed an outstanding research program in femtosecond time-resolved spectroscopy and microscopy. Along with other Departmental faculty at a similar stage of career, the quality of Lars' research and instructional efforts are major reasons why the future of our Department is so bright. I am also happy to report that **Edward Lyman**, who has a joint appointment in our Department and a primary appointment in the Physics Department, was promoted to Associate Professor, with tenure. Ed's research is in the area of computational biophysics. **Juan Perilla** joined our faculty in July 2017 as a tenure-track Assistant Professor with research interests in computational chemistry and its application to complex biomolecular assemblies. Juan received his Ph.D. in Biophysics from Johns Hopkins University under



Lars Gundlach



Juan Perilla



Kimberly Graves



Mark Baillie



Murray V. Johnston

the direction of Thomas Woolf, followed by a postdoctoral fellowship at the University of Illinois at Urbana-Champaign with Klaus Schulten.

Kimberly Graves and **Mark Baillie** left our Department at the end of the 2016-2017 academic year to pursue other endeavors, Kimberly in Vermont and Mark in Arkansas. Both have been stalwarts of our general chemistry program, imparting great enthusiasm in the classroom with a strong dedication to student success. Mark, along with **Jackie Fajardo**, has played a leading role in development of the integrated chemistry-biology curriculum, while Kimberly, along with **Sue Groh**, has significantly enhanced our honors general chemistry curriculum. Both will be greatly missed. With that said, we enthusiastically look forward to the arrival of two new faculty in August 2017, **Trevor Daly** and **Shara Compton**, who will take over the mantle for much of our general chemistry program. Trevor received his Ph.D. in Organic Chemistry from Lehigh University, and comes to our Department from a preceptor position in the integrated chemistry-biology program at the University of Delaware. Shara received her Ph.D. in Biophysical Chemistry from the University of California,



Trevor Daly



Shara Compton

Davis, and most recently has served as a senior lecturer at Widener University.

Burnaby Munson, a driving force for instruction and research in our Department for over five decades, is retiring effective the end of the 2016-2017 academic year. I encourage you to read the full article on Burnaby in this issue. It is with huge gratitude that we congratulate Burnaby on an impeccable career that has touched so many people all across campus.

This past year also saw many changes among our staff. **Federico Cruz** was promoted to the role of laboratory manager with direct oversight of our advanced teaching laboratories in analytical, inorganic and physical chemistry. In this position, Fred oversees ~25 graduate teaching assistants and a combined enrollment of over 500 students per year in what can be regarded as our most demanding instructional laboratories. I am also excited to report that Fred obtained his Ph.D. in Organic Chemistry from our Department this past year under the direction of **John Koh**.



Linda Bostwick

This spring also brought huge changes to our teaching laboratory services with the retirements of **Dave Nicolson** in April and **Linda Bostwick** in June. Both have served the Department exceptionally well for multiple decades, keeping our teaching laboratories fully stocked and running. Along with the retirement of **Beily Street** a few years ago, this amounts to a complete

changeover in laboratory services. The tradition of outstanding laboratory service continues with the arrival of **Kimberly Vogt** in May and **Margaret (Peggy) Nagorski** in June. Kimberly grew up in the Elkton area and received her B.S. in Chemistry from Towson University. Peggy received her B.A. in Biological Sciences from the University of Delaware, and most recently worked as an Associate Scientist at QPS, LLC in Newark.



Kimberly Vogt

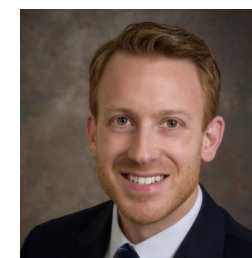


Margaret (Peggy) Nagorski

Zhihua Yang joined our Department in spring 2017 as a second staff member in the Mass Spectrometry Facility. Zhihua received his Ph.D. degree in Biochemistry at the Chinese Academy of Sciences in Shanghai, and most recently served in the mass spectrometry facility at the Morehouse School of Medicine. Under the watchful eyes of facility manager **PapaNii Asare-Okai** and Zhihua, the capabilities of this facility have greatly expanded especially in the area of proteomics.



Zhihua Yang



Brandon Calitree

Three other staff members left our Department for promotion to new positions on campus. **Brandon Calitree** moved to Environmental Health and Safety to serve as the UD's Chemical Hygiene Officer.



Elizabeth Townsend

Elizabeth Townsend moved to UD's Research Office to serve as a Contracts and Grants Specialist. **Tracy Walsh** moved to the Delaware Biotechnology Institute to serve as their senior administrative assistant. While we are sad to see each of them go, we are excited for the prospect these positions hold for their respective careers.

As highlighted below, our faculty continue to garner awards and accolades for their work.

Joseph Fox received the Delaware BioScience Association's 2017 Academic Research Award citing his many accomplishments in molecular discovery. Joe also continues to serve as lead Principal Investigator of a Center of Biomedical



Joseph Fox

Research Excellence (COBRE) project from the National Institutes of Health. This project, along with a companion project led by **Tatyana Polenova**, provides over \$3 million dollars annually to support the research of junior faculty members and strengthen the research infrastructure available to them.

Catherine Leimkuhler Grimes added to her

ever-growing list of awards by selection as a Sloan Research Fellow. Her previous awards include a Pew Scholar in the Biomedical Sciences by The Pew Charitable Trusts, a Cottrell Scholar Award from the Research Corporation for Science Advancement, an award from the Mitzutani Glycoscience Foundation, and an NSF CAREER Award. Catherine's research program is focused on bacterial cell walls and the way human cells interact with them.



Catherine Leimkuhler Grimes

Charles Riordan was named Vice President for Research, Scholarship and Innovation at the University of Delaware. Charlie served as our Department Chair from 2002-2007, then was named Vice Provost for Graduate and Professional Education in 2010, Vice Provost for Research in 2012 and Deputy Provost for Research and Scholarship in 2014. Congratulations, Charlie!



Charles Riordan

Kathryn Scantlebury reached a pinnacle this past year by receiving two top awards from the American Education Research Association: the Distinguished Contributions to Gender Equity in Education Research

Award which honors scholarly activities that advance public understanding of gender and/or sexuality at any level in the education community, and the Willystine Goodsell Award conferred by the Research on Women and Education Special Interest Group. Kate is widely recognized for her work in science education focusing on equity issues including urban education, preservice teacher education, and the professional development of teachers.



Kathryn Scantlebury

Michael Steminski was named a Fellow of the American Chemical Society. Mike has played a huge role in our Department for over four decades as an Adjunct Faculty during winter and summer sessions, and most recently through the Associate in Arts Program in Wilmington. Mike has been a driving force for chemical education in the State of Delaware for many years. Among his many awards and recognitions are the McKean High School teacher of the year and Delaware American Chemical Society teacher of the year.



Michael Steminski

As I have emphasized in previous years, these highlights represent the most visible ways that our faculty and staff promote the teaching and research missions of our Department and University. While it is exciting to receive recognition through specific honors and awards, much is accomplished day-by-day, often unheralded, that makes this Department a special place to be.

Finally, I would like to say that these have been a rewarding, though often crazy, five years for me as Department Chair. Even though I have been at UD for quite a while, I am continually amazed by the numerous ways that our faculty, staff and students distinguish themselves. UD is a great place to receive an education and also a great place to work and live. In the near future, I will pass the baton to **Brian Bahnsen** who will serve as Department Chair for the next five years, and I do so knowing that our Department will be in great hands.

— Murray V. Johnston

CONTINUED FROM PAGE 1

By the mid-1960s, Munson decided his calling was in the academic arena. It was the good fortune of the University of Delaware that, in 1967, he set up shop here. Within a short time, he had an active group of graduate students and postdoctoral fellows working on a wide variety of problems, from applications of chemical ionization mass spectrometry to development of pyrolysis mass spectrometry. UD became a center of activity in mass spectrometry, and generations of Munson's graduate students added to the knowledge of ion-molecule reactions.

Burnaby has been simultaneously and assiduously dedicated to ensuring the best possible education for undergraduate students in his care. Indeed, if one were to characterize him by a single focus (something that does not do justice to a polymath such as Munson), it is his seemingly inexhaustible ability to inspire students to learn. Whether it is one of his delightful demonstrations, his innumerable study sessions accompanied by huge volumes of food, or his constant chiding of students to encourage learning, he brought many students to higher levels of learning than they thought possible. A comment from one of his students shows how Munson constantly tries to broaden students' knowledge. When the bell rings to end his class, he is often heard to recite this passage from "Macbeth": "Hear it not, Duncan, for it is a knell that summons thee to heaven or to hell."

One of Munson's strong interests has been the Honors Program at the University of Delaware, where he could spread his own brand of learning across disciplines. He even served as Director of the program for a time.

Burnaby's research has impacted many areas of chemistry, from small molecules, to surface phases, to additives in materials, to large biologically derived materials. More than projects for the research students, he has had an impact on the human side of science for each of his twenty-plus graduate research assistants and hundreds of undergraduates. Parties, trips to unusual destinations, and involvement of students at all levels: these are the characteristics that have brought Munson recognition from those who really matter, the students. Perhaps Pablo Casals was thinking of Munson when he fittingly said "The man who works and is not bored is never old." Burnaby, by that standard, has never been old, his protestations to the contrary notwithstanding.

With his departure, a chapter closes, a long and glorious chapter that will not be repeated. We have had the good fortune of having Burnaby in our midst, and that experience will have a long-lasting effect on the Department and the University. We wish him many happy years of retirement..

—Cecil Dybowski

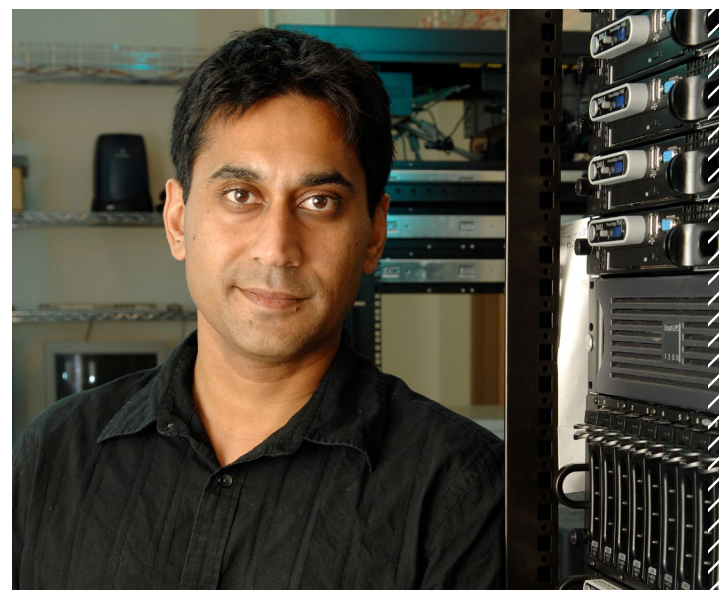
The Department of Chemistry and Biochemistry's 'Tale of Two Goals' continues to unfold as evident from the numerous items in this installment of the *Blue Hen Chemist*.

After 42 years at the helm of the Department's Undergraduate Program, **Professor John Burmeister** has stepped down from 'official' duties, though in character, continues to be an integral element of our Department's instructional and outreach missions, continuing his teaching of our flagship Freshman Majors general chemistry courses (CHEM111 and CHEM112) as well as taking over as Director of Public Relations and Outreach. Most importantly, he continues to be the elder statesman and fountain of wisdom for the younger generations of students with whom he spends considerable time advising on all things academic and not.

This year witnessed the graduation of 65 Undergraduate Seniors and 17 Graduate students during the Department's 22nd Convocation at May 27, 2017. There was a tremendous turnout of roughly 650 students, families, and guests, all witnessing graduation activities in a packed auditorium in Pearson Hall. This year's Convocation speaker, **Dr. Jennifer Jewson**, impressed upon the graduates the importance of taking risks, collaboration, and hard work.

Seniors once again represented the Department in strong fashion, moving into numerous positions in top-ranked graduate programs for science, medicine, and engineering. This year, 24 seniors secured positions in graduate programs ranging from chemical biology to analytical chemistry to materials science to marine science to M.B.A. in Management to (of course) chemistry. The perennial stream to medical school continued as well. In addition, our graduates secured industrial positions spanning a diverse set of specialties from industrial research chemist to production engineer. These data speak to our Department's continued leadership in high-quality, broad education that affords our students numerous options and substantive preparation for life after UD Chemistry. Indeed, UD Chemistry/Biochemistry is a somewhat 'hidden gem'!

