

# BLUE HEN Chemist

DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY ALUMNI NEWSLETTER

#43, FALL 2016

Editor: John Burmeister



Legacy: Richard F. Heck



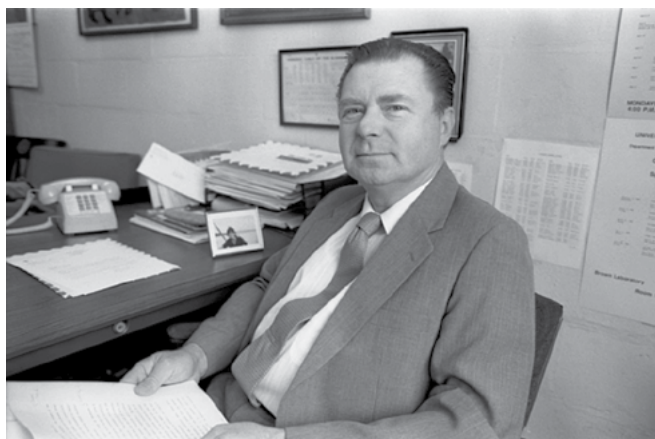
# Remembering a Legend: UD Professor Emeritus Richard F. Heck

(1931-2015)

The past year marks the passing of Professor Richard Heck, perhaps our most celebrated Blue Hen Chemist, who passed away on October 10, 2015 at the age of 84.

Guided by a sense of humility and a desire to simply “make life easier,” Heck left an incredible scientific legacy that revolutionized how we use catalysts to transform simple starting materials into valuable, life-changing molecules. Although not a native Delawarean, Heck spent almost all his independent career in Delaware and performed his most important experiments here. Born in Springfield,

MA, in 1931, Heck’s interest in chemistry began after his family moved to Los Angeles, CA, and he began planting a garden with his father. He became curious about what chemicals were present in the fertilizers he was using and what chemicals were responsible for the smell of certain flowers. His interest continued throughout his undergraduate and Ph.D. work at UCLA with Prof. Saul Winstein, who always had an answer for every question, according to Heck. After a postdoc at the ETH in Zurich, Switzerland, and a brief return to UCLA, Heck moved to Delaware in 1957 to work at Hercules Corporation in Wilmington, where he began his research on palladium catalysis, initially focusing on the use of arylmercurial reagents. In 1971 Heck moved to the University of Delaware to take a faculty position in the Department of Chemistry and Biochemistry and continue his studies in organometallic chemistry. It was here at UD that he first published



his discovery that palladium catalysts enabled reactions of aryl iodides with alkenes to form carbon–carbon bonds, the reaction that is now known as the Heck Reaction. Heck also contributed significantly to other aspects of organometallic chemistry. He first developed the palladium-catalyzed carbonylation of aryl halides, first proposed a mechanism for transition metal-catalyzed hydroformylation,

first characterized a pi-allyl metal complex, developed the palladium-catalyzed transfer hydrogenation with ammonium formate, and discovered the palladium-catalyzed cross coupling of aryl halides with terminal alkynes, which was later developed into what is now called the

Sonogashira Reaction. While at UD, Heck rose to the rank of Willis F. Harrington Professor, an honor he continued to hold as a Professor Emeritus. After almost 20 years at U.D., Heck retired in 1989 and moved to the Philippines where he enjoyed a quiet life with his wife Socoro, who passed away in 2013. Heck continued to live in the Philippines until his death in October 2015.

Heck’s discoveries in palladium catalysis were long ahead of their time. The broader chemistry community did not recognize the vast importance of Heck’s work until the 1990’s, when palladium-catalyzed cross-coupling reactions exploded on the scene in organic chemistry. The Heck reaction, and related cross couplings, now define the state-of-the-art in the construction of

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**Cover image:** Photos of Richard Heck  
courtesy of Professor John Koh.



This past year has been a banner year for our Department. The number of students taught by our Department, the number of students in our various degree programs and the total expenditures from external contracts and grants in support of research are at or near all time highs. To give you an idea of the scope of our effort, we now teach over 9,000 students per year, we have over 300 students in our undergraduate degree programs, over 170 students in our graduate degree programs, and over \$9 million dollars of annual research expenditures. There is never a dull moment in our Department, whether during the semesters or in between. Are these numbers similar to or significantly different from when you were last on campus? Our Department is on the move and I invite you to make a trip to Newark to see for yourself!

This past year saw several changes among our faculty. **Sharon Rozovsky** and **Mary Watson** were promoted to Associate Professor with tenure. Both have made outstanding contributions to our Department in the short time they have been here. Along with other Departmental faculty at a similar stage of career, Sharon and Mary are major reasons why the future of our Department is so bright. **Hal White**, a driving force in our instructional program for over four decades, retired in December 2015 and received an Emeritus Faculty appointment shortly thereafter. Hal still comes into his office daily and is focused on activities that will further enhance our instructional effectiveness. **Eric Bloch** joined our faculty in July 2016 as Assistant Professor with research interests in inorganic and materials chemistry. Eric received his Ph.D. from M.I.T. under the direction of Christopher Cummins, followed by a postdoctoral fellowship at Harvard University in the laboratory of Daniel Nocera.



Sharon Rozovsky



Mary Watson



Erich Bloch



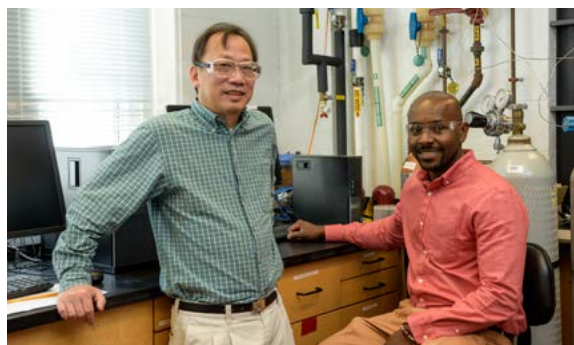
Murray Johnston

This past year also saw many changes among our staff.

**Kathryn Burke** joined our Department in January 2016 in the new position of Manager of Introductory Teaching Laboratories. In this position, Katie oversees ~40 graduate teaching assistants and ~2500 undergraduates per year enrolled in introductory chemistry laboratories. Katie received her Ph.D. from the University of California, San Diego under the direction of Charles Perrin and served as an Adjunct Faculty member at the University of San Diego and San Diego Miramar College prior to coming to Delaware. **Stephen Chan**, Manager of the Departmental Mass Spectrometry Facility since 2011 left us in May 2016 to pursue other opportunities in industry. **Papa Nii Asare-Okai**, who originally joined our Department in 2015 as a second staff member in the Mass Spectrometry Facility, moved into the Manager's position upon Stephen Chan's departure. PapaNii received

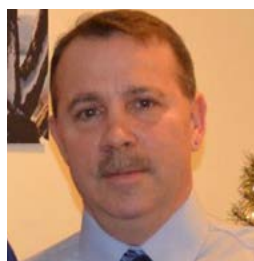


Katie Burke

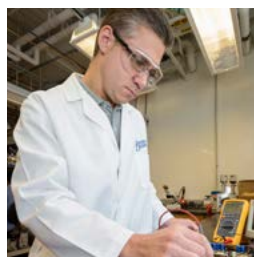


Stephen Chan, Papa Nii Asare-Okai

his Ph.D. from Wayne State University under the direction of Christine Chow and was a postdoctoral fellow at SUNY Albany prior to coming to UD. **Doug Nixon** (our glassblower extraordinaire) was promoted to Manager of Technical Services, a new position that provides oversight and coordination of our Machine, Instrument and Glass Shops in support of the Department's teaching and research activities. After almost three decades of outstanding service in our Instrument Shop, **Jim Draper** retired in December 2015. Shortly thereafter, **John Famiglietti** was promoted to Lead Specialist in the Instrument Shop and also received a secondary appointment as COBRE Instrumentation Manager. **Barbara Vaughn** retired in May 2016 after serving over 20 years in the Chemistry Library and over 40 years in the University. Both Jim and Barbara will be greatly missed and we wish them well in future endeavors!



*Doug Nixon*



*John Famiglietti*

Our faculty continue to garner awards and accolades for their work. A strong theme this past year was recognition for mentoring at all levels from undergraduate students, to graduate students, to young faculty.



*Joe Smith, Karl Booksh*

**Karl Booksh** received the University's Excellence in Undergraduate Advising and Mentoring Award in May 2016. This award is based on student nominations and awardees are honored with inscribed bricks in Mentors' Circle. Last year, Karl was named a Fellow of the American Chemical Society. Karl, along with **Sharon Rozovsky**, leads a Research Experiences for Undergraduates (REU) program funded by the National Science Foundation, which is designed to provide mentoring and research opportunities for students with disabilities.



*Andrew Teplyakov*

**Andrew Teplyakov** received the University's Outstanding Doctoral Graduate Advising and Mentoring Award in May 2016. This award, given annually at the Graduate Convocation, is based on student nominations. Andrew has graduated 13 Ph.D. students during his time at UD, of which 3 hold faculty positions at prominent universities. He is a pillar of our graduate program, having served in many capacities from the Departmental to University level in support of graduate students.

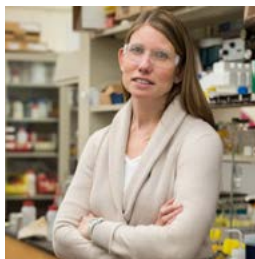
**Joe Fox** and **Tatyana Polenova** continue to serve as lead Principal Investigators for two separate Centers of Biomedical Research Excellence (COBRE) projects awarded from the National Institutes of Health this past year. COBRE supports the research of junior faculty members and strengthens the research infrastructure available to them. The theme of the project led by Joe is molecular discovery to improve human health, while the theme of the project led by Tatyana is molecular design of advanced biomaterials. Together, these projects provide over \$17 million dollars of support over a five year period.

Among research awards to our faculty, **Cecil Dybowski** received the Francis Alison Faculty Award in October 2015, the University's highest competitive faculty honor. As a part of the award ceremony, Cecil presented a talk on his internationally recognized work in nuclear magnetic resonance. His current research, funded by NSF, emphasizes collaboration with the Metropolitan Museum of Art to address important problems in art conservation.



*Cecil Dybowski*

**Catherine Leimkuhler Grimes** added to her growing list of accomplishments and accolades with an NSF CAREER Award to support her research. Her previous awards include a Pew Scholar in the Biomedical Sciences by The Pew Charitable



*Catherine Leimkuhler Grimes*

Trusts, a Cottrell Scholar Award from the Research Corporation for Science Advancement, and an award from the Mizutani Glycoscience Foundation. Catherine's research program is focused on bacterial cell walls and the way human cells interact with them.

In the area of pedagogy and instruction, **Kimberly Graves** was selected to participate in the 2015 Project Kaleidoscope (PKAL) Summer Leadership Institute sponsored by the Association of American Colleges and Universities, whose goal is to transform instruction in science, technology, engineering and mathematics (STEM) to meet current and future needs of a changing society.



*Kimberly Graves*

In this message, I have highlighted some of the visible ways that our faculty and staff promote the teaching and research missions of our Department. 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. Donations from our alumni and friends are a crucial enabler of these activities. To those of you who have provided support in the past, I would like to express a resounding "Thank You!" on behalf of our students, staff and faculty. Looking forward, I encourage everyone to visit and partner with us so that we can continue to provide the highest quality environment for teaching and research.