The success of our undergraduate program in preparing and sending so many of our students to top-notch graduate programs as well as industry is

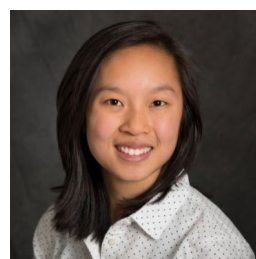


Sandeep A. Patel

no doubt supported by the strong research enterprise thriving due to the efforts of our faculty and graduate students. This is our 'Tale of Two Goals' in action. Furthermore, our research portfolio has brought significant accolades to several of our graduating seniors this past year. Of particular note are two National Science Foundation (NSF) Graduate Research Fellowships awarded to two of our graduating seniors (**Andrew Kuznicki** and **Hannah Wastyk**) to provide financial support to students who have demonstrated significant research and educational outreach potential. This is a highly competitive award with competition from the national level, and represents a great academic achievement (I should know, as I have participated in several review panels for these awards... the competition is truly stiff).



Andrew Kuznicki



Hannah Wastyk

Looking ahead, there is much to be excited about in the Department. First, we have added several new members to our undergraduate teaching laboratory services, **Ms. Kimberly Voigt** and **Margaret (Peggy) Nagorski**. Furthermore this fall, we

also will welcome **Dr. Shara Compton** and **Dr. Trevor Daly**. Our new faculty members will fill in the vacancies left by the departures of **Dr. Kim Graves** and **Dr. Mark Baillie**. Finally, the Drake Hall (named after **Professor Quaesita Drake**, the first female faculty member from our Department) teaching laboratories are slated to undergo a multi-million dollar renovation (the first since the addition of Drake Hall to the Chemistry/Biochemistry Laboratory Complex in 1973). This project will enhance collaborative laboratory experiences for our majors and non-majors, as well as enhance the aesthetics and safety of general chemistry laboratory experiences in our Department. Our hope is to make freshman year general chemistry as memorable as possible for all who pass through Quaesita Drake Hall!

In closing, as we begin the 2017 academic year with an entering class of 91 Freshman chemistry and biochemistry majors, I'd like to reiterate our Department's dual mandate of undergraduate instruction and cutting-edge research, both of which go hand-in-hand, and, as evident once again in this issue of the *Blue Hen Chemist*, enjoy an undeniable chemistry that continues to transform students entering our program into successful future scientists, researchers, entrepreneurs, and leaders on a global scale.

— Sandeep A. Patel

The graduate program in the Department of Chemistry and Biochemistry has had an extraordinary year, marked by a number of record setting accomplishments. And, as has been the trend for the last several years, we continue to run one of the largest and most productive graduate programs on campus. At present, 186 Ph.D. and 7 Masters students are pursuing degrees in the department, and over the last 12 months, we awarded 21 Ph.D. and 11 Masters degrees.

One of the most exciting developments this year has been the award of multiple National Science Foundation Graduate Research Fellowship (NSF-GRF) Awards to graduate students in our department.

Two continuing students, **Ms. Jodi Kraus** from Prof. Tatyana Polenova's lab, and **Ms. Sarah Krause** from the D. Watson Lab, both were awarded these prestigious multiyear fellowships. In addition, **Mr. Andrew Kuznicki** (UD Class of 2017), who performed undergraduate research with Prof. Joel Rosenthal and will be continuing as a Ph.D. student in the department starting in the fall of 2017, also received the highly esteemed award. Thus, the department is honored to have three NSF pre-doctoral fellows in the department, which is far and away the highest number currently on the UD campus, and a prominent recognition about the strength of our graduate program. We look forward to continuing to add to our total in the years to come.



Jodi Kraus



Sarah Krause

In addition to the NSF awards, **Ms. Mackenzie Williams** (from Prof. Andrew Teplyakov's lab) won 2017-2018 NASA Delaware Space Grant Fellowship. **Mr. Baxter Abraham** (from Prof. Lars Gundlach's lab) received a Science Graduate Student Research (SCGRS) Grant from the Department of Energy for performing research at Argonne National Lab with Prof. Lin



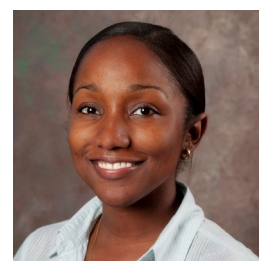
Baxter Abraham



Donald Watson

Chen's group this summer (2017). These awards add greatly to our federally funded graduate fellowship support.

Also at the national level, **Ms. Jolie Blake** won an ACS Division of Physical Chemistry Outstanding Student Poster Award at the American Chemical Society National Meeting in Philadelphia.



Jolie Blake

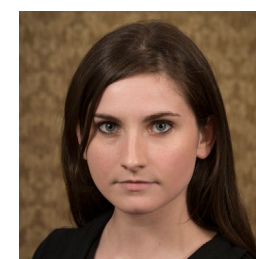
Locally, we also had a record year obtaining university fellowship support from the UD graduate program. **Ms. Jennie Liao** (M. Watson lab) and **Mr. William Trout** (Fox lab) both received University Doctoral Fellowships for 2017-2018. Likewise, **Mr. Hai Liang** (Grimes lab) and **Mr. William Reid** (D. Watson lab) both received University Dissertation Fellowships. **Mr. Chad Hatch** (Chain lab), **Ms. Jessica O'Brien** (Fox lab), **Ms. Ophelia Ukaegbu** (Grimes lab), and **Mr. Javon Rabb-Lynch** (M. Watson lab) all received renewals on their University Graduate Scholars awards. In addition, **Ms. Amanda Arnoff** (an incoming first year Ph.D. student) was awarded a new University Graduate Scholars Award. **Ms. Lauren Cordeiro** (Riordan lab), **Mr. Matthew Fritz** (Polenova lab), and **Ms. Jing Zhao** (Teplyakov lab) all received Graduate Summer Fellowships from the Office of Graduate and Professional Studies for the summer of 2017. Finally, **Jesus Nieto-Pescador** (Physics Ph.D. student working with Prof. Lars Gundlach) was also awarded a University Dissertation Fellowship. We greatly appreciate this support from the Office of Graduate Studies and Professional Education.



From left to right: Murray Johnston, Andrew Teplyakov, Mackenzie Williams, Joseph Smith, Donald Watson and Karl Booksh

Within the department numerous awards were also given. **Mr. Joseph Smith** received the 51st Annual Glenn S. Skinner Memorial Prize. This award recognizes the senior graduate student who most fully exemplifies outstanding performance in scholarship, research, and teaching or other service to the Department or the University. Mr. Smith's research in Prof. Karl Booksh's lab on Raman Imaging, along with his outstanding contributions to service and teaching within the department, made his the unanimous choice of the faculty for this award this year.

Ms. Mackenzie Williams' work on surface chemistry in the Teplyakov Group resulted in her receiving the 2017 Brennie E. Hackley, Jr. Award for Excellence in Research. Established by his family, this award is named after Dr. Brennie E. Hackley (Ph.D., 1957), the first African-American to receive a doctorate in chemistry from UD. This award is given for research accomplishments to a mid-career Ph.D. student.



Mackenzie Williams



Jennifer Gnanamgari (left)



Daniel Cummins (left)

Mrs. Jennifer Gnanamgari (Rosenthal lab) and **Mr. Daniel Cummins** (Theopold lab) shared the 2017 Trofimenko Prize. This award, named after the late Swiatoslaw Trofimenko, recognizes outstanding research contributions by a graduate student in inorganic chemistry.

Mr. Jesus Nieto-Pescador (Gundlach lab) won the Daicar-Bata Award from the Physics Department for the best research paper in a physics or astronomy peer-reviewed journal published during the previous academic year.



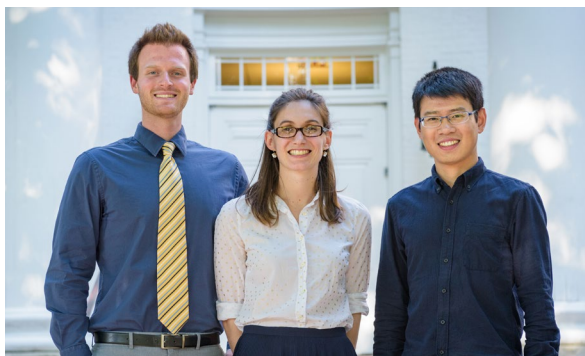
Jesus Nieto-Pescador (right)

This year, four students were recognized with Elizabeth Dyer Awards for Excellence in Teaching. The Dyer award is the department's highest recognition to a graduate student for excellence in instructional activities. The recipients were **Ms. Anna Murphy** (Dybowski lab), **Ms. Marcie Wiggins** (Booksh lab), **Ms. Fei Gao** (Teplyakov lab), and **Mr. Baxter Abraham** (Gundlach lab).



From left to right: Anna Murphy, Marcie Wiggins, Fei Gao and Baxter Abraham

Each year, the department holds the Silver Symposium, which allows our graduate students to present research to a distinguished panel of judges, who evaluate the talks based upon research quality and clarity of presentation. This year, **Ms. Mackenzie Lauro** (co-advised by Profs. Brian Bahnsen and Catherine Grimes) took first place for her work on understanding native immune response. **Mr. Joseph Smith** (Booksh lab) won second place for his efforts to develop Raman Imaging. Finally, **Mr. Hai Liang** (also from the Grimes lab) was awarded third place for his work on bacterial cell wall labeling.



From left to right: Joseph Smith, Mackenzie Lauro and Hai Liang

Finally, we are very excited about our incoming class of graduate students. During the fall and winter, the admissions committee worked very hard to identify and recruit a truly outstanding class of new students. I am proud to say that we will welcome 40 new Ph.D. students and 1 Masters student to the program in September, continuing our trend of expanding our graduate program with large incoming classes. As of this writing, many of these students have already arrived on campus to participate in summer research or other on-campus activities, and I know that all of them are eagerly looking forward to the start of the semester.

We all owe a sincere debt of gratitude to Profs. William Chain, Lars Gundlach, John Newberg, Joel Rosenthal, and Zhihao Zhuang for serving on the admissions committee and making this recruiting season such a great success.

In closing, I want to again thank the members of the admission committee, as well as the graduate curriculum committee (Profs. Booksh, Bobev, Dybowski, and Zhuang) for their strong support of our graduate program. As always, I am greatly indebted to **Mrs. Lori Nesnow** for her support of graduate admissions, and **Mrs. Susan Cheadle** who keeps the graduate program running each and every day. We would be nowhere without these talented and dedicated people.

– Donald Watson



Brian Bahnsen

As the fall semester begins our Department Chair **Murray Johnston** will come to the end of his 5-year term, and I will begin mine. Under the leadership of Murray and many other key faculty and staff our Department is thriving. We all owe Murray a great deal of appreciation for his contributions and dedication to our Department. As you will read elsewhere in the **Blue Hen Chemist**, we are training a record number of undergraduate and graduate students, hiring terrific faculty, and the success of faculty and students is demonstrated by significant awards, honors, publications and funding.

Our Department strives for excellence in teaching and research at the undergraduate and graduate levels. The Department thrives due to excellent faculty, staff and students and a healthy relationship where everyone is respected and guided to achieve their potential. However, it is the sense of community amongst faculty, staff and students that I feel sets our Department above many others nationally that also excel in teaching and research. I would extend the strength of our community to include our alumni and the need to have a strong relationship with all of you.

In an age of flat or proposed cuts to Federal research support and declining contributions from the State government, our Department needs to continue to be creative in order to sustain and improve our research and overall national standing. Our undergraduate programs in Chemistry & Biochemistry are nationally recognized, with a strong track record of job placement and the pursuit of professional degrees. Our graduate program is likewise thriving with our graduates going onto a wide range of industrial and academic positions.

Our Department must present a compelling case to the UD Administration to support our teaching and research mission. Additionally, support from our alumni has the great potential to propel us as we climb up the national rankings.

Just as the Department was a community for you as a student, your contributions will ensure others will have the same opportunities you had. Keep on the lookout for an enhanced social media presence of the Department in the coming year. And if you're tech savvy, please take an active role in sharing in our social media outreach. For those of you that don't tweet yet, I will admit I don't either, but am going to learn.

Also, keep on the lookout for invitations to upcoming events in the Department. We are in the early stages of planning some new opportunities for alumni to stay connected, such as a special symposium to honor **Burnaby Munson** and a Departmental reception tied to UD's alumni weekend (June 1-3, 2018).

I cannot stress enough how important our alumni and friends are in supporting our teaching and research mission, as well as ambassadors of our Department. Do not forget that we are your academic home and you are always welcome here, whether it be in person, virtually, or in spirit.

– Brian Bahnsen

Adieu, Adieu: Mark Baillie and Kimberly Graves

The Department of Chemistry & Biochemistry bids adieu to two instructional faculty, Professors Kimberly Graves and Mark T. Baillie.

Kimberly Graves joined the faculty in August of 2014 after earning her Ph.D. in Chemistry from Princeton University. Since then, she taught hundreds of Blue Hens foundational topics in general chemistry, actively engaging her students during lecture, workshop, and laboratory periods using innovative instructional practices.