## CONTINUED FROM PAGE 1

carbon-carbon bonds, and have found applications from medicine to herbicides to sunscreen to materials science. The undeniable impact of Heck's legacy to organic and organometallic chemistry has now been recognized with the 2005 Wallace H. Carothers Award for creative applications of chemistry with substantial commercial impact, as well as the 2006 Herbert C. Brown Award for Creative Research in Synthetic Methods. In 2010, Heck, along with Professors Eiichi Negishi (Purdue University) and Akio Suzuki (Hokkaido University), was awarded the ultimate recognition with the 2010 Nobel Prize in Chemistry for "palladium-catalyzed cross couplings in organic synthesis." The chemistry community has continued to honor Heck since his death, including his induction as a Fellow to the National Academy of Inventors in April 2016, and most recently with an American Chemical Society Select virtual issue, organized to pay tribute to Heck's legacy.

At the University of Delaware, we daily seek to honor Heck's legacy, pushing scientific frontiers in research and inspiring the next generation of chemists. Since 2004, we have commemorated Heck's achievements with the annual Heck Award and Lectureship. Heck himself returned in 2004 to give the inaugural Heck Lecture, and we have now celebrated 13 Heck lec-

turers, including 3 Nobel Laureates, 9 members of the American Academy of Arts & Sciences, and 10 members of the National Academy of Sciences. After Heck's 2010 Nobel Prize, Delaware celebrated "Richard F. Heck Day" (so declared by Gov. Markell) with a daylong symposium in Heck's honor, which culminated with an on-stage interview of Heck focused on student-inspired questions. More recently, in April 2015, our Department erected a Nobel Laureate display in the lobby of Brown Laboratory, honoring our Department's two Nobel Laureates, Daniel Nathans (BS 1950) and Richard Heck. This display serves as a daily reminder to both the faculty and students of the groundbreaking science we do here at UD.

With Heck's passing, we pause to remember and celebrate Heck's love of chemistry, inquisitive mind, and dedication for the pursuit of science. The world has lost a remarkable scientist whose fundamental scientific discoveries transformed chemistry and will continue to impact our daily lives well into the future. To many of us within the Blue Hen Chemist family, Heck was an inspiring scientist, teacher, mentor, colleague, friend, and a gentle soul, whose life and science will continue to serve as an inspiration for generations to come.

—*Mary P. Watson and John Koh*

In 1974, I had already been at the U of D for a decade, and had been promoted to Full Professor the previous year. Our then-Chair, **Prof. Burnaby Munson**, presented me with an unexpected and unique opportunity: to become our Department's first Associate Chair. Little did I dream then that, 42 years later, having served under 10 Chairs, and having worked with 12 Directors of our Graduate Program and 8 Assistants to the Chair, I would finally step down from that position on 9/1/16. (I must hasten to point out that I will continue as a faculty member at least through the next academic year, teaching CHEM-111/112 for the 40th time and advising all of our chemistry majors.)

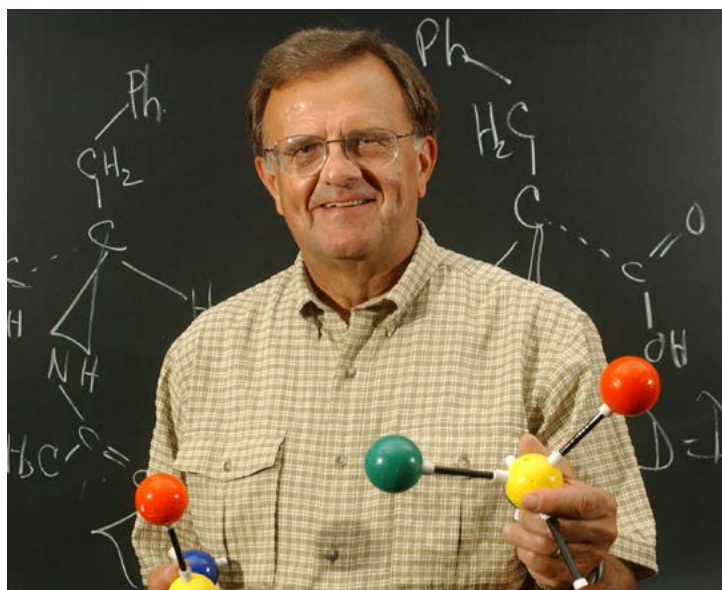
Although our Department had doubled in size from the 12 colleagues who greeted me in 1964, it was still small, compared with our current faculty roster of 40. It is more than a little sobering to note that only three faculty members of the 1974 contingent are still active: **Profs. Munson, Douglas Ridge**, and the undersigned. Time waits for no one!

Paralleling our faculty's growth, our courses and undergraduate curricula have also proliferated:

## Courses

In 1974, we already offered six different CHEM course sequences at the freshman level, each directed at a different target audience:

- CHEM-100 Chemistry and the Human Environment (created by **Prof. Conrad Trumbore** (FAC 60-97))
- CHEM-101/102 General Chemistry (required by a variety of majors in the College of Agriculture, as well as majors in apparel design, applied nutrition, dietetics, and fashion merchandising)
- CHEM-103/104 General Chemistry (required of all science and engineering majors, save for those in CHEM (BS) and CHEG.)
- CHEM-105 General Chemistry (required of nursing majors; created by **Prof. Tom Brill** (FAC 70-06))
- CHEM-111/112/119/120 General and Quantitative Chemistry (required of CHEM (BS) and CHEG majors)
- CHEM-108/109 Biomedical Chemistry – Physics (taken coincidentally with PHYS-108/109; created by **Prof. Mahendra Jain** (FAC 73-08))



John Burmeister

Today, CHEM-108/109 has disappeared, but four new levels, plus another new course, have been added:

- CHEM-106 Elementary Bioorganic Chemistry (follows CHEM-105; created by **Prof. Colin Thorpe**)
- CHEM-107/108 General Chemistry for Life Sciences (taken concurrently and integrated with BISC-207/208, created by **Profs. Mark Baillie** and **Jackie Fajardo**)
- CHEM-111/112 is still taken by BS/CHEM & BIOC and CHEG majors, but CHEM-115/120 is only taken by the BS/CHEM & BIOC majors
- Honors versions of CHEM-103/104, CHEM-107/108, and CHEM-111/112/115/120 are now offered (the University's Honors Program was initiated in 1977).

## Curricula

In 1974, our Department offered only two degrees: BS/CHEM (certified by the ACS in 1941) and BA/CHEM. Today, we offer two additional ACS-certified degrees (BS/BIOC [created in 1989] and BS/CHEM with Environmental Concentration [created in 1995]), as well as a BA degree in Chemistry Education. We have ranked in ca. the top 10 in ACS-certified degrees awarded (out of >650 U.S. colleges and universities) for the past 15 years.



## Students Taught in UG CHEM Courses

Here, our growth has paralleled the University's spectacular growth. The size of the entire undergraduate population (4400) when I arrived in 1964 was not much larger than the size of our last three freshman classes (ca. 4200 each). In like manner, the 3256 students taught in our UG CHEM courses in 74F grew to a whopping 5065 in 15F. The class of 2016 was our last "normal" class of CHEM/BIOC majors. The class of 2017 has 91 students on its roll!

## Physical Plant

Brown Laboratory (built in 1937, south and north wings added in 1951 and 1960, major renovations completed in 1970, 1994, and 2007) had Drake Hall added to it in 1973. Lamont DuPont Laboratory was conjoined to the complex in 1993. All of the CHEM-107/108 labs are held in the Harker Integrated Science and Engineering Laboratory, completed in 2013.

## Undergraduate Research

The University's Undergraduate Research Program was initiated in 1980. Every summer since then, a signif-

icant number of our undergraduate majors (mostly rising juniors) have been supported as Summer Science Scholars, enabling them to pursue full-time research projects in our laboratories. This summer, 18 CHEM/BIOC majors, each receiving \$3500 stipends, are involved in the Program. As noted in the list shown elsewhere in BHC #43, this support comes from a variety of sources.

The involvement of large numbers of undergraduates in research is not normative at most Research I universities. As a case in point, I would cite our participation in the Intercollegiate Student Chemists Convention, held annually since 1936. It is the oldest meeting of its type (only undergraduate research papers are presented orally) in the country. Awards are given for the presentations deemed best in each Division by a panel of judges. The most significant take-away message in the following ISCC awards table is not that the U of D is #1 (although that is cause for considerable pride) – it is that we are the only Ph.D. granting program that has been consistently involved in the ISCC since its inception.

### AWARD WINNERS AT INTERCOLLEGIATE STUDENT CHEMISTS CONVENTIONS (1949-2016)

*[Records for 1936-1948 have been lost.]*

SCHOOL	NUMBER OF AWARDS	SCHOOL	NUMBER OF AWARDS
DELAWARE*	106	Morgan State	2
Ursinus	81	Douglass	2
Franklin and Marshall	70	LaSalle	2
Muhlenberg	45	Penn State-Harrisburg	2
Lebanon Valley	42	Allentown	1
Gettysburg	31	Beaver/Arcadia	1
Elizabethtown	19	Chestnut Hill	1
Juniata	19	Drew	1
Bucknell	17	Eastern	1
Indiana U of PA	17	Frostburg	1
Villanova	16	Geneva	1
Temple*	14	Goucher	1
Bloomsburg	10	Johns Hopkins*	1
Georgetown*	10	Kutztown	1

Lehigh*	8	Lincoln	1
Moravian	8	Millersville	1
West Chester	8	NJIT	1
Swarthmore	7	Penn*	1
Salisbury	6	Rider	1
Albright	6	Rowan	1
Hood	5	Seton Hall*	1
Maryland, College Park*	5	St. Joseph's	1
Bryn Mawr*	5	St. Mary's	1
Lycoming	4	Susquehanna	1
Rutgers*	4	Trinity (CT)	1
Shippensburg	4	Upsala	1
Allegheny	3	VCU*	1
Drexel*	3	W&J	1
Haverford	3	Westminister	1
Kings	3	Widener	1
Naval Academy	3	Wright State*	1
Wilkes	3		
Cedar Crest	2		

\* *Ph.D.-granting institution*

## Departmental Chairs

Burnaby Munson, 1973-1975

Donald Wetlaufer, 1975-1985

Thomas Brill, 1985-1986

Jean Futrell, 1986-1995

Douglas Ridge, 1995-1995

Klaus Theopold, 1996-1996

Jean Futrell, 1996-1997

Steven Brown, 1997-2002

Charles Riordan, 2002-2007

Klaus Theopold, 2007-2012

Murray Johnston, 2012

## Assistant Chairs/ Graduate Directors

Henry N. Blount III, 1983-1984

Roger A. Murray, 1984-1988

Mary J. Wirth, 1988-1989

Conrad N. Trumbore, 1989-1995

Don Dennis, 1995-1997

Murray V. Johnston, 1997-1999

Charles G. Riordan, 1999-2002

Eugene Mueller, 2002-2005

Andrew V. Teplyakov, 2005-2008

Brian Bahnson, 2008-2011

Svilen Bobev, 2011-2015

## Associate Chair/Graduate Director

Donald A. Watson, 2015

While their styles varied greatly, the Chairs under whom I've served and the Directors of Graduate Study and Assistants to the Chair with whom I've worked during this period have been a wonderfully collegial group - a constant source of guidance and stimulation:

Finally, I need to acknowledge my extraordinary good fortune in my having worked with a group of supremely talented secretaries (now called professional administrative assistants): **Anne Gitney**, **Susan Cheadle**, **Nancy Weikel**, **Becky (Lamison) Evans**, **Marian MacMillan**, and **Linda Staib**.

To my successor, **Prof. Sandeep Patel**, I wish nothing but the best.

To all of you: thanks for the memories!

# American Society for Mass Spectrometry



About 30 UD alumni and friends Remembered the Alamo by attending the UD Alumni Lunch at the American Society for Mass Spectrometry meeting in San Antonio in June. If you attend ASMS meetings, please make sure that you are on our list to receive an announcement of next year's lunch.