Her teaching assignments primarily centered on sections within the general chemistry CHEM103/104 offerings, courses in which most STEM-related disciplines on campus require. As such, she fastidiously fine-tuned her lessons and laboratory experiences to be pertinent for diverse cohorts of majors, including engineering and the sub-disciplines therein, as well as those in the agricultural, health, and life sciences. Kimberly's teaching repertoire also included honors sections in which her students received thoughtful instruction on the nature of science and participated in innovative chemical experimentation. Kimberly was highly regarded by her students, quickly earning their respect and consistently on the receiving end of outstanding course evaluations.

In addition to her undergraduate teaching responsibilities, Kimberly was dedicated to training the Department's first-year graduate students on the theoretical and practical aspects of teaching and pedagogy as they embarked on what was often their first teaching assistant position. Again, reviews for this course experience were positive and the course deemed valuable and rewarding by those graduate students who were enrolled in it. Her service



Kimberly Graves

to the Department did not go unnoticed, with memberships on the Undergraduate Curriculum and Assessment Committees, as well as at the University-level. Kimberly proudly represented our Department as a member on the Board of Senior Thesis Readers and additionally through her selection to the College's Foundational Undergraduate Science Education Working Group.

Moreover, Kimberly was active in the scholarship of teaching and learning. During 2015, Kimberly Graves was selected to participate in the prestigious Project Kaleidoscope (PKAL) Summer Leadership Institute sponsored by the Association of American Colleges and Universities. The goal of this institute was to facilitate the transformation of instruction in science, technology, engineering and mathematics (STEM). She found this experience to be transformative, providing her with a unique opportunity to interact with colleagues from a number of renowned institutions to discuss and strategize enhanced, meaningful education for STEM students of the 21st Century.

Kimberly, together with Mark Baillie, was instrumental in designing and implementing the inaugural "Chemistry Jumpstart" program, whereby incoming Freshmen participated in a mandatory remediation of fundamental math skills crucial for success in general chemistry prior to the start of the semester. Kimberly and Mark successfully solicited financial assistance for this effort from the College of Arts & Sciences and saw the fruits of their labor enacted during the Summer of 2016.

Kimberly Graves has moved on to Sapling Learning, a subsidiary of Macmillan Learning, to author rigorous, electronically-formatted online homework problems for an increasingly technologically-dependent market. She will be missed.

Mark T. Baillie earned his Ph.D. in Chemistry from Emory University in the areas of organic and medicinal chemistry. He joined the University of Delaware and the faculty of the Department of Chemistry & Biochemistry after completing a postdoctoral fellowship in chemical biology at Ecole Polytechnique Fédérale de Lausanne during the Summer of 2013. He was promptly charged with a sizable task of launching the inaugural Integrated Biological Sciences and Chemistry (iBC) Program as part of the recently constructed Interdisciplinary Sciences and Engineering Laboratory (ISEL). No small task indeed, Mark was instrumental in organizing an integrated curriculum that was to be shared among faculty teaching introductory biological sciences courses and general chemistry (originally CHEM103/CHEM104). Ultimately, under Mark's leadership, the integrated general chemistry would earn its own unique spot among the other general chemistry courses offerings. This course sequence is now formally recognized by the University as General Chemistry for the Life Sciences (CHEM107/CHEM108).

Mark had a profound influence on the structure and design of iBC curricula. Among Mark's notable accomplishments in the classroom, technological innovation was at the forefront of his instruction. Using technology to untether himself from the lectern, Mark transformed his lecture hall into a learning environment in which students were invited to become active participants in the lecture experience. His zeal for student achievement did not go unnoticed by his colleagues. A close collaborator, Professor Alenka Hlousek-Radojic, Department of Biological Sciences, noted that Mark exhibited an, "...endless energy that would result in making any project he would consider worthwhile become a reality."

Indeed, Mark strove to deliver instructional materials to his primarily Freshmen cohort in a manner aligned with modern, evidenced-based practices. During his time with UD, he earned a respectable reputation among colleagues both nationally and abroad, securing prestigious facilitation roles at numerous HHMI-sponsored Summer Institutes including

Princeton University (2016), University of Chicago (2017), and University College of London (2017). He was also invited to serve a newly implemented Mobile Summer Institute as a Leader Trainer at University of California, Riverside (2017).

Furthermore, Mark contributed to the ongoing professional development of members of the teaching team within ISEL. Under Mark's guidance, a Journal Club was established in which facets of evidenced-based teaching strategies, including challenges of sustainable implementation and assessment practices were addressed. Similarly, Mark successfully pursued an iBC retreat, held during June 2017 at the UD Virden Conference Center. Here, iBC faculty, staff, and upper administrative personnel contributed to development of programmatic goals, common student learning outcomes, and pathways for sustainable growth. The integrated teaching team is thankful for Mark's contributions to the program.



Mark Baillie

Mark Baillie has transitioned to a highly regarded preparatory high school in Little Rock, Arkansas, Episcopal Collegiate School. He envisions his new role will afford him an opportunity to build a national high school teacher training network. We wish Mark all the best.

We extend our gratitude to Drs. Graves and Baillie for their contributions and service to the Department and broader University community. Both have left an indelible footprint on undergraduate and graduate education at UD for which we celebrate. We wish both continued success as they pursue the next stage of their careers.

— Jacqueline H. Fajardo

Continuing Legacies

While every penny given to us by our alumni and friends is deeply appreciated—and I do mean that **sincerely**—I have deemed it appropriate to highlight the major continuing contributions of two of our alumni and a friend of the Department.



Pictured left to right: Earl Bampo, Stephen Fendt, Daniel Scanlon, Rebecca DiBonna, David Plastino, Ruth Mandel, Duncan Bower and Joseph Quinlan.

Since **Dave Plastino** (BS78) first walked into my office in 2007 to present his proposal, **seventy** Plastino Alumni Undergraduate Research Fellows have been supported with \$3500 stipends (+\$500 for S&E) to carry out full-time research during the summer months in our Faculty laboratories. Although his professional background was in investments (MBA from Michigan, followed by high-level positions with Goldman-Sachs and UBS), Dave still points to his undergraduate research in **Prof. John Bulkowski's** (FAC 75-08) lab as his seminal educational experience.

The first check from (the late) **David W. Lipp**, Ph.D. (MS 72) Family Foundation arrived, with little or no fanfare, in 2009. I will let Mr. William Barkhurst, President of the Foundation, fill in the blanks:

“Dr. Lipp completed his Masters studies at the University of Delaware while serving in the Army and the University's Chemistry faculty enthusiastically encouraged him to pursue a doctorate. They got him into a polymer chemistry

doctorate program at UMASS at Amherst with hardly any effort on his part. He was terribly shy and quiet but he had a brilliant intellect. He would have been a disaster if he had to interview for enrollment in the doctorate program but the Delaware faculty smoothed things out for him and he was admitted via their UMASS faculty contacts and strong recommendations. It was a giant kick start for Dr. Lipp's career and a step that he couldn't have taken without such support.”

Since then, the >\$335,000 donated to us by the Foundation has contributed to the annual stipends of **ninety-seven** graduate students.

Although still in its relative infancy, **Dave Heitzer** (BS [CHEG] 77) has made a commitment to underwrite an undergraduate CHEM/ BIOC summer research fellowship program comparable to the



Dave Heitzer

Plastino Fellows Program. Thus far, three Heitzer Fellowships have been awarded, with more to come. Like Dave Plastino, Dave Heitzer topped off his UD degree with an MBA from the University of Texas-Austin. He currently leads EDF Trading North America, in Houston, TX. EDF Trading provides comprehensive power, natural gas, and renewable contract origination service to large industrial clients in North America, in an exclusive long-term arrangement.

Like pebbles thrown into a pond, programs like the foregoing have a ripple effect on the recipients that potentially will extend throughout their careers. Their and our gratitude is boundless!

DuPont™ Kevlar®: An Innovative Aramid from the labs of Stephanie Kwolek



Stephanie was born and raised in New Kensington, Pennsylvania, a suburb of Pittsburgh. Her father died in 1933 during the Great Depression, when she was only ten. Her mother worked hard to support Stephanie and her brother with the hope that they could obtain a college education, which she and her husband had not been able to achieve.

Stephanie was a diligent student with an interest in chemistry. She attended Margaret Morrison Carnegie College (now Carnegie-Mellon University) in Pittsburgh, graduating with a B.S. degree in chemistry in 1946. She wanted to attend medical school but did not have funding. She decided to work as a chemist for a couple of years and save for medical school.

She accepted a job at DuPont's Rayon Department Lab in Buffalo. Three years later, Stephanie moved to DuPont's Pioneering Research Lab of the Textile Fibers Department at the famous Experimental

Station in Wilmington. She was a talented chemist and gave up on the med school idea.

Much of her organic synthesis work involved polymer chemistry. One of her classic publications with colleague Paul Morgan appeared in the Journal of Chemical Education in 1959 - “The nylon rope trick: Demonstration of condensation polymerization.” This is the basis for countless lecture demonstrations around the world.

I first met Stephanie in 1962, when I joined DuPont's Pioneering Research Lab in Wilmington. I was impressed that this woman with a B.S. degree was competing with a group of male chemists with Ph.D.'s. As a Physical Chemist, I was working on polymeric foam materials, so we were not lab mates.

After I left for academia in 1964, Stephanie invented Kevlar the following year. Her U.S. Patent “Wholly Aromatic Carbocyclic Polycarbonamide Fiber Having Orientation Angle of Less Than About

45 degrees,” (#3,819,587) proved to be a major breakthrough in polymer science.

Stephanie is named in 15 U.S. patents, impressive for a woman with a B.S. degree. She retired in 1986 after forty years at DuPont. In 1995 she received the DuPont Lavoisier Medal for Technical Achievement. She received the Perkin Award in 1997. The University of Delaware awarded her an Honorary Doctorate in May, 2008.

She was only the fourth woman named to the National Inventors Hall of Fame in 1995. Stephanie has won many other awards and honorary degrees in recognition of her truly remarkable scientific work.

In last year's **Blue Hen Chemist**, I wrote about “Nylon: The Delaware Connection” exhibit in the three display cases in the Lammot DuPont Laboratory. That exhibit has since been replaced by the Delaware Academy of Chemical Sciences with permission from Department Chair Murray Johnston.

The new exhibit is: “DuPont Kevlar – An Innovative Aramid from the Labs of Stephanie Kwolek.” The DACS appreciates the support of the Department of Chemistry and Biochemistry, DuPont and the Hagley Museum and Library (Stephanie left them many of her awards, plus a variety of Kevlar items).

Our DACS President Ed Adams is a DuPont Lifer now employed at the Chestnut Run location. He earned an M.A. degree at U.D. in 1985 before heading to Wisconsin for his Ph.D. Ed was able to get many Kevlar items on loan from DuPont.

Rita Vasta was Stephanie's close friend, who looked after her in her final years. Rita worked for DuPont as an analytical chemist for 20 years. She is now Assistant Principal at Delcastle Technical High School. She contributed many items to the exhibit.

Mike Stemniski provided the molecular models for the monomers paraphenylene diamine and terephthaloyl (PPD-T) chloride.

Marianne Cinaglia provided the information on the Bulletproof Vest Partnership created by the B.P.V. Partnership Grant Act of 1998. This was an effort by the Department of Justice to provide vests for

state and local police. These Kevlar vests have saved thousands of lives.

The exhibit displays are on three floors of the Lammot DuPont Laboratory. On the second floor, the focus is on Stephanie. One great photo was taken in 2007 by Norm Henry, Vice President of DACS and a DuPont retiree. It shows her at the DACS table at the National Chemistry Week event at the Independence School. She talked about Kevlar and gave out swatches of Kevlar fabric with her autograph. At age 83, she was still promoting chemistry to young people.

The exhibit on the first floor includes the molecular models and diagrams of the process used to align the polymer chains. A fabric sample is provided. Kevlar and steel cables are on display. Kevlar has five times the strength of steel.

The ground floor showcases actual Kevlar products such as body armor, and Advanced Combat Helmet, firefighter gear combining Kevlar and Nomex, industrial safety gloves, athletic shoes and gear.

The exhibit opened on the afternoon of Friday, May 5. One of those attending was Dr. Thomas Connelly, Jr., C.E.O. and Executive Director of ACS. He made a suicidal drive up I-95 on a Friday afternoon! I call that dedication to chemistry!

– Allen A. Denio

Additional Faculty/Staff Activities



Undergraduate students from various universities on UD's campus for a summer Science, Technology, Education and Math research experience run by professor Karl Booksh for students with disabilities. - (Evan Krape / University of Delaware)

I begin this section on a somber note, reflecting on the deaths of three wives of former CHEM/BIOC faculty members during the past year:

We have received word that **Carol Noggle**, widow of the late **Prof. Joe Noggle** (FAC 71-98) died in 2016 (no details are available).

Ginny D. Ahrens, wife of **Prof. Conrad N. Trumbore** (FAC 60-97), died on 11/9/16, at age 84. She and Conrad had been married for 24 years.

Nancy Spicer McCurdy died on 1/18/17, at age 91. She and Wally [the late **Prof. Wallace McCurdy** (FAC 59-92) had been married for 59 years, prior to Wally's death in 2014.

Prof. Karl Booksh was pictured with other members of the Committee on Chemists with Disabilities at the Committee on Minority Affairs luncheon, held at the 2017 San Francisco National ACS Meeting [**C&E News**, 4/24/17, p. 43]. He and **Prof. Sharon Rozovsky** supervised another NSF-funded REU Program for STEM students with learning and physical disabilities during this past summer—a reprise of their very successful 2015 program.

Education Specialist **Dana Chatellier** has notched a pedagogical milestone in record time: 300 chemistry classes (actually, 304) taught during his first 30 years (1986-2016).

Dr. Al (chemist) Denio (FAC 78-79,

98-99) is a member of the National ACS Senior Chemists Committee.

Prof. Doug Doren, Deputy Dean for the Sciences in the College of Arts and Sciences, organized the 10th annual Nobel Prize Symposium, held in the Harker ISE Laboratory on 10/28/16. **Prof. Joel Rosenthal** discussed the work of the 2016 Nobel Laureates in Chemistry.

Prof. Cecil Dybowski and his students have uncovered the cause of an art conservation nightmare. Water and humidity are major contributing factors in the formation of tiny formations of lead-based soaps—each white spot about a tenth of a mm in diameter—that mar paintings by artists ranging from Rembrandt van Rijn to Georgia O'Keefe: <https://news.artnet.net>.

com/art-world/scientists-lead-soaps-oil-paintings-936128 (Artnet.cm is the website of the magazine, **Art News**).

(the late **Prof. Betty Dyer** (FAC 33-71) is the then “Ms. March” in the U of D’s “Then and Now” calendar for 2017. Betty is pictured in a chemistry teaching laboratory with two lab-coat clad students. Since both students are female, and Betty looks relatively young, I’m guessing that the picture was taken during the Women’s College era, which ended when the Men’s and Women’s Colleges were yoked in 1944. A similar picture of Betty hangs in the Starbucks Café adjacent to Barnes & Noble on Main Street.

Prof. P. Andrew Evans (FAC 86-04) has been recognized as one of the 2017 Arthur C. Cope Scholars by the ACS “for his development of innovative rhodium-catalyzed reactions and their applications to the synthesis of biologically relevant complex molecules.” Andy is currently located at his third stop since leaving the U of D. He is the Professor and Alfred R. Bader Chair of Organic and Organometallic Chemistry at Queen’s University, Kingston, Ontario (**C&E News**, 2/9/17, p. 36).

Prof. Jackie Fajardo has been appointed to the ACS Examinations Committee charged with the development of the 2019 full-year General Chemistry Examination. She has also been named the Co-Director for the UD Chapter of the Center for the Integration of Research, Teaching, and Learning (CIRTL).

Prof. Joe Fox was the recipient of the Delaware BioScience Association’s 2017 Academic Researcher Award for his “research excellence” in molecular discovery.”

Profs. Jean Futrell (FAC 86-99) and **Garry Rechnitz** (FAC 78-89) achieved octogenarian status during the past year—HEARTIEST CONGRATULATIONS to both!

The Science X Network has highlighted a major discovery by **Prof. Catherine Grimes** and her research team: the invention of a scientific method to track cells implicated in immune diseases—labeling a bacterial cell “jacket.” (<https://phys.org/news/2017-05-bacterial-cell-jacket-team-scientific.html>)

After providing yeoman (yoeperson?) service in formatting and composing the past two editions of the **Blue Hen Chemist**, the College of Arts and Sciences Art Director, **Heather Harwood**, has moved on to greener pastures at Xavier University.



Harold Kwart

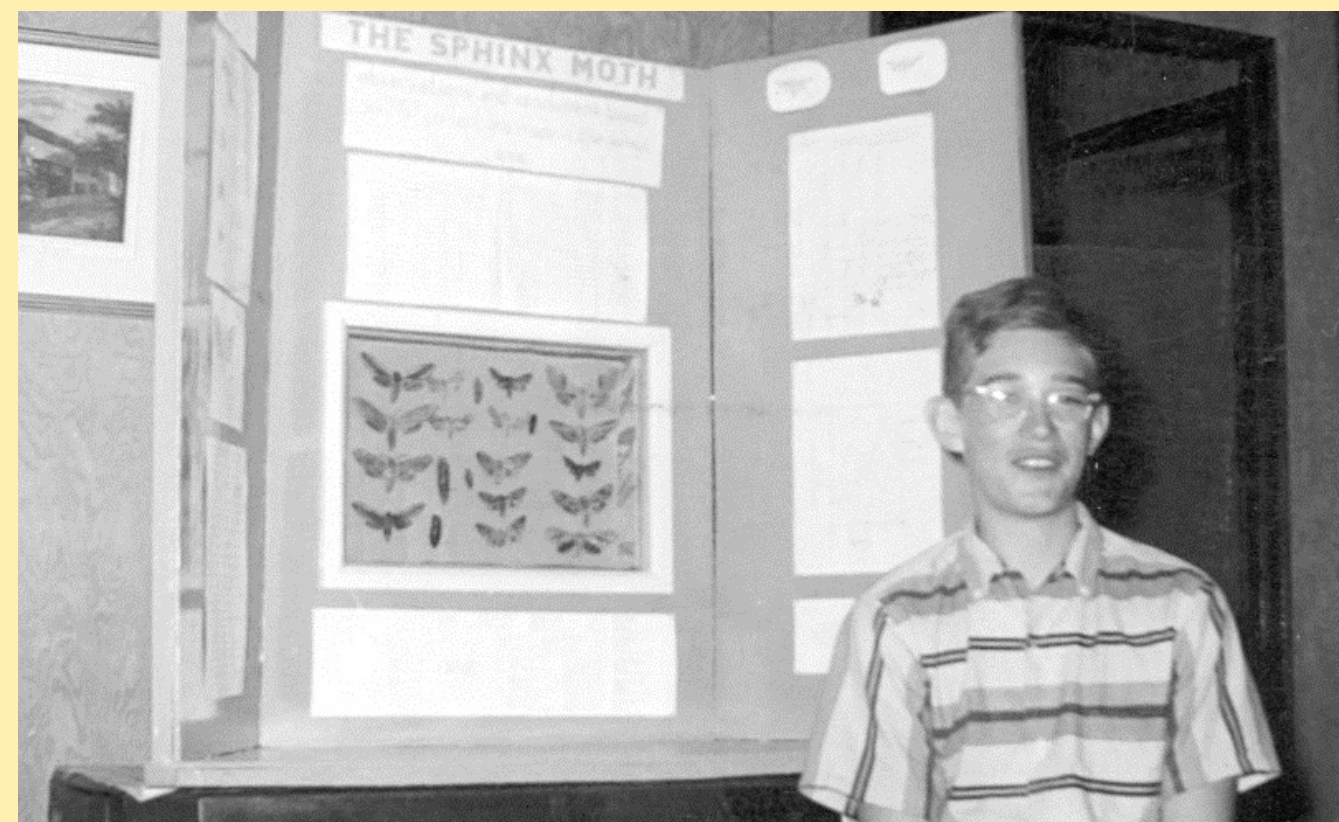
Gone, but not forgotten! Dr. Clemens Lamberth, Senior Team Leader for Syngenta Crop Protection, in Stein, Switzerland, will present a featured lecture on the Newman-**Kwart** Rearrangement at the 2017 Washington National ACS Meeting. **Harold Kwart** professed at the U of D from 1951-1983.

Dr. Julien Makongo, a former post-doc in **Prof. Svilen Bobev’s** group, is now a Principal Scientist with Lumenari, Inc. in Lexington, KY.

Some of the older residents of Brown Lab may have noticed a strong family resemblance between the author of this article (**C&E News**, 11/28/16, p. 35) and our long-time CHEM Department Chair, the late **Prof. William A. Mosher** (FAC 45-72, CHAIR 45-69). ‘Tis not accidental! The author, Prof. Michael D. Mosher, Chair of the ACS Committee on Nomenclature, Terminology, and Symbols, is the Wammer’s grand-nephew. He also happens to have been **Prof. Jackie Fajardo’s** Department Chair at the University of Northern Colorado.

Dr. Arnold Rheingold (FAC 84-03), Professor of Chemistry at the University of California, San Diego, is finally biting the retirement bullet, as far as teaching is concerned. He will, of course, continue to be significantly involved in X-ray structural determinations, as well as the life of a gentleman avocado farmer.

Prof. Kate Scantlebury has received two AERA Awards during the past year: The AERA Research Award for Distinguished Contributions to Gender Equity Education, and the Research on Women and Education’s SIG Willystine Goodsell Award, which recognizes an educator who has served AERA on behalf of women, girls and education through scholarship, activism, ad community building. The American Education Research Association is the largest international research association devoted to the scientific study of education and learning, with over 25,000 members from 85 countries. Founded in 1916, the association advances knowledge about



Hal White and his 8th grade science project

education, encourages scholarly inquiry related to education and promotes the use of research to improve education and serve the public good.

Dr. Michael A. Stemmiski has been included in the 2016 class of ACS Fellows—57 strong. If ever there was a chemist who is synonymous with teacher, it has to be “Doc.” In support thereof, I would cite his 44 years (and counting) part-time teaching at the U of D, 35 years (until his retirement in 2006) at Thomas McKean High School, and 25 years (1981-2006) at Del Tech. In the process, his many chemical demonstration shows (over 400, and

counting) have become the stuff of legend.

Dr. Douglass Taber (FAC 82-13) was an invited speaker at the 23rd Conference on Isoprenoids, Minsk, Belarus, 9/4-7/16.

Dr. J. Herbert Waite (former JOINT FAC) and his University of California-Santa Barbara colleagues’ work on how mussel glues rely on cation-aromatic attraction was highlighted in **C&E News** (2/20/17, p. 7).

Prof. Don Watson wrote the lead editorial for the **Organometallics’**

contribution to the ACS Select virtual issue on the Legacy of **Richard Heck** (FAC71-89), Nobel Prize in Chemistry, 2010) (**Organometallics**, **35**, 1177-1178 (2016).

Dr. Hal White (FAC 71-15) developed his now-professional interest in entymology at an early stage. Check out the photo of Hal with his 8th grade science project on Sphinx moths.

Postdoctoral Researchers and Fellows, 2016-17

Mohammad Al-Amin (Institute for Medicinal Resources at the University of Tokushima, Japan) [Chain]

Devendar Anumandla (University of Nevada) [M. Watson]

Abderrahman Atifi (Marquette University) [Rosenthal]

Himal Ganguly (Bose Institute with University of Calcutta, India) [Zondlo]

Run-Duo Gao (Shanghai Institute of Organic Chemistry, China) [D. Watson]

Rupal Gupta (Carnegie Mellon University) [Polenova]

Surya Kotha (Indian Institute of Technology, Madras, India) [Zondlo]

Allison Latshaw (University of South Carolina) [Bobev]

Xingyu Lu (University of Lille, France) [Polenova]

Mohit Mehta (Florida State University) [Patel]

Raghupathi Neelarapu (Osmania University, India) [Koh]

Alexander Ovchinnikov (Max Planck Institute for Chemical Physics of Solids & Technical University of Dresden, Germany) [Bobev]

Shane Plunkett (University of Dublin, Trinity College, Ireland) [M. Watson]

Sarah Pound (University of Minnesota, Twin Cities) [M. Watson]

Caitlin Quinn (Columbia University) [Polenova]

Rajgopal Sharma (Wayne State University) [D. Watson]

Raghu Vannam (University of Connecticut) [Fox]

Bojan Vulovic (University of Belgrade, Serbia) [D. Watson]

Zhenhua Wu (Oregon State University) [Chain]

Visiting Scholars, 2016-17

Yan Chen (Fujian Normal University, China) [Scantlebury]

Martin Forstner (Syracuse University) [Rozovsky]

Shanhu Lee (University of Alabama, Huntsville) [Johnston]

Jennifer Mass [Beebe]

Visiting Faculty

Mr. Huy (Mike) Dao (MS11):
CHEM - 103/104 General Chemistry
(Dover Associate –in-Arts Program)

Dr. Karen L. Hooper (PhD99)
CHEM - 106 Elementary Bioorganic Chemistry
CHEM - 214/216 Elementary Biochemistry

Dr. Meghan Klems (PhD16)
CHEM – 101/102 General Chemistry

Dr. Michael Stemniski
CHEM - 103/104 (Wilmington Associate-in-Arts Program)
CHEM - 213/215 Elementary Organic Chemistry

Chapter Officers 2017-2018

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Co-president:
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Christina Charles (BS/CHEM/18)

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Co-Adviser:
Prof. Sharon Rozovsky

Colloquia & Symposia 2016-17

The 37th East Coast Ion Chemistry Conference was held on Saturday, 10/1/16. Talks were given by speakers from the University of Delaware, Drexel University, Rutgers University, US FDA, and ERP International. Topics included aerosol analysis, gas phase ionic organic mechanisms, MALDI, LC-MS, CIMS, and gas phase thermochemistry. The 38th ECICC will be held on Saturday, October 7, 2017.