*—Burnaby Munson*



Graduate Studies in the Department of Chemistry and Biochemistry continues to be a great source of pride in our Department. Over the past year, we have had tremendous activities within the graduate program, as we continue to run one of the largest and most productive graduate programs on the UD campus. Currently, 190 Ph.D. and 6 Masters students are pursuing degrees in the Department, and over the last 12 months, we awarded 22 Ph.D. and 7 Masters degrees.

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 42 new students (40 Ph.D. and 2 Masters) to the program in September, making this one of the largest classes we have ever admitted. 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, Catherine Grimes, Lars Gundlach, John Newberg, and Joel Rosenthal** for serving on the Admissions Committee and making this recruiting season such a great success.

I am also very happy to report on the awards and other accolades accumulated by our graduate students over the past year.

First, at the University level, **Dr. Anil Pandey** was awarded the 2016 Theodore Wolf Prize for Outstanding Dissertation in the Physical and Life Sciences for his Ph.D. studies in the lab of **Prof. Neal Zondlo**. The Wolf Prize recognizes the most outstanding dissertation across the physical and biological sciences at the University.



*Dr. Anil Pandey*

Within the Department, **Mr. Sean Holmes** received the 50th Annual Glenn S. Skinner Memorial Prize. This award recognizes the senior graduate student who exemplifies most fully outstanding performance in scholarship, research, and teaching or other service to the Department or the University. Mr. Holmes'



*Don Watson*



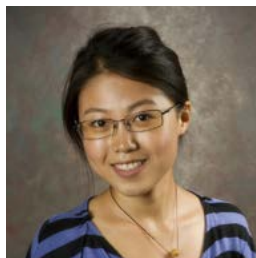
*Don Watson, Michael Wisthoff, Sean Holmes, Murray Johnson*

research in the lab of **Prof. Cecil Dybowski** on solid-state NMR methods, along with his outstanding contributions to service and teaching within the Department, made him the unanimous choice of the faculty for this award this year.

**Mr. Michael Wisthoff**, a member of **Prof. William Chain's** group, received the 2016 Brennie E. Hackley, Jr. Award for Excellence in Research for his contributions to methods development in organic synthesis. 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.

**Mr. Joseph Smith** (**Prof. Karl Booksh's** lab) received two awards this year. His contributions to undergraduate instruction were recognized with a University Teaching Award. In addition, he has recently been awarded a Graduate Fellowship from the NASA Delaware Space Grant College and Fellowship Program.

**Ms. Tian Qiu** from the **Joel Rosenthal** lab was awarded the 2016 Trofimenko Award. This award, named after the late **Swiatoslaw Trofimenko**, recognizes outstanding research contributions by a graduate student in inorganic chemistry.



Tian Qiu



Rear: John Burmeister, Don Watson, Justin Krasnomowitz, Joe Smith. Front: Amy Schaefer, Katie Daisey, Kirk Shimkin

This year, six 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. Katie Daisey** (**Prof. Steven Brown's** lab), nominated for her service in Chem 111 and 112), **Mr. Justin Krasnomowitz** (**Prof. Murray Johnston's** lab, nominated for his service in Chem 103), **Ms. Amy Schaefer** (**Prof. Catherine Grimes'** lab, nominated for her service in Chem 342), **Mr. Kirk Shimkin** (**Prof. Donald Watson's** lab for his service in Chem 331), **Mr. Joseph Smith** (**Prof. Karl Booksh's** lab, nominated for his service in Chem 120), and **Ms. Mackenzie Williams** (**Prof. Andrew Teplyakov's** lab, nominated for her service in Chem 101).

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. Kristin DeMeester**, from **Prof. Catherine Grimes'** lab won first place for her work in understanding native immune response. The second place winner was **Ms. Manman Lu** from **Prof. Tatyana Polenova's** lab for her work on solid-state NMR analysis of proteins. **Ms. Amy Schaefer** (**Prof. Catherine Grimes'** lab) and **Ms. Andrea Potocny** (**Prof. Joel Rosenthal's** lab)



Rear: John Burmeister, Don Watson, Andrew DeAngelis. Third row: Joshua Zide, Salil Lachke, Don Berry, Deb Jaisi. Second row: Changmiao Guo, Stephanie Velardo, Yichen Duan, Yu-ting Hung, Kun Yang. First row: Amy Schaefer, Kristen DeMeester, Andrea Potocny, Manman Lu

Ms. Manman Lu was tied for third place for their work in native immune response and photodynamic therapy sensitizers, respectively. We are deeply grateful to Dr. Deb Jaisi (Dept. of Plant and Soil Science, UD), Dr. Salil Lachke (Biological Sciences, UD), Dr. Donald Berry (Dept. of Chemistry, University of Pennsylvania), Dr. Andrew DeAngelis (DuPont) and Dr. Joshua Zide (Materials Science, UD) who served as judges for this event.

Finally, several students were the recipients of University Graduate Fellowships or Graduate Scholar's awards. They include **Mr. Corey Basch** (**Prof. Mary Watson's** lab), **Mr. Chad Hatch** (incoming first year student), **Ms. Jessica O'Brien** (incoming first year student), **Ms. Jodi Kraus** (**Prof. Tatyana Polenova's** lab) and **Ms. Mackenzie Williams** (**Prof. Andrew Teplyakov's** lab). I congratulate them all.

In closing, I want to again thank the members of the Admissions Committee, as well as the Graduate Curriculum Committee (**Profs. Svilen Bobev, Karl Booksh, Cecil Dybowski** and **Zhihao Zhuang**) for their strong support of our graduate program, as well as their patience with me as I assumed the role of the DGS over the past year. I also am greatly indebted to **Mrs. Lori Nesnow**, who joined the Department in the fall of 2015 and has provided invaluable support to our graduate admissions and recruiting efforts, as well as **Mrs. Susan Cheadle** whose tremendous efforts continue to keep the graduate program on track and moving forward. Our accomplishments in those areas would not have happened without their enormous effort and talent. Finally, I need to thank my predecessor, **Prof. Svilen Bobev**, not only for his four years of outstanding service as Director of Graduate Studies, but also for all of the help and guidance he has provided me during the transition and over the last year.

# Sayonara and Godspeed, Barbara Vaughn!

The CHEM/BIOC community said farewell to another loyal soldier and member of the CHEM/BIOC family when Barbara Vaughn retired after 45 years of service to the University. Barbara has seen many students come and go over that time. Though Barbara is technically part of the library staff, she is very much part of the Blue Hen Chemistry family. Barbara started her career as a clerk in Morris Library and worked her way up to Library Assistant. She briefly worked in the Agriculture Library before joining us in Brown Laboratory in 1991. She notes that she knew nothing about chemistry when she started, but over the past 25 years she has helped generations of Blue Hen Chemists navigate the Chemistry Library stacks. “In this job, you are always learning” she says. “It makes you feel young to work with so many young people, though it is always a little sad to see them go when they graduate.”

Barbara grew up in Millsboro, Delaware and has fond memories of crabbing off the pier. Times were tough back then, and a work accident that left her father disabled (in the days before workman’s compensation or disability) made times even tougher. Crabs were not just for dinner but could be sold to make a little “Christmas money.” Those were still the days of segregated schools in Delaware and, while attending the William C. Jason Comprehensive High School in Georgetown she had a chance to work in the school’s library, a decision that would shape her future. Desegregation meant opportunity, and the William C. Jason High School was to become the new Georgetown campus for Delaware Technical Community College. When she learned that they would be offering an Library Associate’s degree, the choice was natural. With a little luck (literally, her



*Barbara Vaughn*

father won her tuition money at the horse track!), Barbara was able to attend DelTech, complete her associates degree and found a job at UD’s Morris library in 1971.

While today we are still discussing UD’s need to diversify, Barbara remembers when she was one of just a handful of black staff and students on campus. She reflects “we have come a long way.” She has many fond memories of the time she has spent at UD. She met her husband Earl (now a Facilities Planner at Siemens) in 1974 and later two of her three daughters would graduate as Blue Hens (though not in chemistry).

Electronic journals and the internet have taken away some of the direct interactions with students that librarians thrive on. She recalls the innumerable times in the past she needed to help freshmen find a copy of the periodic table in a reference book. Though she doesn’t get as many information requests as she used to, she does get to know many of the students who regularly come to library to study and where she would often share in their set backs and successes as they navigate their way to degree. “Occasionally, I will have a student write to me after graduating” she says recalling a story of a student who fulfilled a promise to send her the “cents” portion of his first paycheck.

When asked what she plans to do after retirement she has a healthy list of classes and activities including volunteer work she would like to do, but most of all, she would like to spend more time with her six grandchildren. “I think I would like to teach them crabbing...”

—John Koh



# Another Outstanding CHEM/BIOC Alumnus!

In what has become a developing tradition, **Carol (Van Dyke) Freer, M.D.** (BS68) was recognized as one of the 2016 College of Arts and Sciences' recipients of its Alumni Achievement Awards. The ceremony, held in the Roselle Center for the Arts on 5/12/16, marked the 4th time in the past 5 years that a CHEM/BIOC alumnus has been so honored.

Carol is the chief medical officer at Penn State Hershey Medical Center, the first woman in that role, and is also an associate professor. The medical center is the flagship hospital for Penn State Health and employs over 1,000 physicians and advanced practice clinicians.

During Carol's tenure as CMO, Penn State Hershey has undergone transformational changes in its approach to patient safety and quality, with significant decreases in hospital-acquired infections and conditions and significant improvements in national rankings.

She received a Bachelor of Science degree in chemistry from the University of Delaware in 1968 and, after working as a photographic engineer at Eastman Kodak and doing medical research at the University of Rochester, she graduated with distinction from medical school at George Washington University in 1978. After a long career in the practice of infectious diseases and medical administration in a community hospital in Hanover, Pennsylvania, Carol was recruited by Penn State to serve as vice chair for clinical affairs in the Department of Medicine. Soon afterward, she was named chief medical officer.

Despite her heavy administrative load, she attends on the teaching consult service with a team of residents and medical students and teaches a course in communication techniques to second-year medical students. She has received numerous awards and is a Fellow of the American College of Physicians, the



*Carol (van Dyke) Freer (5th from left),  
Dean George Watson (far right)*

Society of Health Care Epidemiology of America, and a member of the Infectious Disease Society of America.

Carol volunteers her services to the Visiting Nurses Association, the Hanover Hospital Division of Infection Control, the Hanover Borough Board of Health and breast cancer support groups. She and her daughter Elizabeth raised \$35,000 for breast cancer research in the Climb for Hope by climbing Mt. Kilimanjaro. She is a lifelong member of the Girl Scouts of America.

On a more personal note, she was the first of my 42 undergraduate research students to co-author a paper with your Editor (**Inorg. Chem.**, **8**, 170 (1969)).

Previous CHEM/BIOC A&S Alumni Achievement-Awardees:

**Carol (Cochrane) Kent** (MS66) [2012]

**Michele (Hackley) Johnson, M.D.** (BA75) [2013]

**Lawrence M. Principé, Ph.D.** (BS83) [2014]

# Nylon: The Delaware Connection

One of the greatest inventions of the 20th Century was nylon, the first truly synthetic fiber. This event occurred on February 25, 1935 at the Dupont Experimental Station, about 15 miles north of the UD campus, in the Wallace H. Carothers Research Group. This new fiber was to have a major impact on Dupont and the U.S. Economy.

The last surviving member of the Carothers Group was Joe Labovsky, who died in 2013 at the age of 101. He arrived in Wilmington from the Ukraine at age 12, unable to speak a word of English. By the time he graduated from high school, he had become a leader in his class. He landed a job as a lab technician at the Experimental Station, where Dr. Carothers became his mentor. He helped Labovsky get a company scholarship to attend the Pratt Institute in New York, after which he returned to work for Dr. Carothers.