About 30 UDEL mass spec alumni and friends attended the annual (for several years, anyway) UD Alumni Lunch at the meeting of the American Society for Mass Spectrometry in Indianapolis in June. Mass spec alumni/ae who didn't receive an E-mail invitation are not on our current mailing list: please send an E-mail address to: bmunson@udel.edu.

The 10th Annual Frontiers in Chemistry and Biology Interface Symposium, organized by **Profs. Catherine Leimkuhler Grimes** and **Brian Bahnsen**, was held in the Wolf Hall Auditorium

on 5/6/17. Keynote speakers were **Carmen Drahl (C&E News)** and **Joel Schneider** (National Cancer Institute, UD FAC 99-09). Other speakers came from Johns Hopkins, Georgetown, Maryland-College Park, Maryland-Baltimore County, and the National Cancer Institute. Companion poster sessions were held in the McKinly Atrium.

The Delaware Membrane Protein Symposium, organized by **Profs. Sharon Rozovsky, Edward Lyman**, and **Karen Fleming** (CHEG) was held in Clayton Hall on 5/22/17. The keynote speaker was Prof. Christian Eggeling, Oxford University. Other speakers came from Michigan, Colorado-Boulder, California-Berkeley, Lehigh, Columbia, Baylor, and Illinois-Urbana/Champaign.

DATE	SPEAKER/AFFILIATION	TOPIC
9/2/16	Prof. Lars Gundlach University of Delaware	Ultrafast Dynamics in Solar Energy Relevant Materials
9/7/16	Prof. Edward Lyman University of Delaware	You Are What You Eat (and there are Biophysical Consequences)
10/10/16	Prof. Leslie Poole Wake Forest School of Medicine	Catalysis by Peroxiredoxins at High and Temporal and Structural Resolution [10th John C. Wriston, Jr. Lecture]
3/3/17	Prof. Murray Johnston University of Delaware	Adventures with Airborne Nanoparticles
4/12/17	Prof. Michael Krische University of Texas – Austin	Hydrogen-Mediated C-C Bond Formation [14th Richard F. Heck Lecture]
5/1/17	Prof. Brian Bahnsen University of Delaware	Conformational Flexibility in Enzyme Catalysis
5/5/17	Prof. Cynthia Jameson University of Illinois – Chicago	The Inside Scoop on the Nature (Symmetry, Size, Shape, Dynamic Distortion; Presence of Paramagnetic Entities, Chirality) of Nanocavities and Channels in Porous Materials via Xe Atom NMR

Undergraduate Awards 2016-17

NATIONAL AWARDS	RECIPIENTS
American Chemical Society/Hach Scientific Foundation Scholars	Alexandra Chiodi (BA/XCE/17) Kimberly LaRosa (BA/XCE/19)
American Society for Biochemistry & Molecular Biology 20th Undergraduate Poster Competition, Chicago, IL, April 21-25, 2017	Shelby Roseman (BS/CHEM/17) (ASBMB Travel Award)
National Science Foundation Graduate Research Fellowships	Andrew Kuznicki (BS/CHEM/17) Hannah Wastyk (BS/BIOC/17)

REGIONAL AWARDS	RECIPIENTS
81st Intercollegiate Student Chemists Convention, Penn State – Berks, Reading, PA April 29 2017	Griffen Desroches (BS/CHEM/18), 1st Place, Inorganic/Physical Division
19th Undergraduate Research Symposium, University of Maryland – Baltimore County, October 22, 2016	1st Place in their respective Divisions: Matthew Hurlock (BS/BIOC/17) Shelby Roseman (BS/CHEM/17) Hannah Wastyk (BS/BIOC/17) Nicole Wenzell (BS/BIOC/17)
	2nd Place in his Divisions: Zachary Jones (BS/CHEM/18)

UNIVERSITY AWARDS	RECIPIENTS
American Association of University Professors Student Award	Matthew Hurlock (BS/BIOC/17)
University of Delaware Water Resources Center Research Award	Ilana Schnauffer (BS/CHEM/17)

DEPARTMENT AWARDS	RECIPIENTS
American Chemical Society Award in Chemistry	Zachary Jones (BS/CHEM/18)
American Chemical Society Division of Analytical Chemistry Undergraduate Award	Jill Harland (BS/CHEM/17)
American Chemical Society Division of Inorganic Chemistry Undergraduate Award	Griffen Desroches (BS/CHEM/18)
American Chemical Society Division of Organic Chemistry Undergraduate Award	Nicole Wenzell (BS/BIOC/17)
American Chemical Society Division of Physical Chemistry Undergraduate Award	Griffen Desroches (BS/CHEM/18)
American Institute of Chemists Award in Chemistry	Matthew Hurlock (BS/BIOC/17)

C. Frank Shaw III Undergraduate Award in Inorganic Chemistry	Nicholas Pompetti (BS/CHEM/17)
C. Frank Shaw III Undergraduate Inorganic Research Fellowship	Griffen Desroches (BS/CHEM/18)
Elizabeth Dyer Awards for Excellence in Biochemistry and Chemistry	Hannah Wastyk (BS/BIOC/17) Shelby Roseman (BS/CHEM/17)
Carl A. Frankenberg Undergraduate Award In Chemistry Education	Gabriel Gregorzak (BS/BIOC/17)
Frank W. Collins Undergraduate Awards in Biochemistry	Dominic Santoleri (BS/BIOC/17) Hannah Wastyk (BS/BIOC/17)
Gene J. and Frances E. Schiavelli Undergraduate Research Fellowship	Alex Manders (BS/CHEM/17)
Hypercube Scholar Award	Cannon Giglio (BS/CHEM/17)
James A. Moore Undergraduate Award in Organic Chemistry	Jacob Piane (BS/CHEM/17)
Kevin Scott Beall Memorial Awards	Brittany Georges (BS/CHEM/20) Daniel Scanlon (BS/BIOC/20)
Merck Index Awards	Lauren Matlack (BS/BIOC/17) Dominic Santoleri (BS/BIOC/17)
Quaesita Drake Scholarships	Nicole Coffey (BS/CHEM/18) Jill Harland (BS/CHEM/17) Taylor Paskey (BS/CHEM/17) Nicole Wenzell (BS/BIOC/17)
Royal Society of Chemistry Certificate of Excellence	Jay Subramoney (BS/BIOC/17)
Wallace H. Carothers Scholarships	Earl Bampo (BS/BIOC/19) Duncan Bower (BS/CHEM/19)
Wallace H. McCurdy, Jr. Undergraduate Award in Analytical Chemistry	Jill Harland (BS/CHEM/17)

2017 Summer Science Research Scholars

RECIPIENTS	SOURCE OF SUPPORT	MENTOR
Earl Bampo (BS/BIOC/19)	Plastino Fellowship	Prof. Mary Watson
Daniel Bodine (BS/CHEM/19)	University Undergraduate Research Program	Prof. Lars Gundlach
Duncan Bower (BS/CHEM/19)	Plastino Fellowship	Prof. Neal Zondlo
Anthony Campanella (BS/CHEM/18)	University Undergraduate Research Program	Prof. Erich Bloch
Wing Cheung (BS/CHEM/18)	INBRE	Prof. Mary Watson
Andrew Currie (BS/BIOC/18)	University Undergraduate Research Program	Prof. Clara Chang (GEOL)
Rebecca DiBona (BS/BIOC/19)	Plastino Fellowship	Prof. Zhihao Zhuang
Stephen Fendt (BS/BIOC/18)	Plastino Fellowship	Prof. John Koh
Harrison Greenberg (BS/BIOC/18)	University Undergraduate Research Program	Prof. Zhihao Zhuang
Ruth Mandel (BS/CHEM/19)	Plastino Fellowship	Prof. Andrew Teplykov
Joseph Quinlan (BS/BIOC/18)	Plastino Fellowship	Prof. Don Watson
Tyler Reagle (BS/BIOC/19)	INBRE	Prof. Joe Fox
Nicole Raniszewski (BS/BIOC/19)	Heitzer Fellowship	Prof. Neal Zondlo
Daniel Scanlon (BS/BIOC/20)	Plastino Fellowship	Prof. Catherine Grimes
Elizabeth van Winkle (BA/CHEM/18)	Hofmann Fellowship	Prof. Karl Booksh
Joshan Wang (BS/BIOC/19)	University Undergraduate Research Program	Prof. Neal Zondlo
Jingchen Yang	University Undergraduate Research Program	Prof. Mary Watson

MAY 27, 2017

22nd CHEM/ BIOC Graduation Convocation

New **Associate Chair for Undergraduate Studies Sandeep Patel's** maiden voyage as organizer/MC proved to be a record-setter, with a total attendance of just under 650. That included all-time attendance highs on the part of both UG seniors (65) and advanced degree recipients (17). **Associate Chair for Graduate Studies Don Watson** presented the latter group.

The featured speaker for this joyous occasion was **Dr. Jennifer Jewson**, who received her doctorate in chemistry from the University of Delaware in 1996, working in the laboratory of **Prof. Klaus Theopold**. Jennifer is now the Associate Director of Global Business Processes & System Support for LyondellBassell, based in Houston, TX (although she is currently working out of Rotterdam, The Netherlands). Her lecture proved to be a



John Burmeister (center)

remarkably incisive and well-received portrayal of her metamorphosis from research chemist to business leader in the chemical industry. This was a particularly appropriate change-of-pace message for those of our graduates who will not follow the paths labeled "academia" or "Industrial research."



Murray Johnston, Sandeep Patel, Jennifer Jewson

The lengthy ceremony ended with emotional tributes and standing ovations led by outgoing **Chair Murray Johnston** for Your Editor (In recognition of his just completed 42 years as Associate Chair for Undergraduate Studies) and **Prof. Burnaby Munson** (on the occasion of his retirement; after 50 years of service).

The group then adjourned to the lobby of Brown Laboratory for the traditional post-Graduation reception. Recognizing that he is now "beyond the law," Prof. Munson borrowed **Pat McMahon's** Segway (which used to be Burnaby's) and stealthily provided rides to the adventurous.

Although 2017 marked a resurgence in interest, on the part of our baccalaureate graduates, in advanced study in graduate and professional schools; uncertainty still dominated:



Jennifer Jewson

	2017	2016	2015	2014	2013	2012	2011	2010	2009
Graduate School	18	12	11	12	18	10	12	7	20
Medical School	3	3	1	1	4	1	7	3	4
Dental School	1	1	-	-	1	-	2	2	2
Pharmacy School	1	-	2	2	-	-	1	1	4
Law School	1	-	-	1	-	1	1	2	2
Nursing School	-	-	-	-	2	1	-	-	2
Industry	12	8	5	8	6	7	3	8	2
Government	-	1	2	-	-	1	1	1	2
Teaching	-	-	1	2	-	1	1	1	4
Other	1	-	1	1	2	2	1	3	3
Undetermined	37	33	34	34	18	29	26	22	9
=TOTAL	74	58	57	61	51	53	55	50	54

In like manner, the mix of baccalaureate degrees keeps changing:

	2017	2016	2015	2014	2013	2012	2011	2010	2009
BA/CHEM	15	11	14	7	5	12	18	11	11
BA/XCE	2	-	2	1	2	1	1	-	-
BS/CHEM	29	33	25	30	21	17	21	18	13
BS/BIOC	28	14	16	23	23	23	15	21	30

2017 Graduates

2017 B.A. Chemistry Graduates

David H. Brickhouse^d

Annette J. Brocks^{a, c}

Alexandra M. Chiodi (XCE)

Margaret M. Dolan (XCE)

Cannon J. Giglio^f

Victoria L. Kager

Pierce E. Knox

Omar A. Montero

Thomas J. O'Donnell

Michelle M. Page

Doojoon Park

Nichole L. R. Pennisi

Shannon Rodriguez

Brian J. Rosario

Drew J. Schimpf

2017 B.S. Biochemistry Graduates

Saba Ali

Celine N. Choo Woon Chee

Dejuanah S. Collymore

Juliana F. Debnam

Merna N. Eleias

Mohammed O. Gbadamosi

Gabriel E. Gregorzak^c

Garrett A. Himler^{c, f}

Mathew E. Hurlock^a

Simranjeet Kaur

Sean J. Lein

Lauren E. Matlack

Ashley M. McLenithan

Pernilla L. T. Mpasi

Omar A. Montero

Andrew C. Nichols

Thomas J. O'Donnell

Adriana Paldino

Doojoon Park

Dominic A. Santoleri^{c, e}

Michael D. Scanlon

Naomi C. Serillo

Markia A. Smith

Jay S. Subramoney^f

Bryan M. Taylor

Junius E. Thomas

Hannah C. Wastyk^{a, c}

Nicole A. Wenzell^c

2017 B.S. Chemistry Graduates

Benjamin Beane

Samuel A. Capolongo

Brandon K. Cordova

James G. Farrell

Jill B. Harland

Alexander J. Hart

Evan J. Horowitz^g

Chelsea Y. Keefe

Andrew Kuznicki

Ashley N. Koppersmith

Alex Manders^a

Alec G. Manougian

Andrew J. Maynes

Diamere D.-L. Nabinett

Marissa J. Nash

Rachel J. Owrutsky

Taylor L. Paskey^b

Yen N. Pham

Jacob J. Piane

Nicholas F. Pompetti

Francis K. Rop

Shelby A. Roseman^{a, c}

Ilana N. Schnauffer^g

Erica Shymon

Brian H. Tran^g

Caroline M. Vesper

Silu Wang

Allen Yang

Chiyu Zhang

Jiaqi Zhang

^aSumma cum laude

^bMagna cum laude

^cCum Laude

^dDegree-with-Distinction

^eHonors Degree-with-Distinction

^fHonors Degree

^gEnvironmental Chemistry Concentration

Graduate or Professional School Bound

- **Annette Brocks**, Massachusetts Institute of Technology (M.S. in Technology and Policy)
- **Mohammed Gbadamosi**, University of Florida, College of Pharmacy (Ph.D. in Pharmaceutical Sciences)
- **Jill Harland**, University of Michigan (Ph.D. in Bioinorganic Chemistry)
- **Evan Horowitz**, SUNY-Stony Brook (M.S. in Marine Science)
- **Matthew Hurlock**, Johns Hopkins University (Ph.D. in Cell, Molecular, and Developmental Biology/Biophysics)
- **Simranjeet Kaur**, University of Delaware (Ph.D. in Physical Therapy)
- **Andrew Kuznicki**, University of Delaware (Ph.D. in Inorganic Chemistry)
- **Sean Lein**, Ohio State University (Ph.D. in Molecular, Cellular, and Developmental Biology)
- **Andrew Maynes**, Virginia Polytechnic Institute and State University (Ph.D. in Analytical Chemistry)
- **Thomas O'Donnell**, St. Georges Medical School (Doctor of Medicine)
- **Michelle Page**, Hofstra University Law School (J.D.)
- **Taylor Paskey**, Thomas Jefferson University, Sidney Kimmel Medical College (Doctor of Medicine)

- **Jacob Piane**, Penn State University (Ph.D. in Chemistry)
- **Nicholas Pompetti**, University of Colorado, Boulder (Ph.D. in Materials Chemistry/Nanoscience)
- **Shelby Roseman**, Harvard University (Ph.D. in Chemical Biology)
- **Dominic Santoleri**, University of Pennsylvania (Ph.D. in Biophysics and Molecular Biology)
- **Drew Schimpf**, New York University, College of Dentistry (D.D.S.)
- **Markia Smith**, PREP Program, Baylor University College of Medicine (Ph.D. in Biomedical Science)
- **Jay Subramoney**, Thomas Jefferson University, Sidney Kimmel Medical College (Doctor of Medicine)
- **Junius Thomas**, University of Michigan (M.S. in Chemical Biology)
- **Bnan Tran**, University of North Carolina, Chapel Hill (Ph.D. in Analytical Chemistry)
- **Hannah Wastyk**, Stanford University (Ph.D. [NSF Fellowship] in Bioengineering)
- **Nicole Wenzell**, University of California, San Francisco (Ph.D. in Chemistry and Chemical Biology)
- **Natasha Wolfhope**, Rutgers University (M.B.A. in Management)
- **Jiaqi Zhang**, University of Pennsylvania Ph.D. in Materials Science and Engineering)

Headed for Industry, Etc.

- **Brandon Cordova**, Research Chemist, Eurofin Laboratories, Lancaster, PA
- **James Farrell**, Research Chemist, Roche Molecular Diagnostics
- **Gabriel Gregorzak**, U.S. Peace Corps
- **Alexander Hart**, Customer Care Specialist, Suvoda; Conshohocken, PA
- **Chelsea Keefe**, Production Engineer, Momentive
- **Pierce Knox**, Research Assistant, A. I. DuPont Hospital
- **Lauren Matlack**, Research Technician, Children's Hospital of Philadelphia
- **Omar Montero**, Research Chemist, Bristol-Myers Squibb
- **Diamere Nabinett**, Research Chemist, Sepax Technologies
- **Shannon Rodriguez**, Formulation Chemist, Sandream-Impact
- **Michael Scanlan**, Research Chemist, DuPont Stine Haskell Laboratories
- **Naomi Serillo**, Instrument Sales Inside Account Manager, Agilent Technologies
- **Bryan Taylor**, Customer Service Engineer, Agilent Technologies

Graduate School Placements, 1994-2017

Adelphi	1	Harvard	7	Purdue	3
Alaska-Fairbanks	1	Hawaii	2	Rhode Island.....	1
Arcadia	1	Illinois-Chicago	2	Rochester	4
Baylor.....	1	Illinois-Urbana.....	7	Rutgers.....	8
Boston College.....	3	Imperial College, London	1	St. John's	1
Boston University	3	Indiana	4	Scripps	2
Brigham Young.....	1	Iowa	1	Selznick School for Film	1
Brandeis	1	Johns Hopkins	6	Preservation	
Cabrini	1	Kansas	1	Shenandoah	1
California-Berkeley	2	KAUST.....	1	South	1
California-Irvine	7	Lehigh	2	Southern Mississippi	1
California-Los Angeles.....	1	Maryland-Baltimore	1	Stanford	1
California-San Diego.....	3	Maryland-Baltimore Co.....	4	Stevenson	2
California-San Francisco.....	4	Maryland-College Park.....	6	SUNY-Buffalo	2
California-Santa Barbara	1	Massachusetts	3	SUNY-Stony Brook.....	2
Cal Tech	5	Max Planck.....	1	Syracuse	1
Carnegie Mellon	1	Michigan	7	Temple.....	4
Case Western	4	Michigan State.....	1	Tennessee.....	1
Chicago	1	Minnesota-Twin Cities	2	Texas.....	4
Clemson.....	1	MIT.....	9	Texas A&M	4
Colorado.....	2	Montana State.....	1	Thomas Jefferson	5
Colorado State	1	Montclair State	1	Toledo.....	1
Columbia.....	5	New Castle (England).....	1	Toronto.....	1
Connecticut.....	3	New Hampshire.....	2	Towson	1
Cornell.....	10	NYU.....	1	Tufts	2
CUNY.....	2	North Carolina-Chapel Hill ..	13	Vanderbilt	1
Delaware.....	25	North Carolina-Greensboro.....	1	Villanova.....	1
Drexel	1	North Carolina State	1	Virginia.....	4
Duke.....	4	Northeastern.....	1	VPI & SU	4
Emory.....	1	Northwestern.....	2	Wake Forest	2
Florida International	1	Notre Dame.....	1	Washington	1
Florida State.....	2	Ohio State.....	5	Washington (St Louis)	1
George Mason.....	1	Oregon.....	1	West Chester.....	1
Georgetown	2	Pace.....	4	Wisconsin	1
George Washington	3	Penn.....	15	Wyoming.....	1
Georgia	1	Penn State.....	11	Yale	4
Georgia Tech	2	Pittsburgh	4	Yeshiva	1
Gordon Conwell	1	Princeton	8		

2017 M.A./M.S. Graduates

NAME	DEGREE	THESIS ADVISOR	THESIS TITLE	PLACEMENT
Matthew Fitzsimons	M.S.	Prof. Joel Rosenthal	Synthesis and Development of Novel Tetra-AZA Catalyst Platforms	Preparing to apply to medical schools
Rosemary Flores	M.S.	Prof. Zhihao Zhuang	Cloning, Expression, Purification and Enzyme Kinetics Characterization of Deubiquitinase USP30	Fraunhofer
Ge Guo	M.S.	Prof. John Koh	Catalytic Acyl Transfer Modification of Nuclear Receptors and Detection by In-Gel Labeling	Fraunhofer
Daniel Moon	M.S.	Prof. William Chain	Preparation of Icetexane Diterpenoids Synthesis of Breast Cancer Cell Growth Inhibitors	Chemical Hygiene Officer for the US Antarctica Research Station
Prajwal Paudel	M.A.			Continuing in Ph.D. program with Prof. Zhihao Zhuang
Katarina Rohlfing	M.S.	Prof. Joseph Fox	The Synthesis and Development of F-18 Labeling Substrates for In Vivo Pet Imaging Studies	Associate Scientist, Adesis Inc.
Tianyu Tan	M.S.	Prof. Mary Watson	Nickel-Catalyzed Suzuki-Miyaura Cross-Couplings to Set Benzylic, Diaryl and Triaryl All-Carbon Quaternary Stereocenters in High Enantiopurity	Graduate Program, Applied Statistics UD
Wenfei Tian	M.A.			Returned to China to begin a Ph.D. program in agriculture
Minxin Wang	M.A.			
Songnan Zhang	M.S.	Prof. Mary Watson	Transition Metal Catalyzed C-O bond Functionalization: Enantioselective Arylation of Oxocarbenium Ion Intermediates and Enantiospecific Borylation of Allylic Carboxylates	Graduate program in Computer Science at NYU
Zhengqi Zhang	M.A.			

2017 Ph.D. Graduates

NAME	DISSERTATION CHAIR	DISSERTATION TITLE	PLACEMENT
Fahri Alkan	Prof. Cecil Dybowski	Relativistic DFT Calculations of Magnetic Shielding Tensors for Spin 1/2 Heavy Nuclei	Postdoctoral Fellow at Kansas State University
Kelsey Cobb	Prof. Mary Watson	Stereospecific, Nickel-catalyzed Cross-Couplings of Amine and Alcohol Derived Substrates	Senior Staff Scientist at Solenis
Federico Cruz	Prof. John Koh	Light-Activated Gene Expression	Labratory Manager, UD, Chemistry & Biochemistry
Christina Forbes	Prof. Neal Zondlo	Aromatic Amino Acids in Peptides and Proteins: Novel Syntheses, Influences on Structure, and the Nature of C-H/ π S-H/ π Interactions	Postdoctoral Fellow at Arizona State University
Jennifer Gnanamgari	Prof. Joel Rosenthal	Transition Metal Catalysts for Fuel Cell Applications	Adjunct Faculty, UD, Chemistry and Biochemistry
Sean Holmes	Prof. Cecil Dybowski	DFT Calculations of Magnetic Shielding and Quadrupolar Coupling in Ordered Systems: Methods and Applications to NMR Crystallography	Postdoctoral Fellow, University of Windsor
Andrew Horan	Prof. Murray Johnston	Analytical Methodology for Characterization of Atmospheric Nanoparticle	Staff Scientist, Signature Science, LLC
Meghan Klems	Prof. Brian Bahnson	Functional and Structural Characterization of Neutral Cholesterol Ester Hydrolase 1	Faculty position, Widener University
Mingyue Li	Prof. Tatyana Polenova	Structural and Dynamics Studies of Microtubule-associated Tau and Kif5b Assembled with Microtubules; NMR Crystallography of Oxovanadium(V) Bioinorganics: Insights from Magic Angle Spinning NMR Spectroscopy	Postdoctoral Fellow, University of Pittsburgh
Yi Li	Prof. Joseph Fox	Stereoselective Synthesis of Butenolides and its Applications in Total Synthesis of Sessilifoliamides and Development of New Chemical Tools for Hydrogel Based Biomaterials	Research Investigator, API Process Chemistry, Incyte