Upon the death of his mentor, Labovsky resolved to keep his memory alive. He set up a nylon museum in the basement of his home and gave talks in this area to help educate the public about this amazing fiber and the importance of Carothers.

**Dr. Mike Stemniski** became acquainted with Labovsky and joined him at public presentations about nylon and Carothers at the Delaware Historical Society. Stemniski became noted for his Chem Demo Shows.

When Labovsky's health problems required that he move to a retirement home, he donated his nylon museum collection to the Delaware Academy of Chemical Sciences.

The U.D. Department of Chemistry and Biochemistry has three large built-in display cases in the

Lammot DuPont Laboratory. **Chair Murray Johnston** offered the spaces to the Delaware Academy of Chemical Sciences for a nylon exhibit, which opened to the public on September 15, 2015. A grant from Dupont helped the DACS with the cost of setting up the exhibit and the public reception. Both of Labovsky's daughters attended the opening.

The first display case has a focus on the people involved in the creation and launch of nylon. This includes members of the research group, including Paul Flory, who went on to win a Nobel Prize. One photo includes former Dupont Chemist and Delaware Governor Russ Peterson.

**Helen Sweetman** earned her chemistry degree at the University in 1933. She joined Dupont at the Experimental Station and worked at the famous Lavoisier Library. There she met Dr. Carothers while helping with his patent applications. They were married in 1936, shortly before his tragic death in 1937. Her yearbook photo appears in this exhibit, along with a later photo of her and her daughter at the dedication of the Carothers Research Lab at the Experimental Station in 1946.

The second display case has a focus on the chemistry of nylon. This involves a condensation polymerization reaction between adipic acid and hexamethylenediamine, with the elimination of water. The third case deals with nylon applications. The first major use was in nylon hosiery, which quickly replaced silk. The start of World War II meant all nylon was used in parachutes and other military applications. After 1945, nylon fibers were used in seat belts, carpets, clothing, home furnishings, etc. Dupont eventually sold its textile fibers business, but still sells nylon engineering resins.

—Allen A. Denio (FAC 78-79, 98-99)

# Additional Faculty/Staff Activities

The striking graphics associated with a paper published by **Prof. Svilen Bobev** and his colleagues graced the cover of the 10/28/15 issue (vol. 3, no. 40) of the **Journal of Materials Chemistry C**.

**Prof. Karl Booksh** was spotlighted in a feature article in **C&E News** (11/16/15, p. 41) on how chemists with disabilities have overcome challenges in the workplace.

**Prof. Steven Brown** was a member of a team from Oklahoma State University, the University of Delaware, and the Royal Canadian Mounted Police whose paper (**J. Chemometrics**, **28**, #5, 385-394 (2014)) on the forensic identification of paint smears from car clear coats won the 2015 Kowalski Memorial Prize for the best applied chemometrics paper published in the journal during the period 2013-2014.

During the summer, Education Specialist **Dana Chatellier** and **Mr. Huy (Mike) Dao** (MS11) served as the lead instructors for a General Chemistry class sponsored by the Saudi Arabian Chemical Company (SABIC), under the aegis of UD's English Language Institute.

**Dr. Andrew Cottone** (PD [Rior-dan], 01-02) is the President of Adesis, Inc., a contract research organization specializing in organic synthesis in New Castle, DE. Adesis was one of four biotechnology companies to be awarded a GATOR100 – an entrepreneurial award given to flourishing businesses owned and operated by University of Florida alumni.

**Dr. David Dalrymple** (FAC68-74) has happily embarked on an entirely new career, following his retirement from Nicolet Instruments. As outlined in the following article, published in the **Fredericktown** (OH) **Citizen**: [www.thefredericktowncitizen.com/news/localnews/maple-syrup-on-the-small-scale/](http://www.thefredericktowncitizen.com/news/localnews/maple-syrup-on-the-small-scale/). Dave is following in the footsteps of his grandfather and father, by producing “Maple Syrup on the Small Scale” on the family farm.

**Jeannette (Jean) Field** (STAFF 75-85) died on 10/29/15, at the age of 93. Jean spent her entire career (63-85) as a beloved secretary and administrative assistant at the U of D, working in the Research Office from 1963 to 1975.

**Prof. Joseph Fox** served as the Massachusetts Institute of Technology's 2015-16 Bristol Myers Squibb Lecturer in Organic Chemistry. A seminal study (**J. Am. Chem. Soc.**, **138**, 5978 (2016)) on Rapid Bioorthogonal Chemistry Turn-on through Enzymatic or Long Wavelength Photocatalytic Activation of Tetrazine Ligation, authored by Joe and his colleagues **Profs. Joel Rosenthal, Colin Thorpe**, and Xinqiao Jia (Materials Science and Engineering) and their students was highlighted in **C&E News** (5/2/16, p. 10).

**Dr. Jean Futrell** (FAC86-99, CHAIR 86-95, 96-97), now retired from the Pacific Northwest National Laboratory, where he was a Batelle Fellow, is the co-editor of a special issue of the **International Journal of Mass Spectrometry** (**377** (2015)), which describes the development of MS

during the period 1960 – present. His forward (pp. 1-9) amounts to a concise modern history of MS.

**Dr. Lila Gierasch** (FAC 79-87) Distinguished Professor of Biochemistry and Molecular Biology at the University of Massachusetts, Amherst, has been appointed Editor-in-Chief of the **Journal of Biological Chemistry**.

**Profs. Catherine Leimkuhler Grimes** and **Hal White** (FAC 71-15) have co-authored a paper on “Passing the Baton: Mentoring for Adoption of Active-learning Pedagogies by Research-active Junior Faculty,” published in **Biochemistry and Molecular Biology Education**, **43**, #5, 345-357 (2015).

**Prof. George Luther** (JOINT FAC) has published a book on **Inorganic Chemistry for Geochemistry and Environmental Sciences** (John Wiley & Sons, 2016).

(the late) **Dr. Albert Matlack** (ADJ FAC 93-13) has posthumously published his second book, co-authored with Andrew Dicks: **Problem-Solving Exercises in Green and Sustainable Chemistry** (CRC Press, 2015). One of his sons, Dr. Kent Matlack, captured the essence of Al in the following eulogy, written in connection with the book's publication:

*To say that my father, Albert Matlack, was a chemist doesn't do him justice. Perhaps Chemist, capitalized in recognition of his passion for the subject, would be better. We have an essay he wrote at around the age of 13 stating his intention*



of becoming one. No alternatives were mentioned. His chemical career started with the Manhattan project during World War II. Following that, he was an organic chemist for 43 years at Hercules Incorporated in Wilmington, Delaware, retiring at the age of 70 only when forced to do so. Despite his age at the time, he had not yet had enough chemistry and promptly volunteered to teach at the University of Delaware, which he did until only months before his death at the age of 90 in 2013. That also wasn't enough to satisfy his appetite for chemistry, so at the same time, over the course of more than 10 years, he wrote a (big, long) book, "Introduction to Green Chemistry." Then he wrote this one, finishing it – by my calculation – only days before his death. In the months before he died, he and I were approaching chemical journals, successfully, to find him a place where he could write a regular column commenting critically on recent chemical

developments. Now, when I am reading the chemical literature and come across something particularly cool, among my thoughts is "It's sad that Dad will never get to know this."

You might find such prolonged focus on a technical topic a bit frightening and fear that he was narrow and boring in person. He was not. He was warm, outgoing and friendly, and a relentlessly and passionate constructive man (and a great husband and father). For me, his attitude can be summarized in something he once said while we were discussing the study of history as an occupation: "Some people are interested in the past. I'm interested in the future."

My father did not join an ongoing, established green chemistry field. Rather, he pre-dated it by decades. He was an environmentalist before the term was coined. Green chemistry combined his two

passions: chemistry and the environment. He could clearly see the damage humans are doing to the planet, and he focused his almost unbelievable energy and patience on the problem. He would encourage you to do the same because the problem is acute, getting worse, and of a magnitude that dwarfs anything we have ever dealt with before. Politics aside, much of it comes down to chemistry. We need new energy sources, less pollution, better batteries, renewable starting materials... the list is long. We also need well-informed, passionate people who understand chemistry and can use it creatively to solve these problems. If you contribute to their solution, you will really have accomplished something. As the bumper sticker say "There is no planet B."

Go for it, and good luck.  
Kent E.S. Matlack Ph.D.



Burnaby "Fire-Breathing Dragon" Munson

**Prof. Burnaby Munson's** antics at the CHEM/BIOC table during his annual appearances at Delaware Discovery Days during the summer were highlighted in a UDaily on-line article: blowing "smoke rings" using liquid nitrogen, freezing cookies in liquid nitrogen, creating a "wizard's punch" by adding Dry Ice to cranberry juice;. Small wonder that the number of new CHEM/BIOC majors has vastly increased! He was aided in his 2014 endeavors by **Benjamin Lefler** (BS/CHEM/15), **Lauren Genova** (BS/CHEM/15), and **Caitlyn Sarno** (BS/CHEM/16). His devotion to the University's Honors Program has been memorialized in the Munson Fellows Program, wherein Munson Fellows are upper-division students living in Freshman Honors Housing who are familiar with the Honors Program and have a strong commitment to help other students benefit from an Honors Education.

Our mass spectroscopist, **Papa Nii Asare-Okai**, and his wife, Kai, are the proud parents of a baby girl, Gabriella, born 5/23/16.

**Dr. Arnold Rheingold** (FAC 84-03) Professor of Chemistry at the University of California, San Diego, is still going strong, personally determining 3-5 structures a day. The UCSD X-ray diffraction facility now includes seven diffractometers, five of which use rotating anode sources, and employs two

full-time Ph.D. crystallographers. His avocado "ranch" produced a bumper harvest of 50 tons of avocados!

**Prof. Charlie Riordan** has been elected Treasurer of the Society of Biological Inorganic Chemistry.

**Prof. Kate Scantlebury** has been named one of the editors of the journal **Gender and Education**.

In an article recently published in the journal **Nature Nanotechnology**, several U of D researchers show how a new peptide-based hydrogel could one day facilitate microsurgery: **Dr. Joel Schneider** (FAC 99-09), now at the National Cancer Institute's Chemical Biology Laboratory, **Daniel J. Smith** (PhD13), now at GlaxoSmithKline; the recently graduated **Katelyn Nagy-Smith** (PhD16); and **Darrin Pochan** (JOINT FAC), Professor and Chair of UD's Department of Materials Science and Engineering. Also involved in the study were researchers from the Johns Hopkins University School of Medicine and the Department of Electrical and Computer Engineering.

**Prof. Zhihao Zhang** discussed the work of the 2016 Nobel Laureates in Chemistry at UD's annual review of the Nobelists in Literature, Physiology & Medicine, Economic Sciences, Physics, Peace, and Chemistry, presented in the Harker ISE Lab on 10/29/15.