Jun Liu	Prof. Sharon Rozovsky	Enzymatic Characterization of Selenoprotein K and S and Harnessing Selenocysteine for Protein Engineering	Postdoctoral Fellow, University of California, SF with Dr. Lei Wang
Jixin Liu	Prof. Mary Watson	Stereoselective Addition of Terminal Alkynes to Oxocarbenium and Iminium Ions	Chemist, Adesis, Inc.
James Melnyk	Prof. Catherine Grimes	Synthesis and Application of Peptidoglycan Derivatives to Study the Recognition and Activation of the Innate Immune Receptor NOD2	Postdoctoral Fellow, University of California, SF with Prof. Kevan Shokat
Joshua Ottaway	Prof. Karl Booksh	Adaptive Regression via Subspace Elimination (ARSE): A Novel Algorithm for Eliminating the Contribution of Uncalibrated Interferents	Postdoctoral Fellow, Lawrence Livermore National Laboratory
Tian Qiu	Prof. Joel Rosenthal	Electrochemical CO ₂ and O ₂ Reduction Using Nickel and Cobalt Macrocyclic Complexes	Graduate Program in Applied Statistics, UD
Kirk Shimkin	Prof. Donald Watson	Transition Metal Catalyzed Methods for the Synthesis and Functionalization of Primary Amides and Nitroalkanes	Postdoctoral Fellow, University of Michigan with Prof. John Montgomery
Joseph Smith	Prof. Karl Booksh	Raman Microspectroscopic Imaging and Multivariate Analysis to Investigate the Chemical Properties of Novel Geological and Planetary Materials	Senior Scientist, Merck, Inc.
Caitlin Tressler	Prof. Neal Zondlo	Synthesis and Application of Perfluoro-tert-butyl Containing Amino Acids	Postdoctoral Fellow, Johns Hopkins University
Jenna Yehl	Prof. Tatyana Polenova	Atomic-Resolution Characterization of Actin-Binding Protein, Cofilin-2, in Complex with Two Nucleotide-States of F-Actin, by Magic Angle Spinning NMR Spectroscopy	Staff Scientist, company associated with MIT-Harvard Broad Institute
Yuchen Zhang	Prof. John Koh	Antagonizing the Androgen Receptor with a Biomimetic Acyltransferase	
Han Zhang	Prof. Joseph Fox	Interfacial Bioorthogonal Chemistry for Biomaterials Synthesis and Patterning and Development of Catalytic Method for "Turning-On" the Tetrazine Ligation	Scientist, TP Therapeutics Inc., San Diego

Alumni News

Fifty-Year ACS Members

The annual roster of our 50-year ACS members (*C&E News*, 2/27/17, pp. 37-45) listed a whopping 987 names. Seven UD alumni and former faculty contributed to the total:

- **Rita B. Blumstein** (Ph.D65)
- **William W. Maslanka** (MS65)
- **Bernard G. Giessner, Ph.D.** (MS67)
- **Ronald W. Kreis** (PhD69)
- **John A. Michnowicz** (PhD72)
- **Jay G. Lehman** (PhD73)
- **Chad A. Tolman, Ph.D.** (PT FAC)

Heartiest congratulations and best wishes to all!

50's

Paul R. Wunz, Jr. (PhD50) died on 5/8/16, in Tucson, AZ; at age 92. Paul was a long-time faculty member at Indiana University of Pennsylvania, where he served as Chair of the Chemistry Department. (*C&E News* 11/21/16, p. 42).

60's

The generous support of **Ned D. Heindel** (MS61, PhD63) was highlighted in vol. 20 of the ACS publication, *Building Chemistry's Future*. Ned, Professor of Chemistry at Lehigh University, is a past President and former member of the ACS Board of Directors.

Another entry in the Small World Department: **Arthur J. Coury, Ph.D.** (BS62) is a member of Worcester

Polytechnic Institute's Biomedical Engineering External Advisory Board, as well as its College of Engineering Advisory Board. Your Editor's youngest granddaughter, Amanda Boehm, just completed her freshman year in BME at WPI. He recently lectured at UMass-Lowell's Department of Chemistry. My middle granddaughter, Emily Boehm, was a 2017 graduate (CHEG) of UMass-Lowell.

Peter J. Georges, Esq. (BA62) died in 2016. During the year of his 50th Reunion, he donated \$1 million to the University of Delaware. He, **Art Coury**, and **Alexander Liacouras, Ph.D.** (BS62) were classmates who became life-long friends.

Donald P. Hoster (MS65, PhD68) has retired as Professor of Chemistry at Baltimore County Community College.

John R. Hale, husband of **Carolyn C. Kent** (MS66) passed away on 11/26/16 at age 80. John and Carolyn (one of my first three UD M.S. students) have been long-time major supporters and benefactors of our Department.

C. Frank Shaw III, Ph.D. (BS66) died on 11/3/16, at age 72. Frank (or Skip, as I knew him) had a long, distinguished academic career at the University of Wisconsin, Milwaukee, Eastern Kentucky University and; most recently, Illinois State University. He served as Chair of the Chemistry Departments at the last two schools. He developed an enviable research record in the area of bioinorganic chemistry, where he was a world-class expert on the bioinorganic chemistry of gold, and had a passionate interest

in global warming. He will always occupy a special place in my heart as my very first undergraduate research student. His legacy in our Department will live on in the two Awards that he endowed—the Shaw Undergraduate Award in Inorganic Chemistry and the Shaw Undergraduate Inorganic Research Fellowship.

Carl E. Minnier (PhD68) passed away in 3/16, having retired as a Professor of Chemistry at the Essex Campus of the Community College of Baltimore County. Carl precipitated an incident I will never forget, when he frantically came into my office to announce that a valve on a chlorine tank in the laboratory that was shared by **Prof. Betty Dyer's** (FAC 33-71) and my research groups was stuck in the open position. I (foolheartedly) decided to play hero, took a deep breath, and ventured into the lab. DON'T DO THAT! Failing to close the valve, I took some chlorine gas into my lungs, before running out to phone for help. The entirety of Brown Lab was eventually evacuated.

Bruce Neyers (BS68), owner of Neyers Vineyards in St. Helena, CA, has shared an absolutely delightful story of his lunch with Lady Bird Johnson scheduled by the American Wildflower Foundation via the Wine Institute in Napa Valley, some 30 years ago. During the course of their extended personal encounter, he learned of her preference for Zinfandel, heard a lecture by Prof. Walter Alvarez on the extinction of the dinosaurs, and came away with an unopened bottle of wine; autographed by the former First Lady, which he treasures to this day (info@neyersvineyards.com).

Shirish K. Shah (PhD68) died on 3/26/17, at his retirement home in Winter Springs, FL, at the age of 75. Shirish devoted his professional life to teaching at the college level in the Baltimore/Washington area, beginning at Chesapeake College, in Wye Mills, and ending at Morgan State University. He was very active in the Maryland Chapter of the ACS.

Ronald W. Kreis (PhD69) has forged a professional path that could serve as a prototype for today's entrepreneurially-oriented chemists. Trained as a theoretical thermodynamist by **Prof. Bob Wood** (FAC57-02), Ron is now the President of Bimax, Inc., in Glen Rock, PA—a \$20 million/year specialty chemicals company. If you use J & J's Accuvue contact lenses, you are using a polymer that originated as a monomer made by Bimax. Incredibly, Ron and a friend started Bimax as a 2-person operation in the basement of his friend's home! The story of Bimax can be found in the fall, 2015 issue of SOCMA's Member Spotlight (www.Bimax.com)

70's

R. Bruce Frye (BS71) was misidentified as R. Bruce Fry (FRIEND) in the Honor Roll of Gifts to the Department in the 2016 *Blue Hen Chemist*—our sincere apologies!

Frank Goetz (PhD78) died in 2016. Before his retirement, Frank was a Principal Scientist at Aerojet.

Silvia S. Jurisson, Ph.D. (BS78), Professor of Chemistry and Radiology at the University of Missouri, Columbia, has been named a 2016 ACS Fellow "for developing highly innovative approaches for obtaining theranostic radiopharmaceuticals used in cancer imaging and therapy." Silvia was the featured speaker at our 2016 CHEM/BIOC Graduation Convocation.

Robert J. Mudrock (BS72) passed away at his home in Columbus, OH, on 8/18/16, at age 66. He had just retired after a long and successful career as a computer programmer with the Ohio Department of Administrative Services, Office of Information and Technology.

Leo F. Conway, D.D.S. (MED74) is still practicing dentistry in Lansdowne, PA.

William A. Welsh (PhD74) may be retired, but his work at W. R. Grace & Co., where he was a vice-president, continues to produce benefits for the company. Grace and Bunge Limited have recently signed a global license agreement related to new, trans fat-free technology for processing edible oils. (<http://investor.grace.com/phoenix.zhtml?c=112313&p=irol-newsArticle&ID=2216733>)

James M. Thompson (PhD75), **Prof. Richard F. Heck's** first doctoral student, is now a Professor of Chemistry Emeritus at Alabama A&M University, Normal, AL.

My attendance at the Mid-Atlantic Chapter of the Society of Cosmetic Chemists Meeting at UD's Star Campus on 3/16/17 (re)connected me with a bevy of old and new Alumni who are engaged in the cosmetic chemistry industry: **R. Douglas Thornley, Jr.** (BA75) [recently retired], **Stephen J. Hurff** (BS82) [Vice-President for Marketing and Sales for the DuPont Company], **Adriana Paldino** (BS17), **Shannon Rodriguez** (BA17), **Drew Schimpf** (BA17), **Caroline Vesper** (BS17), and **Elizabeth Dieteman** (BS18). Adriana, Shannon, Drew, Caroline, and Liz are all-employed by Mark Chandler's ACT Solutions Corp. (www.ACTSolutionsCorp.com)

Gary H. Weddle (PhD76) is now the

Chair of Fairfield (CT) University's Chemistry Department.

Margaret A. Conte, M.D. (BS77) has closed her private practice, and is now the Director of Women's Health at the Wilmington Veteran Administration Hospital.

Debra Hess Norris (BA77), Unidel Henry Francis du Pont Chair in Fine Arts, and Chair of the Department of Art Conservation, has been appointed to a 6-year term on UD's Board of Trustees.

80's

Mark Patrick, Ph.D. (BS81) has transitioned into the consulting phase of his career, still in the NC Research Triangle (Pharma Developability Solutions Consulting, LLC).

Kenneth J. James (BS84, PhD98) who founded Suoercritical Fluid Technologies in Newark in 1994, has been named DE Small Business Exporter of the Year. In 2016, 74% of the multi-million dollar, privately-held firm's sales were exports, predominantly to customers in China, Southeast Asia, Europe, and Latin America. (www.supercriticalfluids.com).

Barbara Larsen (PhD84), Research Scientist with DuPont, returned to campus on 5/12/17 to present a Student-invited Analytical Chemistry Seminar on "Mass Spectrometry Tools for Metabolomic and Proteomic Investigations." Barbara is the only UD-connected ACS Fellow in the Class of 2017 (*C&E News*, 6/19/17, p. 35).

Lizanne (Magarity) Pando (BA85) is the President of St. Hubert Catholic High School for Girls, in northeast Philadelphia. She manages the development, enrollment, and marketing for the school of 600 girls.

Stephen J. Rapposelli, M. Div. (BS86) is a Roman Catholic Priest in the Diocese of Camden, Margate, NJ.

Lawrence A. Goff (BA87) is AstraZeneca Pharmaceutical's Director of Quality Assurance in Newark.

Richard O. Crossland (BA88) is the author of "The A Player," a book about how to be a high performer in order to improve cultures at organizations.

Mark C. Roman, Ph.D. (BS89), the founder of Tampa Bay Analytical Research in 2006, died on 5/8/14. At the time of his death, he was a member of the United States Pharmacopeia's General Chapters—Chemical Analysis Experts Committee. He served as Chair of the Association of Official Analytical Chemists' International Methods Committee on Dietary Supplements. He was named a Fellow of AOAC in 2009.

90's

Like father, like son—a generational first! **Michael J. Bower, Ph.D.** (BS92) received the 1990 Carothers Award, emblematic of his being the top CHEM major in the sophomore class. His son, Duncan, received the 2017 Carothers Award. Mike is a research scientist with Vertex Pharmaceuticals.

Tracy C. Williamson (PhD92) is the third member of our extended UD family to be named a 2016 ACS Fellow. She is a Manager at the Environmental Protection Agency, supporting Toxic Substances Control Act programs and implementing green chemistry programs. She is a co-author of the book, "Green Chemistry: Designing Chemistry for the Environment."

James S. Schiller's (BA93) unusual career ladder was highlighted in **C&E News** (2/6/17, p.23). He is now Director of the Regulated Bioanalytical Preclinical Group at Merck. He is also

a member of the ACS Chemists with Disabilities Committee.

Tara M. Lydick (BS95) is now employed at Bolling AFB, in Washington, DC.

Brian T. Holmes, Ph.D. (BS97) is now the Associate Dean of the Anthony G. Oettinger School of Science and Technology Intelligence at the National Intelligence University in Washington, DC. He is a regular contributor to War on the Rocks. (<http://warontherocks.com/author/brian-holmes/>)

Kathryn H. Roache-Johnson (BS97) is engaged in Technical Customer Support for Fluid Imaging Technologies, in Scarborough, Maine.

Sujata Bhatia, Ph.D. (BS99), Professor of CHEG and BMEG at the U of D, and her husband, Dan, were blessed with the birth of their second daughter, Herta Lakshmi Ashline, on 3/30/17.

Karen L. Hooper (PhD99) is now the Assistant Director for Graduate Education and Outreach in UD's Center for Bioinformatics and Computational Biology.

John C. Scali, Ed.D. (BA99) has been presented the President's Award for Excellence in Mathematics and Science Teaching, recognizing him as one of Delaware's outstanding high school teachers. John has taught integrated science at the MOT Charter High School, Middletown, for the past two years. He spent the previous 15 years teaching chemistry and physical science at Concord High School, in Wilmington.

00's

Paul Altiero (BS00) is a Field Service Engineer with Agilent Technologies.

Joshua S. Figueroa (BS00), Professor of Chemistry at the University of California, San Diego, is in the last year of a 3-year term as Member-at-Large of the ACS Division of Inorganic Chemistry's governing body.

Nicole C. Goodwin, Ph.D. (BS01), Director of Medicinal Chemistry for GlaxoSmithKline, returned to campus on 10/26/16 to present a seminar on "Developing Small Molecule Drugs Using What I Learned in CHEM-331/332 and CHEM-633/634." Nikki also engaged interested UG and GR students in a session on "Industrial Careers in Drug Discovery: GlaxoSmithKline Chemistry."

Heather (Bunting) Moore (BS01) is now an International Baccalaureate Chemistry Teacher at Sussex Academy, a charter school in Georgetown, DE.

In what, hopefully, will become a yearly tradition, the CHEM/BIOC Graduate Student Council organized a Career Panel on 6/23/17. Included on the panel were three former UD doctoral students: **Jennifer (Brosius) Palenchar** (PhD03), Associate Professor of Chemistry at Villanova University; **Peter G. Gildner** (PhD14), Research Scientist with Johnson Matthey; and **Devon A. Boyne** (PhD15), Research Scientist with Leidos.

After earning his Ph.D. in Chemistry from the University of Illinois, Urbana-Champaign in 2010, **Tyler A. Zimmerman, Ph.D.** (BS05) embarked on a post-doctoral odyssey that took him to NIST (twice), Northwestern, and a university in Belgium. He has now put down roots as a Systems Engineer with UTC Aerospace Systems, in Pomona, CA, working on the design of an air monitor for the International Space Station. The UTC site evolved

from the original Consolidated Engineering Corporation founded in 1937 by Herbert Hoover, Jr. Tyler's skill as an organist has also been put to good use 17 times (and counting) in a variety of religious services.

Kirsten H. Butterfoss, D.Pharm (BS06) is a Clinical Assistant Professor at D'Youville College, in Buffalo, NY. She has precepted pharmacy students on six medical brigades in Ecuador with Timmy Global Health.

Jenna (Currier) Guynn, Ph.D. (BS07), having completed a postdoctoral fellowship with the Oak Ridge Institute of Science and Education at the U.S. Environmental Protection Agency, is now a Senior Scientist for Product Stewardship at Reynolds American Inc. Services Company, in Winston-Salem, NC.

Daniel L. Silverio, Ph.D. (BS07), having completed a postdoctoral appointment in the laboratory of Prof. Christopher Copéret at the ETH, Zurich, Switzerland, is now an Assistant Professor of Chemistry at Adelphi University, Long Island, NY.

Patrick J. Knerr, Ph.D. (BS08) is now engaged in peptide drug discovery at a new Novo Nordisk research site in Indianapolis, IN.

David F. Grieco's (BA09) perseverance is paying off! He was selected for a one-year developmental assignment at Headquarters, U.S. Army Research, Development and Engineering Command (RDECOM). This enabled him to serve as Executive Officer to the Executive Deputy to the Commanding General for 6 months. This was followed by a 6-month stint as Assistant Operations Officer. This past March, he was offered an appointment to attend the

U.S. Coast Guard Officer Candidate School. This is the pathway to commissioned officer service (Ensign) for those who do not attend the U.S. Coast Guard Academy, since the Coast Guard does not offer ROTC programs. In the meantime, Dave completed 2 years as his U.S. Coast Guard Auxiliary Flotilla's Vice-Commander. He has been elected to serve as its Commander for 2017.

Yoo Mee Kye (BS09), having completed her M.S. degree in nanotechnology at Seoul National University, is now a member of Danuon's Management Planning Team in Gyeonggi-do, South Korea.

John F. Young (PhD09) is an R&D Manager in Innovation Silicones with the Wacker Chemical Corporation in Adrian, MI.

10's

Piyal Ariyananda (PhD10) is now the General Manager for Product Innovation for Bodyline, Ltd.—the largest apparel manufacturer in Sri Lanka.

David Meninger (BS10), Area Director of Tri-County Young Life, in Southbury, CT, and his wife Katie, are the proud parents of Jane Elizabeth, born on 10/25/16.

Gregory T. Winter, Ph.D. (BS10) has completed his doctoral studies in analytical chemistry (mass spectrometry) at the University of Maryland, Baltimore County. He is now a Research Scientist with the U.S. Pharmacopeia, in Rockville, MD, in their Compendial Development Laboratory.

Xiachun (Helen) Zhang (PhD10), Global Product Manager at Siemens, presented a seminar at the U of D on 10/28/16 on "An Inside Look at

Industrial Jobs and Careers—How to Build a Good Foundation for Professional Growth."

Sean T. Hunt, Ph.D. (BS11) was one of three UD alumni who have been recognized by Forbes in its newest "30 Under30" list of what the magazine calls "The most definitive gathering of today's leading young change-makers and innovators in the U.S." Sean is a co-founder of Solugen, Inc., which has developed a scaled, sustainable process to create hydrogen peroxide from plants.

Kana H. Panchmatia (BS11) has completed her M.S. Studies at Carnegie-Mellon University.

Timothy E. Gilpatrick (BS12) has moved into the research phase of his M.D./Ph.D. studies at Johns Hopkins University, having completed the two-year med board exams. Last fall, he worked in the biology laboratory of Prof. Xin Chen; last spring, he shifted gears to work in the biomedical engineering laboratory of Prof. Winston Timp.

Stephen F. Gonski (BS12), having completed his M.S. in Marine Studies (Oceanography Concentration) at the U of D, has moved to the University of Calgary, Canada to pursue a Ph.D. in Physical Geography.

Jeffrey E. Lopez Ph.D. (BS12), having completed his doctoral studies at the University of Michigan, is now a post-doc at NIH's National Cancer Institute, in Frederick, MD.

Shannon M. Owings (BS13), a doctoral candidate at Georgia Institute of Technology, received an Honorable Mention Award for the Metrohm USA 2016 Young Chemist Competition.

Jennifer M. Kurek (MS14) is now a faculty member at Harford (MD) Community College.

Tara (Drake) Gonzalez (PhD15) is a Technology Manager (Presidential Management Fellow) in the U.S. Department of Energy's Advanced Manufacturing Office (Energy Efficiency & Removable Energy) in Washington, DC.

Peng Wang (PhD15) is a Manufacturing and QC Chemist with SPEX CertiPrep.

A significant number of our 2016 baccalaureate graduates have been added to the employment rolls since the publication of BHC # 43. In the BA16 category:

- **Ritika Chhibba:** Molecular Technologist, Accugenix, Charles River Laboratories
- **Sviatoslav Cuadros-Gourentchik:** Inorganic Chemist, Colonial Metals
- **Ava Hess:** Ink Formulation Laboratory Technician, FUJIFILM Imaging Colorants
- **Evelyn R. Niedenzu:** Remote Engineer, Agilent Technologies

BS/16 Graduates

- **Gabriela (Droz) Albright:** Formulation Developer, NIH/VRC
- **Colin S. Davis:** Laboratory Technician, Heraeus
- **Shrhonda E. Ellis:** Laboratory Technician, DE Dept. of Safety and Homeland Security
- **Lars A. Jensen:** Science Teacher, Colonial (DE) School District
- **Jessica N. Mann:** Food Technician, Lassonde, Pappas & Co.
- **Yanda Mao:** R&D Engineer, Heraeus

- **Tyler A. Mislick:** Operator, Heraeus
- **Christopher B. Monaghan:** Perfumer's Assistant, Firmenich
- **Jonathan Owens:** Core Analyst I, Core Laboratories
- **Erika S. Ritchie:** Associate Chemist, L'Oreal
- **Ha Vu:** Associate Chemist, Terumo Medical Corporation
- **Jessica A. Webb:** Process Development Associate, Charles River Laboratories

William A. Green (PhD16) is now a Manufacturing Team Leader/Inorganic Production Chemist with PEX CertiPrep.

Nikifar Lazouski (BS16) is a doctoral candidate in chemical engineering at MIT. Nik is working in the laboratory of Prof. Karthish Manthiram on a research project directed at reducing dinitrogen to ammonia electrochemically.

Michael R. Cleary (BS19), is the co-developer, with Tower Hill senior Tej Vaddi, of a simple, inexpensive blood tester for sickle cell anemia. Its development was carried out with the cooperation of the Nemours Center for Cancer and Blood Disorders.

HONOR ROLL

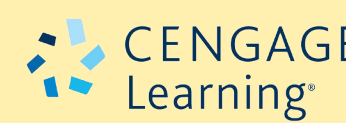
of Gifts to the Department

The Blue Hen Chemist is an annual magazine distributed by the Department of Chemistry and Biochemistry at the University of Delaware. Its purpose is to reach out to our extended CHEM/BIOC family members: current residents, alumni, friends, retirees and benefactors, both individual and corporate; to keep them abreast of the goings on in the Department, to put old family members and new ones in touch with one another, and to give credit and thanks to the contributions of all.

The individual contributions of all, past and present, is the foundation that has built and continues to grow the Department and advance the mission that maintains our tradition of excellence in teaching and research. The financial support of

the benefactors of the Department, whose generous contributions make it possible to recognize excellence among our students and faculty, gives the Department the opportunity to bring in world renowned speakers who further advance the knowledge base and skills of our faculty and students, and allow us to continue the mission of recruiting the best and brightest students and faculty to join our ever growing family.

Please, on behalf of the Department, accept these sincere thanks for the generosity of all. So, without further ado, we would like to express our sincere appreciation to the following companies and foundations for their unrestricted financial support of the Department during 2016-2017.



The Department would like to acknowledge, with extreme gratitude, financial support from the following alumni, parents, faculty members, staff members and friends during 2016-2017. Your support has always been important to us; however, in these stressed financial times it is like manna from heaven!

Barbara M. Albanese (MS90)	Walter G. Blenderman, Ph.D. (BS71)	William C. Coppola, Esq. (BS87)	Joanne Gehas (PhD90)	Cdr. Thomas M. Hickey (PhD72)	Geoffrey Kramer (FRIEND)
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Giving to the Department

To our alumni and friends:

Each year, we receive a substantial amount of unrestricted funds through annual giving. These funds allow us to do many things that otherwise would be difficult to achieve. Here are several activities and funding levels that these donations facilitate. If you feel inspired, please consider making a donation. You could fund one of these activities on your own, or the Department can pull together many contributions to effectively group-fund one or more of these endeavors. Either way, your donation has a huge impact!

To those of you who have made contributions over the past year, thank you so very much. To make a gift this coming year, please visit www.udel.edu/giving/ where you will find more information. Be sure to specify the Department of Chemistry and Biochemistry in the "Other" tab of the online form or in the memo line of a mailed check.

\$300-1000

Supports scientific travel of one individual. Examples include supporting the travel of a student to a scientific conference to present research results, or bringing an eminent scholar to campus where they meet with students and faculty and discuss their latest scientific research.

\$4000-7000

Provides full support for summer research of one undergraduate student or one graduate student. Financial pressures associated with the cost of education require most of our undergraduate students to secure paid employment during the summer. These stipends provide financial support needed for our undergraduates to become involved in research. At the graduate level, these stipends support students

who have been teaching assistants during the academic year, allowing them to move forward in research at a faster pace during the summer. The alternative is support as a teaching assistant for the summer, which slows down the progress of these students toward their degree.

\$10,000-30,000

Supports special projects awaiting the opening of budget space, for example incorporating new forms of technology into teaching and research or performing minor renovation of space for a new or unusual purpose. For example, donations over the last few years have allowed us to complete the transformation of sophomore organic teaching labs to micro-scale experiments. By doing so, they have provided a safer environment for laboratory instruction and allowed us to more efficiently use teaching laboratory space to meet the acute rise in enrollment.

\$50,000 and up

Provides the opportunity to endow any of the above activities. The Heck Lectureship, discussed elsewhere in this issue, is an excellent example. In addition, funds at this level help us to secure sophisticated instrumentation, perform major renovations, and establish named chair positions to attract and retain top faculty.

—Murray Johnston

From the Editor

While I have edited the past 22 editions of the *Blue Hen Chemist*, the composition of the production team has changed frequently in recent years. This year was no exception.

Susan Cheadle again served as the repository of the pictures reproduced in the BHC #44. The flying fingers that produced the typescript changed, this year belonging to **Donna Alexander** and **Gail Brittingham**. Art direction and design shifted to a new College of Arts and Science Communications Team, headed by **Lukas Emory**. **University Printing** again produced the final product.

To all, go my sincere thanks for a task well executed!

—John L. Burmeister

BLUE HEN
Chemist

DEPARTMENT OF
CHEMISTRY & BIOCHEMISTRY
ALUMNI NEWSLETTER

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Lukas Emory

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