**Prof. Neal Zondlo** presented a plenary lecture at the Indian Peptide Symposium held in Bangalore last September.

## 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. Paul A. Silver** (PhD73):

CHEM-101/102 General Chemistry

**Dr. Michael Stemniski:**

CHEM-102 General Chemistry

CHE-103/104 (Wilmington Associate-in-Arts Program)

CHEM-213/215 Elementary Organic Chemistry

# Postdoctoral Researchers and Fellows, 2015-16

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

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

**Bibaswan Biswas** (Texas A & M University) [M. Watson]

**David Boyce** (University of Minnesota, Minneapolis) [Rosenthal]

**Ming Dong** (University of Delaware) [Bahnson]

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

**Rupal Gupta** (Carnegie Mellon University) [Polenova]

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

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

**Julien Makongo Mangan** (Technical University of Dresden, Germany) [Bobev]

**Mohit Mehta** (Florida State University) [Patel]

**Raghupathi Neelarapu** (Osmania University, India) [Koh]

**Jai Prakash** (Indian Institute of Technology, India) [Bobev]

**Caitlin Quinn** (Columbia University) [Polenova]

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

**Sudipta Sinha** (Indian Institute of Technology, India) [Patel]

**Raghu Vannam** (University of Connecticut) [Fox]

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

**Guoyin Yin** (Shanghai Institute of Organic Chemistry, China) [D. Watson]

**Libo Yuan** (Wuhan University, China) [Zhuang]

**Senzhi Zhao** (Temple University) [Chain]

## Visiting Scholars, 2015-16

**Anita Abedi** (Islamic Azad University, Tehran, Iran) [Theopold]

**Ardak Kussainova** (L. Gumilov Eurasian National University, Astana, Kazakhstan) [Bobev]



# Named Lectures 2015-16

Our named lectures have grown, in both number and stature, through the years:

Due to a cancelation last spring, two **Richard F. Heck** (FAC 71-89) **Lectures** were presented during the past academic year. The 12th Heck Lecture was presented on 11/11/15 by Prof. Melanie Sanford, University of Michigan on “Developing Strategies for the C-H Functionalization of Aliphatic Amines.” It was followed, on 4/20/16, by the 13th Heck Lecture on “Palladium-Catalyzed Cross-Coupling of Organosilanols and Their Relevance to the Mechanism of the Suzuki-Miyaura Reaction,” presented by Prof. Scott Denmark, University of Illinois, Urbana-Champaign. The generous financial support of the Heck Lectures by Amgen, Inc. is gratefully acknowledged.

Previous Heck Lecturers have included three who are now Nobel Laureates, six who are members of the American Academy of Arts and Sciences, and five who are members of the National Academy of the Sciences.

The 4th **Mary Elizabeth Kramer** (MS76, FAC 86-12) **Memorial Lecture** was presented on 9/25/15 by Prof. Gabriela Weaver, University of Massachusetts-Amherst, on “Weaving Faculty Professional Development with Learning Space Affordances.”

Prof. David Christanson, University of Pennsylvania, presented the 9th **John C. Wriston, Jr.** (FAC 55-85) **Memorial Lecture** on 10/23/15. His topic was “Directing Biosynthesis with Modular Architecture in Terpenoid Cyclases.”

## Chapter Officers 2016-2017

### ACS/SA

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**Zachary Jones** (BS/CHEM/18)

Co-president:

**Taylor Paskey** (BS/CHEM/17)

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**Caroline Vesper** (BS/CHEM/17)

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**Markia Smith** (BS/BIOC/17)

Treasurer:

**Nicole Wenzell** (BS/BIOC/17)

Recruitment Chair:

**Adriana Paldino** (BS/BIOC/17)

# Colloquia & Symposia 2015-16

The 36th East Coast Ion Chemistry Conference was held on Saturday, October 10, 2015.

Talks were given by speakers from the University of Delaware, Georgetown University, Drexel University, University of Maryland, College Park, and DuPont. Topics included aerosol mass spectrometry, electrospray ionization, MALDI, laser induced plasma ionization, plasma assisted chemical ionization, protein identification, and reaction mechanisms. The 37th ECICC will meet on Saturday, October 1, 2016.

A Membrane Protein Symposium, organized by **Profs. Edward Lyman, Sharon Rozovsky**, and Karen Fleming (Johns Hopkins University), was held at the U of D on 4/18/16. The Symposium was supported by the NIH-COBRE Program on Membrane Protein Production and Characterization.

Our weekly divisional seminars were enhanced, as usual, by a vibrant series of Departmental Colloquia:

DATE	SPEAKER/AFFILIATION	TOPIC
9/2/15	<b>Prof. Mary Watson</b> University of Delaware	Transition Metal Catalysis of Non-traditional Electrophiles
9/16/15	Prof. Dennis Dougherty Cal Tech (Student-Invited Speaker)	Chemistry on the Brain: Understanding the Nicotine Receptor
9/18/15	<b>Prof. Sharon Rozovsky</b> University of Delaware	Selenium in Biochemistry and Biophysics: Novel Functions of Selenoproteins and New Approaches for Their Characterization
2/15/16	Prof. Greg Scholes Princeton University	Photosynthetic Light Harvesting and Coherence
3/4/16	<b>Prof. Zhihao Zhuang</b> University of Delaware	Chemical Approaches for Investigating Protein Ubiquitination
5/3/16	<b>Prof. Joseph Fox</b> University of Delaware (11th Annual Delaware ACS Section Student/Industry Poster Session)	Fast Bioorthogonal Chemistry: Discovery, Development, Applications
5/6/16*	Prof. Ronald Breaker Yale University	Riboswitches and Their Ligands as Possible Molecular Relics from the RNA World

\* Retirement Colloquium and Reception in Honor of Prof. Hal White, with retrospectives presented by Profs. Colin Thorpe (BIOC research) Sharon Rozovsky (Studies of Dragonflies and Damselflies), and Catherine Grimes (PBL Teaching Leadership)

# Undergraduate Awards 2015-16

NATIONAL AWARDS	RECIPIENTS
American Chemical Society/Hach Scientific Foundation	<b>Alexandra Chiodi</b> (BA/XCE/17) <b>Margaret Dolan</b> (BA/XCE/17)
Eastern Analytical Symposium Research Award	<b>Cannon Giglio</b> (BS/CHEM/17)
American Society for Biochemistry & Molecular Biology 20th Undergraduate Poster Competition, San Diego, CA, April 1-6, 2016	<b>Hannah Wastyk</b> (BS/BIOC/17), 1st Place <b>Tyler Heiss</b> (BS/BIOC/16), Honorable Mention
Barry M. Goldwater Scholarship	<b>Hannah Wastyk</b> (BS/BIOC/17)
2016 Intercollegiate National Figure Skating Championships, April 9-10, 2016	<b>Clarké Snell</b> (BS/BIOC/16), 5th Place, Solo Dance
National Science Foundation Graduate Research Fellowship	<b>Thomas Keane</b> (BS/CHEM/16)
Phi Kappa Phi Graduate Fellowship	<b>Kelly Daniels</b> (BS/BIOC/16)

REGIONAL AWARDS	RECIPIENTS
80th Intercollegiate Student Chemists Convention, Ursinus College, April 16, 2016	<b>Hannah Wastyk (BS/BIOC/17)</b> , 1st Place, Biological I <b>Nicole Wenzell</b> (BS/BIOC/17), 1st Place, Biological II
18th Undergraduate Research Symposium, University of Maryland – Baltimore County, October 3, 2015	1st Place in their respective Divisions: <b>Kelly Daniels</b> (BS/BIOC/16) <b>Cannon Giglio</b> (BS/CHEM/17) <b>Thomas Keane</b> (BS/CHEM/16) <b>Hannah Wastyk</b> (BS/BIOC/17) <b>Nicole Wenzell</b> (BS/BIOC/17)  2nd Place in their respective Divisions: <b>Taylor Paskey</b> (BS/CHEM/17) <b>Genevieve Weist</b> (BS/CHEM/16)

DEPARTMENT AWARDS	RECIPIENTS
American Chemical Society Award in Chemistry	<b>Matthew Hurlock</b> (BS/BIOC/17)
American Chemical Society Division of Analytical Chemistry Undergraduate Award	<b>Annette Brocks</b> (BA/CHEM/17)
American Chemical Society Division of Inorganic Chemistry Undergraduate Award	<b>Taylor Paskey</b> (BS/CHEM/17)
American Chemical Society Division of Organic Chemistry Undergraduate Award	<b>Jesse Spillane</b> (BS/BIOC/16)
American Institute of Chemists Award in Chemistry	<b>Nikifar Lazouski</b> (BS/CHEM/16)
C. Frank Shaw III Undergraduate Award in Inorganic Chemistry	<b>Thomas Keane</b> (BS/CHEM/16)
C. Frank Shaw III Undergraduate Inorganic Research Fellowship	<b>Taylor Paskey</b> (BS/CHEM/17)
Carl von Frankenberg Undergraduate Award in Chemistry Education	<b>Margaret Dolan</b> (BA/XCE/17)
Elizabeth Dyer Awards for Excellence in Biochemistry and Chemistry	<b>Kelly Daniels</b> (BS/BIOC/16) <b>Thomas Keane</b> (BS/CHEM/16)
Frank W. Collins Undergraduate Award in Biochemistry	<b>Tyler Heiss</b> (BS/BIOC/16)
Gene J. and Frances E. Schiavelli Undergraduate Research Fellowship	<b>Genevieve Weist</b> (BS/CHEM/16)
Hypercube Scholar Award	<b>Nikifar Lazouski</b> (BS/CHEM/16)
James A. Moore Undergraduate Award in Organic Chemistry	<b>Jesse Spillane</b> (BS/BIOC/16)
Joseph H. Noggle Undergraduate Award in Physical Chemistry	<b>Lucas Onisk</b> (BS/CHEM/17)
Kevin Scott Beall Memorial Awards	<b>Thomas Harmon</b> (BS/BIOC/19) <b>Jiaming Huang</b> (BS/CHEM/19)
Merck Index Awards	<b>Jessica Mann</b> (BS/CHEM/16) <b>Obinna Wogu</b> (BS/BIOC/16)
Quaesita Drake Scholarships	<b>Alex Manders</b> (BS/CHEM/17) <b>Shelby Roseman</b> (BS/CHEM/17) <b>Ilana Schnauffer</b> (BS/CHEM/17) <b>Hannah Wastyk</b> (BS/BIOC/17)
Wallace H. Carothers Scholarships	<b>Keshav Choudhuri</b> (BS/BIOC/18) <b>Zachary Jones</b> (BS/CHEM/18)
Wallace H. McCurdy, Jr. Undergraduate Awards in Analytical Chemistry	<b>Cannon Giglio</b> (BS/CHEM/17) <b>Jill Harland</b> (BS/CHEM/17)



# 2016 Summer Science Research Scholars

RECIPIENTS	SOURCE OF SUPPORT	MENTOR
<b>Arvind Annamalai</b> (BS/CHEM/17)	Plastino Fellowship	Prof. Neal Zondlo
<b>Nicole Coffey</b> (BS/CHEM/18)	College of Earth, Ocean, & Environment	Prof. George Luther
<b>Griffen Desroches</b> (BS/CHEM/18)	Plastino Fellowship	Prof. Svilen Bobev
<b>Amanda Ford</b> (BS/BIOC/18)	Hofmann Scholar	Prof. Neal Zondlo
<b>Cannon Giglio</b> (BS/CHEM/17)	University Undergraduate Research Program	Prof. Steven Brown
<b>Evan Horowitz</b> (BS/CHEM/17)	Heitzer Fellowship	Prof. Klaus Theopold
<b>Matthew Hurlock</b> (BS/BIOC/17)	Plastino Fellowship	Prof. Catherine Grimes
<b>Zachary Jones</b> (BS/CHEM/18)	Plastino Fellowship	Prof. Catherine Grimes
<b>Sean Lein</b> (BS/BIOC/17)	White Fellowship (BISC)	Prof. Ramona Neunuebel (BISC)
<b>Alex Manders</b> (BS/CHEM/17)	Plastino Fellowship	Prof. Mary Watson
<b>Lucas Onisk</b> (BS/CHEM/17)	Plastino Fellowship	Prof. Tatyana Polenova
<b>Taylor Paskey</b> (BS/CHEM/17)	University Undergraduate Research Program	Prof. Joel Rosenthal
<b>Jacob Piane</b> (BS/CHEM/17)	Plastino Fellowship	Prof. Mary Watson
<b>Shelby Roseman</b> (BS/CHEM/17)	University Undergraduate Research Program	Prof. John Koh
<b>Dominic Santoleri</b> (BS/BIOC/17)	University Undergraduate Research Program	Prof. Sharon Rozovsky
<b>Junius Thomas</b> (BS/BIOC/17)	NUCLEUS	Prof. John Koh
<b>Hannah Wastyk</b> (BS/BIOC/17)	Plastino Fellowship	Prof. Catherine Grimes
<b>Nicole Wenzell</b> (BS/BIOC/17)	University Undergraduate Research Program	Prof. Neal Zondlo



*Matthew Hurlock, Nicole Wenzell, Arvind Annamalai, Lucas Onisk, David Plastino, Griffen Desroches, Alex Manders, Hannah Wastyk, Zachary Jones*

MAY 28, 2016

# 21st CHEM/ BIOC Graduation Convocation

The 21st CHEM/BIOC Convocation, held in Pearson Hall on 5/28/16, was organized, as always, by **Professor John Burmeister**; however, he did not preside because of a conflict with his grand daughter's graduation—the third convocation that he has missed, all for equally compelling reasons. **Professors Burnaby Munson** and **Don Watson** were his substitutes. The troops were marshaled by **Professors Cecil Dybowski** and **Klaus Theopold**.

In a continuation of our tradition of distinguished alumni/ae speakers, **Dr. Silvia Jurisson** (BS78), Professor of Chemistry and Radiology at the University of Missouri, Columbia, filled this year's role admirably. Silvia received her Ph.D. from the University of Cincinnati in 1982. Following post-doctoral study at the University of New South Wales, the Australian National University, and the University of Missouri (1983-86), she worked as a Senior Research Investigator at Bristol-Myers Squibb before becoming a UM faculty member in 1997.

She was the recipient of the 2012 Glenn T. Seaborg Award in Nuclear Chemistry from the ACS, and has been a Fuldner Faculty Fellow (2013, 2014). Her research, which has focused on radioinorganic chemistry, has resulted in her being named to a wide array of important positions including:

- Chair, Division of Nuclear Chemistry & Technology of the ACS (2010)



*Burnaby Munson*

- Board of Directors, Society of Radiopharmaceutical Science
- Associate Editor, **Radiochimica Acta**
- Editorial Boards of **Nuclear Medicine & Biology** and the **Journal of Radioanalytical & Nuclear Chemistry**

As always, the graduates were recognized individually—with frequent applause.



*Andrew Teplyakov, Cecil Dybowski, Silvia Jurisson*

After the Convocation in well-air conditioned Pearson Hall (it was “warm” outside that day), the assembled crowd of students, parents, and friends migrated to the Brown Laboratory Lobby for the reception with much conversation and picture taking. No Segway rides, this year, however (no longer allowed).



Silvia Jurisson

Variability and uncertainty continued to be the hallmarks for the class of 2016:

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

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

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

# 2016 Graduates

## 2015 B.A. Chemistry Graduates

Christine M. Bristowe  
Ritika Chhibba  
Ronald A. Cichocki, Jr.  
Sviatoslav Cuadros-Gourentchik  
Ava Heiss  
Jebidiah C. Merritt  
Evelyn R. Niedenzu  
Li Qian  
Michael Russell  
Pengweixi Sun <sup>a</sup>  
Dai Wei

## 2016 B.S. Biochemistry Graduates

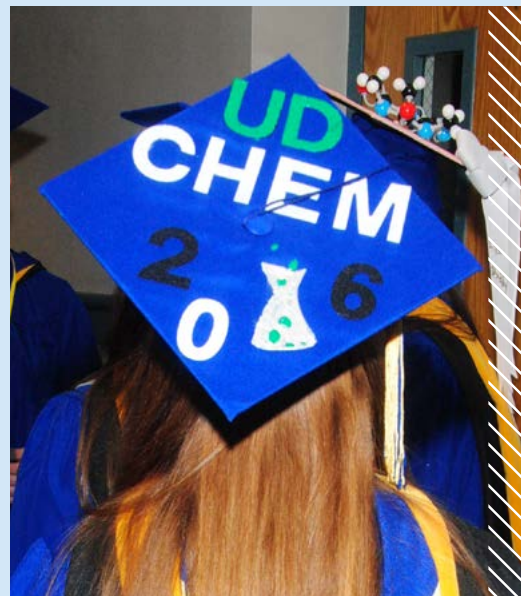
Zaina E. Banihani  
Shelby Chan  
Sviatoslav Cuadros-Gourentchik  
Kelly E. Daniels <sup>a,b</sup>  
Roberto Gonzalez  
Tyler K. Heiss <sup>a,b</sup>  
Yijang Liu  
Helina S. Patel  
Jasmin G. Philip

Clarké Snell  
James Urda  
Gabriela C.D. Velasquez  
James M. Williams  
Obinna B. Wogu

## 2015 B.S. Chemistry Graduates

Michael J. Adorno  
Alexander J. Belly <sup>b</sup>  
Kimberly A. Buchanan  
Rachel S. Chess <sup>a</sup>  
Colin S. Davis  
Shrhonda E. Ellis  
Thomas P. Endicott  
Christopher J. Ferich  
Rachel L. Frey  
Kagan D. Hoffman  
Lars A. Jensen <sup>c</sup>  
Danea K. Jonjic  
Thomas P. Keane <sup>a,b</sup>  
Daniel B. Koeplinger  
Ryan A. Kozlowski <sup>a,b</sup>  
Nikifar D. Lazouski <sup>a</sup>  
Jessica N. Mann <sup>a,b</sup>

Yanda Mao  
Tyler A. Mislick  
Christopher B. Monaghan  
Alexander M. Northrup <sup>a</sup>  
Jonathan Owens  
Michaella E. Raglione  
Erika S. Ritchie  
Caitlyn T. Sarno  
Jesse J. Spillane  
Morgan E. Squicciarini  
Emily M. Trinh  
Tugraberik Usul  
Ha Thi Thuy Vu  
Jessica A. Webb  
Genevieve M. Weist <sup>b</sup>  
Zelin Zhang



(a) Honors Degree (b) Degree-with-Distinction (c) Environmental Chemistry Concentration



# Graduate or Professional School Bound

- **Ronald Cichocki**, University of Wyoming (Ph.D. in Inorganic Chemistry)
- **Wei Dei**, University of Delaware (M.S. in Chemistry)
- **Kelly Daniels**, Thomas Jefferson University (Kimmel Medical School)
- **Shrhonda Ellis**, Stevenson University (M.S. in Forensic Sciences)
- **Roberto Gonzalez**, Rowan University (Cooper Medical School)
- **Tyler Heiss**, University of California – Irvine (Ph.D. in Chemical Biology)
- **Danea Jonjic**, Max Planck University (Ph.D. in Biotechnology)
- **Thomas Keane**, Harvard University (Ph.D. in Physical Chemistry)
- **Daniel Koeplinger**, Penn State University (Ph.D. in Chemistry)
- **Ryan Kozlowski**, University of California-Irvine (Ph.D. in Organic Chemistry)
- **Nikifar Lazouski**, Massachusetts Institute of Technology (Ph.D. in Chemical Engineering)
- **Michaella Raglione**, University of Iowa (Ph.D. in Chemistry)
- **Jesse Spillane**, University of Washington (Ph.D. in Organic Chemistry)
- **Tugraberik Usul**, Temple University (Kornberg School of Dentistry)
- **Genevieve Weist**, University of Pittsburgh (Ph.D. in Chemistry)
- **Obinna Wogu**, Thomas Jefferson University (Kimmel Medical School)

# Headed for Industry, Etc.

- **Gabriela Albright**, National Institute of Allergies and Infections Diseases, Gaithersburg, MD
- **Alexander Belly**, Chemist, Innospec Fuel Specialties, Newark, DE
- **Kimberly Buchanan**, Cosmetic Chemist, Beauty Manufacturing Solutions Corp., Dallas, TX
- **Rachel Chess**, Agilent Technologies
- **Rachel Frey**, Chemist, Petroleum Additives Co.
- **Jessica Mann**, Intern, Tuckahoe Brewing Co., Egg Harbor Township, NJ
- **Michael Russell**, Analytical Laboratory Manager, Colonial Metals, Inc.
- **Morgan Squicciarini**, Graduate Trainee, Croda, Inc., Newark, DE
- **James Urda**, Chemist, Merck Pharmaceuticals

# Graduate School Placements, 1994-2016

Adelphi .....	1	Harvard .....	6	Princeton .....	8
Alaska-Fairbanks .....	1	Hawaii .....	2	Purdue .....	3
Arcadia .....	1	Illinois-Chicago .....	2	Rhode Island.....	1
Boston College.....	3	Illinois-Urbana.....	7	Rochester .....	4
Boston University .....	3	Imperial College, London.....	1	Rutgers.....	7
Brigham Young.....	1	Indiana .....	4	St. John's.....	1
Brandeis.....	1	Iowa.....	1	Scripps .....	2
Cabrini .....	1	Johns Hopkins.....	5	Selznick School for Film .....	1
California-Berkeley .....	2	Kansas .....	1	Preservation	
California-Irvine.....	7	KAUST.....	1	Shenandoah .....	1
California-Los Angeles.....	1	Lehigh .....	2	South .....	1
California-San Diego.....	3	Maryland-Baltimore .....	1	Southern Mississippi.....	1
California-San Francisco.....	3	Maryland-Baltimore Co.....	4	Stevenson.....	2
California-Santa Barbara .....	1	Maryland-College Park.....	6	SUNY-Buffalo .....	2
Cal Tech .....	5	Massachusetts .....	3	SUNY-Stony Brook.....	1
Carnegie Mellon .....	1	Max Planck.....	1	Syracuse .....	1
Case Western .....	4	Michigan .....	5	Temple.....	4
Chicago .....	1	Michigan State.....	1	Tennessee.....	1
Clemson.....	1	Minnesota-Twin Cities .....	2	Texas.....	4
Colorado.....	1	MIT.....	8	Texas A&M .....	4
Colorado State .....	1	Montana State.....	1	Thomas Jefferson.....	5
Columbia.....	5	Montclair State .....	1	Toledo.....	1
Connecticut .....	3	New Castle (England).....	1	Toronto .....	1
Cornell.....	10	New Hampshire.....	2	Towson .....	1
CUNY.....	2	NYU.....	1	Tufts .....	2
Delaware.....	24	North Carolina-Chapel Hill..	12	Vanderbilt .....	1
Drexel .....	1	North Carolina-Greensboro....	1	Villanova.....	1
Duke.....	4	North Carolina State .....	1	Virginia.....	4
Emory.....	1	Northeastern.....	1	VPI & SU .....	3
Florida International.....	1	Northwestern.....	2	Wake Forest .....	2
Florida State.....	2	Notre Dame.....	1	Washington .....	1
George Mason.....	1	Ohio State.....	4	Washington (St Louis) .....	1
Georgetown .....	2	Oregon.....	1	West Chester.....	1
George Washington .....	3	Pace.....	4	Wisconsin .....	1
Georgia .....	1	Penn.....	13	Wyoming.....	1
Georgia Tech .....	2	Penn State.....	10	Yale .....	4
Gordon Conwell .....	1	Pittsburgh .....	4	Yeshiva .....	1

# 2016 M.A./M.S. Graduates

**Catherine A. Bogdanowicz** (M.S.)

B.A., College of the Holy Cross  
Mentor: Prof. Joel Rosenthal

**Yuan Hsiang Cheng** (M.A.)

B.S., National Taiwan Normal University  
M.A., Temple University

**Xiaoyun Fu** (M.A.)

B.S., Tianjin University (China)

**Aditi M. Khankhoje** (M.S.)

B.S., Nagpur University (India)  
Mentor: Prof. Zhihao Zhuang

**Ann M. Ploskonka** (M.S.)

B.S., Goucher College  
Mentor: Prof. Charles Riordan  
Placement: Scientist, Leidos, Inc., Aberdeen (MD)  
Proving Grounds

**Yi Wang** (M.S.)

B.S., Anhui Normal University (China)  
Mentor: Prof. Svilen Bobev

**Chi Zhang** (M.A.)

B.S., Jiangnan University (China)

# 2016 Ph.D. Graduates

NAME	PREVIOUS DEGREE(S), COLLEGE(S)	DISSERTATION CHAIR	DISSERTATION TITLE	PLACEMENT
<b>Eser S. Akturk</b>	B.S. New York University	Klaus Theopold	Synthesis and Reactivity of Low Valent Chromium (I) Precursors Supported by Hydrotris(Pyrazolyl)Borate Ligands for Dioxygen and Small Molecule Activation	Postdoc, Univ of Colorado, Boulder
<b>Samantha J. (Brannick) Boyd</b>	B.S., Muhlenberg College	Joseph Fox	Improved Methods for the Synthesis of trans-Cyclooctenes and Their Applications in Synthetic and Bioorthogonal Chemistry	
<b>Christena L. Cadieux</b>	B.S., M.S. Virginia Polytechnic Institute and State University	John Koh	A Reactivator of Organophosphorus Nerve Agent-Inhibited Human Acetylcholinesterase: Characterization, Mechanistic Insights and Design	Post-doctoral, U.S. Army Medical Research Inst. of Chemical Defense

<b>Di Cui</b>	B.S., Wuhan University (China)	Sandeep Patel	Assessment of Local Hydrophobicity and Its Effect in Mediating Protein Related Associations	Post-Doctoral, Temple University
<b>Srimoyee Dasgupta</b>	B.S., University of Delhi	Mary Watson	Transition Metal Catalyzed Reactions of Electrophilic Intermediates to Form C-C Bonds and Set Stereogenic Centers	Post-doctoral, Material Science, University of Delaware
<b>John L. DiMeglio</b>	B.S., Muhlenberg College	Joel Rosenthal	Elective Conversion of CO <sub>2</sub> to Fuel Precursors Using an Inexpensive Bismuth-Based Electrocatalyst	Post-doctoral, University of Michigan
<b>Amber A. Gietter</b>	B.S., Collee of New Jersey	Donald Watson	Novel Methods to Synthesize Complex Nitroalkanes and the Development of On-Electrode Cross-Coupling Chemistry	
<b>Tara D. (Drake) Gonzalez</b>	B.S. Georgian Court University	Brian Bahnsen	Lipoprotein-Associated Phospholipase A2: Utilizing Potent and Specific Inhibitors to Probe the Structure Function Relationship	
<b>William L. Green</b>	B.S., Rowan University	Charles Riordan	Dioxygen Activation by Trispyrazolylborate-Supported, Monovalent Nickel Complexes and Associated Reactivity	Inorganic Manufacturing Chemist, SpexCertiPrep, Metuchen, NJ
<b>Hsuan Kung</b>	M.S., National Sun Yat-Sen University	Andrew Teplyakov	Surface Chemistry of Metal Oxide Materials: From Metalorganic and Organic Reactions to Gas Sensing	
<b>Qin Liang</b>	B.S., University of Science and Technology (China)	Zhihao Zhuang	Investigating the Inhibition of USP1 in DNA Damage Response and Developing Chemical Approach to Study DUB Specificity and PCNA Ubiquitination	
<b>Jesse P. McAtee</b>	M.S. University of Hawaii, Manoa	Donald Watson	Development of the First and Second-Generation Silyl-Heck Reactions	
<b>Anil K. Pandey</b>	B.S. University of Delhi	Neal Zondlo	Synthesis of Conformationally Diverse Peptides to Control Peptide Structure and Function and Investigation of Unique Serine/Threonine Phosphorylation Effects on Peptide Conformation	



<b>Robert Panish</b>	B.S., Elizabethtown College	Joseph Fox	Enantioselective Synthesis and Reactivity of Bicyclobutanes-Strained Molecular Platforms for 4-, 5-, and 6-Membered Ring Synthesis and Rhodium(II)-Catalyzed Reactions of Diazoesters with Organozinc Reagents	
<b>Katelyn J. (Nagy) Smith</b>	B.S., College of New Jersey	Charles Riordan and Joel Schneider	Investigation of the Assembly Mechanism and Molecular-Level Structure of (Beta)-Hairpin Peptide Hydrogelators	Senior Scientist at Merck Pharmaceuticals
<b>Christopher L. Suiter</b>	B.S., West Virginia University	Tatyana Polenova	Insights into the Structure and Dynamics of HIV-1 Maturation Intermediates and Nonuniform Sampling Methods for Magic Angle Spinning NMR	
<b>Adam H. Tencer</b>	B.S., Rowan University	Zhihao Zhuang	Divergent Ubiquitin Interaction Among Ubiquitin Specific Proteases and Development of Small Molecule Inhibitors	Post-doctoral, University of Colorado
<b>Haoyu Wang</b>	B.S., Beijing University of Chemical Technology	John Koh	Controlling Androgen Receptor Nuclear Localization by Dendrimer Conjugates	
<b>Peng Wang</b>	B.S., Wuhan University; M.S., Chinese Academy of Sciences	Charles Riordan	Tris(Thioether)-Supported Base Metal Complexes with Redox-Active Dioxolene and $\alpha$ -Diimine Ligands	Organic Chemist, Affinity Research Chemicals, Wilmington, DE
<b>Haixia Wu</b>	B.S., Beijing Institute of Clothing Technology; M.S., Georgia Institute of Technology	Zhihao Zhuang and Christopher Roberts	pH-and Temperature-Dependent Mechanisms of Non-Native Aggregation of Anti-CD40 IGGI	
<b>Kun Yang</b>	B.S., Sichuan University (China)	Zhihao Zhuang	Developing Chemical Methods to Generate Ubiquitinated Proteins and Investigating the Role of Reversible PCNA Ubiquitination in DNA Damage Response	Post-doctoral, Johns Hopkins University
<b>Qi Zhou</b>	M.S., Guangxi Normal University (China)	Mary Watson	Construction of C-C and C-B Bonds by Enantiospecific Nickel-Catalyzed C-O Bond Activation	

# Alumni News

## Fifty-Year ACS Members

The annual accounting of 50-year ACS members in **C&E News** (3/7/16, pp. 49-56) included five CHEM/BIOC alumni, two of whom contributed mightily to your Editor's research career:

- **John W. Henderson** (BS65)
- **Harold S. Brunner, Jr.** (BS66)
- **C. Frank Shaw III, Ph.D.** (BS66) - my first undergraduate research student
- **Henry J. Gysling** (PhD67) - my first doctoral student
- **Joel Slutsky** (PhD72)
- **Allison J. (Mosher) Nalesnik** (MS73) - daughter of (the late) **Prof. William A. Mosher** (FAC 45-72, CHAIR 45-69)

Heartiest congratulations and best wishes to all!

## Latest ACS Fellows

The American Chemical Society just published (CHEMICAL & ENGINEERING NEWS, 7/18/16, p.34) the 2016 list of the 57 ACS members who have been named ACS Fellows in recognition of their outstanding achievements in and contributions to science, the profession, and the ACS. Three of the new Fellows have strong ties to our Department:

**Silvia S. Jurisson, Ph.D.** (BS78) – Professor of Chemistry and Radiology at the University of Missouri, Columbia. Silvia served as the featured speaker at our 2016 CHEM/BIOC Graduation Convocation.

### **Michael A. Stemniski, Ph.D.**

– retired after 35 years of teaching chemistry at McKean High School. “Dr. Mike” has served as a part-time instructor for us for over four decades.

**Tracy C. Williamson** (PhD92) – Scientist with the US Environmental Protection Agency, co-author of the book “Green Chemistry: Designing Chemistry for the Environment,” a seminal contribution in the area of green chemistry. Tracy's mentor was **Dr. James Damewood** (FAC 84-90), now with DuPont's Haskell Global Center for Health and Environmental Sciences.

Heartiest congratulations to all!

## 40's

### **John (Jack) Weikart**

Editor's Note: While not a graduate of our Department, Jack's financial support through the years rivaled that of any of our alumni. Jack received his degrees in chemistry (1941) and chemical engineering (1942) from Cornell University. He started his professional career with the Standard Oil Development Company in 1942 which morphed into the Esso Research and Engineering Co., thence to Exxon Research and Engineering Co., and, finally, to the Exxon Corporation. He retired in 1982, and died on 3/6/16.

Although I can't pinpoint its beginning, my friendship with Jack probably goes back ca. 40 years. It had a twofold origin. I taught one of his sons freshman chemistry and Jack served as an official recruiter for Exxon at the University of Delaware, where I have professed for the past 52 years (42 years

as out first and only Associate Chair). While I have encountered MANY people in both categories for the past half-century, very few, if any, evolved into the close personal friendship that we have enjoyed, as well as the strong, consistent financial support that he has provided our Department to the present time (more about that later).

My favorite story involving Jack goes back to a beautiful, warm spring day. We had just enjoyed one of our many lunches at the Blue and Gold Club, and were walking back to my office in Brown Lab, on what was then called The Mall (now The Green). The profusion of co-eds sunning on The Mall was SOP for me, but not for Jack, in the halls of Exxon. I heard a thud, and discovered that he had walked into one of the giant elm trees that then lined The Mall!

The aforementioned financial support that Jack gave to our Department, amplified by Exxon's 3:1 matching policy, was extraordinary. Indeed, our two premier endowed student Awards (the Elizabeth Dyer Excellence in Chemistry and Biochemistry Awards for our top seniors, and the Elizabeth Dyer Excellence-in-Teaching Awards for our best graduate teaching assistants) were initiated using seed money provided by Jack and Peg, his late wife of 59 years.

Our contacts continued after Jack and Peg retired to Cokesbury Village, albeit less frequently. However, his support never wavered. Jack had a strong, direct personality, which I always appreciated. He will be deeply missed!

## 50's

**Samuel Swinger** (BS51) passed away on 10/30/15 at the age of 88. Sam worked as a chemist for Sinclair/BP for many years. He then became a small business owner, opening Nature's Way in 1971. He retired in 1996.

**George R. Waller, Jr. Ph.D.** (MS52), who introduced mass spectrometry to the field of biochemistry, died in 3/15, at the age of 87. He earned his doctorate at Oklahoma State University, where he served as a faculty member his entire career (56-87). He served on a task force that led to the creation of the Environmental Protection Agency, and was the founder and President of the International Allelopathy Society (94-01) [*ASBMB Today*, 9/15, p. 7]

**E. Winifred Blanken** (BS56) died on 11/9/15. She was the widow of (the late) **Thomas Fittin** (MS57).

**Norman J. Gerri** (MS56) died on 3/25/16, at age 90. He worked at the Aberdeen (MD) Proving Grounds Ballistics Research Laboratory for 55 years, before retiring in 2007.

**George D. Null** (MA56, PhD58) passed away on 12/1/15, at age 89. After earning his doctoral degree working with (the late) **Prof. Harold Kwart** (FAC 51-83), George spent his entire career as a research chemist with the DuPont Company before retiring in 1985.

## 60's

**Kenneth H. Schroeder** (MS60) passed away on 4/14/16 at the grand old age of 94. He spent his entire research career of 42 years with the Allied Chemical Corporation.

**Russell D. Teeter** (BS63) died on 2/27/16, at age 79. He devoted his working life to his family's green house business, north of Newark.

**W. Brooks Bigelow, Ph.D.** (BS65) passed away on 10/1/15, at age 73. After earning his doctorate at New Mexico State University, he taught chemistry in Arkansas, Florida, and Iowa, before settling in as an Associate Professor at Trine University, in Angola, IN where he taught for 28 years. Brooks was a consistent, significant financial supporter of our Department throughout his career. In death, he left a major legacy, which will be used to fund future CHEM/BIOC Summer Research Scholars.

**C. Frank Shaw III, Ph.D.** (BS66), Professor Emeritus at Illinois State University, has been active in "retirement." As the leader of his local (Normal, IL) ACS Local Section Climate Science outreach team, he was involved in 8 teacher workshops in Illinois, Wisconsin, and Maine. He was again, an organizer of the 2015 International Georgian Bay Conference on Bioinorganic Chemistry (CanBIC-5). He also found time to attend his 50th class reunion at the UofD, during which he made a delightful visit to his old UG research mentor (your Editor).

## 70's

**Noreen C. Campbell** (BS70, MS73) took her second "career" as horseperson to a week long National Geographic Photography Workshop this past year in Dubois, WY.

**Thomas M. Gilmore, Ph.D.** (MS70) has retired from his position as a research scientist with the Environmental Protection Agency. He and his wife are now living in Seaford, DE.

**Mary Ellen (Glick) Cusick** (BS71) has retired from a 25 year career in sales with Hercules and, later, the Halocarbon Products Corp. She is living in Tinton Falls, NJ.

**Alan S. Levine** (PhD71) is the Chief Scientific Officer and Director of the Family Cord Blood Bank, in Orlando, FL.

**Kenneth S. Rosenthal, Ph.D.** (BS73) and his wife, Judy, headed west, following his retirement from the Northeast Ohio Medical University. They are now working to create the new Roseman University of Health Sciences College of Medicine in Summerlin, NV. His new edition of Medical Microbiology and Immunology Flash Cards (Elsevier) is in press.

**Faith K. Silver** (MA73) retired this past February, after 41 years of combined service with DuPont and Chemours.

**H. Douglas Thornley** (BA75) has announced the merger of his cosmetic chemicals company, Impact Colors, Inc., with Sandream, in Fairfield, NJ, to form Sandream Impact LLC.

**Debra Hess Norris, Ph.D.** (BA77), the Unidel Henry Francis duPont Chair in Fine Arts and Chair of UD's Department of Art Conservation, has received the 2016 Award for Distinction in Scholarship and Art Conservation from the College Art Association and the American Institute for Conservation.

**Walter C. Frank, Ph.D., J.D.** (MS78) has changed law firms. He is now Counsel at Brinks, Gilson, and Lione, in Tampa, FL.

## 80's

**Anne Gaffney** (PhD81), the Director of Process Science & Technology and Laboratory Fellow at the Idaho National Laboratory, returned to campus on 1/29/16 to present the inaugural NIH/COBRE Student-Invited Seminar. Her topic was "Oxidative Dehydrogenation of Ethane to Ethylene."

**Jane (Maggie) O'Brien** (PhD81), retired President of St Mary's College in Maryland, sent the following note in response to the invitation to attend Prof. Hal White's Retirement Colloquium and Reception:

*I'm excited that Burnaby, Cecil and John B. are so present — and thank God for Burmeister's Newsletters — whereby I've kept in touch and Hal has been my hero since 21 years of age — that's 41 years now.*

*Sometime around the age of 55 you start to count your lucky charms, and all of these folks and more (John Wriston & Roberta Coleman — John establishing the perfect application for the term elegant, Roberta 15 degrees prone & grazing the corner turn into Brown Lab with a quick dodge into her lab) when I reflect on the Chem Dept's and Hal's incredible impact for me.*

*All a step ahead of me and I was mesmerized.*

*These remain today the most important people to shape my thoughts and my purpose in life, more important than great writers and contemporary politicians. Thank God John B. has kept alumni up-to-the-minute. I'm never quite sure if the Dept or UD quite understand the depth of the contract this Dept has generated through Burmeister's Newsletters. Assuredly, it's as good as a University could wish for. Two alma maters later, 5 U associations and I have only 1 that I*

*cherish dearly: the Chemistry Department at Delaware.*

*I am so proud that Dick Heck has a Nobel Prize. I think I flooded his lab. Twice.*

*So I have 4 grandchildren, 10, 8, 6 and 4. One has Downs Syndrome and we want him also to be well educated. And I find myself thinking — Hal would understand this.*

*In a period of political chicanery, look outside for the magic. Hal White has it.*

**Rebecca (Durney) Cronin** (BS85) has followed some very different turns in her career path. She is now the proprietor of Sew There Embroidery. She also participates in the PAWS for People Program. Aileen and I had the pleasure of meeting her and her magnificent German Shepherd therapy dog, Katara, during a recent visit to Christiana Hospital.

The "UD West" contingent at Shippensburg University is alive and well.

**Jeffrey Lacy** (PhD85) is a Professor of Physical Chemistry, **Rebecca (Kush) Lowe** (BS89) is an Instructor in Chemistry, and **Joseph Shane, Ph.D.** (BS91) who is an Associate Professor of Chemistry and Science, serves as the Department Chair.

**Lawrence Goff** (BA87) is the Director of Quality Assurance for AstraZeneca Pharmaceutical's Packaging PET in Newark.

## 90's

Congratulations to **Lee Silverberg** (PhD 90). Lee, the Coordinator of the Undergraduate Research and Creative Accomplishments Program at Penn State's Schuylkill Campus, has just been promoted to Associate Professor, with tenure.

**Dewey Barich, Ph.D.** (BS92) is now a Research Investigator with GlaxoSmithKline, in King of Prussia, PA.

**Daniel Paone, Ph.D.** (BS92), also with GlaxoSmithKline, albeit in their Discovery Partnerships with Academia Program, presented a seminar in our Department on 10/28/15. Its title was "Discovery of Telcagepant (MK-0974): The First Orally Bioavailable Calcitonin Gene – Related Peptide (CGRP) Receptor Antagonist for Migraine Treatment."

**Dilip Modi** (BS95) was a member of the Incyte team cited in *C&E News* (9/28/15, p. 38) for its discovery of INCB24360 (EPACADOSTAT) - an agent for cancer immunotherapy.

**Haiying Chen** (MS97) is a Technical Manager with Sepax Technologies, Inc., in Newark.

**Sujata Bhatia, Ph.D., M.D.** (BS99) has come "home." She is now a Professor in our Chemical and Biomolecular Engineering Department.

**Glenn Fritz** (BS99) is a Senior Scientist, Product Design, Global R&D for Pfizer Consumer Healthcare, in Richmond VA.

## 00's

**Damien Thévenin** (PhD06), Assistant Professor of Chemistry at Lehigh University, presented a seminar at the U of D on 11/20/15, entitled "Specific Targeting and Delivery of Therapeutics to Cancer Cells Based on the Tumor Microenvironment."

**Gregory Juck** (BS09) is an R&D Scientist with Romer Tech, Inc., in Newark.



**Dana (Pustolski) Reiss** (BS09) is now a doctoral student in Behavioral and Community Health at the University of Maryland, College Park.

**John Young** (PhD09) has developed a website to be used as a tool for scientific researchers to easily find and learn about a variety of chemical and life science vendors: [www.elementalreviews.com](http://www.elementalreviews.com).

It encompasses a blog called LabJourneys which is dedicated to providing career advice and scientific inspiration for the science community.

## 10's

**Piyali Ariyananda** (PhD 10) is the Regional Head of R&D for Midas Safety, in Katunayake, Sri Lanka. His wife, **Lushanti** (PhD10) is a Visiting Lecturer at the Institute of Chemistry.

**Angela Genoese, M.D.** (BS10) was awarded the Doctor of Osteopathic Medicine degree from the Philadelphia College of Osteopathic Medicine on 6/5/16. Angela is continuing her medical training in family medicine at the Williamsport (PA) Regional Medical Center.

**Kana Panchmatia** (BS11) is now enrolled in Carnegie Mellon University's Master of Integrated Innovation for Products & Services Program.

**Bayram Saporov** (PhD11) is now an Assistant Professor at the University of Oklahoma, Norman. Some of his lab space was previously occupied by Dr. Donna Nelson, the current ACS

President who served as the chemistry adviser for "Breaking Bad."

**James White, Ph.D.** (BS11) has completed his Ph.D. in Chemistry and Materials at Princeton University, working with Prof. Andrew Bocarsly. James is currently working as a post-doc at Sandia National Laboratories in California.

**Marlene Yandrisevits** (BA11), having completed her M.S. in Art Conservation at the U of D, is now employed at the Smithsonian Institution's National Air and Space Museum.

**Jeffrey Lopez** (BS12), an NIH Predoctoral Fellow in Metalloenzymology and PTM in the University of Michigan's Department of Chemical Biology, presented a seminar in our Department on 11/13/15 entitled "Beyond Histones: Searching for Histone Deacetylase 8 Substrates."

**Jared Bass** (BS13) has completed his M.S. in Molecular Biology at Hunter College.

**Jennifer (Thompson) Pullyblank** (BS13) is a Sourcing & Purchasing Associate with Croda, Inc., in New Castle.

**Joseph Rattenni** (BS13), having completed his M.S. in Health Science at Drexel University, will begin his M.D. studies at the DeBusk College of Osteopathic Medicine, in Harrogate, TN, this fall.

**Sandra (McNally) Sewitsky** (BA14) is an Analytical Chemist (Permanent Merit State Employee) in the Delaware Department of Public Health's Environmental Analytical Laboratory.

**Kayleigh Stephens** (BS14) is an Inside Sales Specialist (Chemistries and Supplies) for Agilent Technologies.

**Jun Tsuda** (BS14) is marching to a different beat than are most CHEM/BIOC graduates. He is teaching English in Japan "to earn a living," while following his dream to become a professional boxer!

**Lukas Campolo** (BS15) is now a software developer for Epic, a worldwide leader in the development of software for healthcare organizations.

**Sarah O'Brien** (BA15) is a Chemistry Teacher at the Wilmington Friends School.

**Leonard Voss** (BS15) is an R&D/QC Engineer for UFLOOR Systems, Inc., in Dover, DE.

**Jasmin Philip** (BS16), writing under the pen name Miri Castor, has published another book in her Opal Charm series—a young adult urban fantasy titled *The Path to Dawn*.

# HONOR ROLL

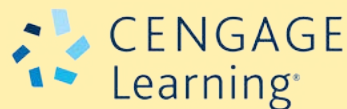
## *of Gifts to the Department*

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 2015-2016.



The Department would like to acknowledge, with extreme gratitude, financial support from the following alumni, parents, faculty members, staff members and friends during 2015-2016. Your support has always been important to us; however, in these stressed financial times it is like manna from heaven!

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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/](http://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**

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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**

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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**

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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**

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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.

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/](http://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.

—Murray Johnston

# Honor Heck's Nobel Legacy

## *Support the Heck Award & Lectureship*

Established in 2004, the annual Heck Award and Lectureship commemorates Heck's legacy to science and to the University of Delaware. Heck returned in 2004 to give the inaugural lecture, and each year the Heck lecture continues to be an outstanding event. With generous support of various donors, we have now celebrated 13 Heck lecturers, including 3 Nobel Laureates, 9 members of the American Academy of Arts & Sciences, and 10 members of the National Academy of Sciences.

The Heck Lecture exposes our undergraduate and graduate students to cutting-edge research from the world's

leading laboratories. It also provides an opportunity to reflect on the incredible groundbreaking discoveries that occurred at Delaware, reminding our students and ourselves of the incredible scientific legacy we share as University of Delaware Blue Hen Chemists.

Please honor Heck's life, achievements, and legacy with a gift supporting the Heck Award and Lectureship. If your company or organization supports the Heck Lectureship, they will also be prominently acknowledged. If \$50,000 can be raised, we can create an endowment to support the Lecture in perpetuity.

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ALUMNI NEWSLETTER

#43, FALL 2016

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Susan Cheadle

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Heather Harwood

#### PRINTING & DISTRIBUTION

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My sincerest thanks to all!

—J.B.

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