To all our Chemistry Alumni and Friends,

It has been another eventful academic year here in the department, beginning with the (delighted!) Prof. Jon Zubieta turning over the chair’s duties to myself. The past year was actually Jon’s second stint as chair. We thank Jon for again putting the needs of the department front and center. Under Jon’s guidance over the past year, I served as associate chair, a position now filled by Prof. Robert Doyle, who also serves as director of graduate studies.

In other faculty news, it has been a hugely successful year. We are delighted to announce that we have hired Prof. Olga Makhlynets into a new tenure-track assistant professor position that begins in Fall 2017. Makhlynets received her Ph.D. from Tufts University in Boston (Elena Rybak-Akimova group) and was a postdoctoral researcher with the eminent enzymologist JoAnne Stubbe at MIT, before joining the department, initially as a Chancellor’s Fellow in November 2014. Her research is in the general area of bioinorganic chemistry, with an interest in, among other topics, the role of manganese in bacterial pathogenicity.

We are also delighted to announce that we went three for three in promotion cases this year. Prof. Ivan Korendovych was promoted to associate professor with tenure. His work on enzyme design has featured recently in several high-impact journals, including Nature Communications, and in 2016 he was awarded a $1.8 million R35 grant from the NIH (NIGMS)—quite a year! In addition, professors Matt Maye and John Chisholm were both promoted to full professor. Congratulations to all three, who made significant contributions to the department and University across research, teaching, and service that culminated in such recognition.

It was also a great year for undergraduate and graduate research funding. Professors Michael Sponsler and Bruce Hudson ensured our 15 + years of NSF summer research experience for undergraduates program would continue through the acquisition of a new three-year $297,000 grant. Professors Nancy Totah and John Chisholm were awarded a $738,195, three-year grant, which includes a 25-percent match from the College of Arts & Sciences, to fund students’ tuition as part of a the Graduate Assistance in Areas of National Need (GAANN) program at the U.S. Department of Education. This is actually the second GAANN award for Professor Totah, and has benefited many of the graduate students whose successes are detailed later in this newsletter.

Following on from the standing-room-only 2015 departmental Prins Lecture given by Prof. Stephen Lippard (MIT), this year we hosted Prof. Axel Zeitler (Cambridge University, UK), who gave a seminar hosted at the University Sheraton Hotel titled “Applications of Terahertz Spectroscopy to Pharmaceutical Sciences.” The Prins Lecture is an important date in our academic calendar that attracts world-renowned scientists, and is named to honor Prof. Willem Prins, a former professor in our department who died in a boating accident in 1974.

In addition, the first Meredith Symposium for women and first-generation college students in the sciences was organized by Prof. Doyle, with considerable help from professors James Hougl and Carlos Castañeda, on Oct. 22 in the Life Sciences Building. Former chemistry students Nerissa Viola (G’09) and Anna Kahkoska (’13) returned to give seminars. Eight current undergraduates were selected to present and two were named the inaugural Meredith Scholars and awarded $2,500 each to travel and present their research at a national conference. The talks can be seen on the symposium website, www.meredithsymposium.syr.edu. The second such symposium is scheduled for Nov. 4, and this year is co-sponsored by the American Chemical Society.

In general University news, we have seen a new dean of the Graduate School named in Prof. Peter Vanable (Department of Psychology) and Zianjiang “John” Liu has been named the University’s new vice president for research. The separation of what was once a joint appointment is part of a renewed emphasis on research at the University, an emphasis that also saw us return to the top-tier (R1) ranking designation, announced in the Carnegie Classifications in 2016.

Also, for those of you who remember dodging cars on University Place, you will be happy to hear a new move to pedestrianize much of the main campus has begun. A new walkway has been built along the strip that runs from the Goldstein Faculty Center, past Bird Library and the Schine Student Center, and down to the Newhouse School at the corner of Crouse Avenue and has been well received by students, staff, and faculty.

Overall, it has been a great year for the department, as we continue on a strong upward trajectory. There has been much more to celebrate in terms of funding, publications, patents, graduations, and awards and such are highlighted throughout this newsletter. I therefore encourage you to read on!

Warmest regards,
Timothy Korter
UNDERGRADUATE ACHIEVEMENTS

Jane Kim (BS, 2017) Worked with Spencer group on the synthesis of new organometallic precursor molecules and main group complexes and also in the preparation of new types of solid state materials.

Linda Kim (BS, 2017) Worked with Spencer group on the synthesis of new organometallic precursor molecules and main group complexes and also in the preparation of new types of solid state materials. Kim will be attending John Jay College of Criminal Justice in the fall for its M.S. in forensic science.

Albanie Hendrickson-Stives (BS, 2017) Performed undergraduate research in the Chisholm group on the reactivity of trichloroacetimidates. He will be attending graduate school studying medicinal chemistry at the University of Kansas starting in the fall of 2017.

Tomás J. Smith (BS, 2016) Worked with the Kahan group and graduated with distinction. She will begin her Ph.D. at Penn State University in Fall 2017.

Diona Symester (BS, 2016) Performed undergraduate research in the Chisholm group on the reactivity of trichloroacetimidates. She will be attending graduate school studying medicinal chemistry at the University of Kansas starting in the fall of 2017.

CONGRATULATIONS TO PH.D. RECIPIENTS WHOSE DEGREES WERE CONFIRMED FALL 2016 TO SPRING 2017

Students are listed with the name of their advisor and title of their dissertation

Ronald Bonaccorso (Doyle) “Exendin 4 Conjugation and Sequence Modification to Treat Type 2 Diabetes and Obesity”


Brian Duffy (Chisholm) “Thietherification and Etherification Utilizing Trichloroacetimidates Under Thermal Conditions & Progress Towards an Efficient Synthesis of AQX-1125”

Tiffany Dunston (Korendovych) “Directed Evolution for the Design of New Catalysts”

Benjamin Ellis (Chakraborty) “Development of Multicomponent Coupled-Cluster Theory and its Application to Nanoclusters and Molecular Systems”

Soumyashree Gangopadhyay (Hougland) “Protein Prenylation by Geranylgeranyltransferase Type I (Ggtase-I): Understanding The Substrate Recognition and Activity Regulation of a Multispecific Enzyme”

Jarod Grossman (Kahan) “Laboratory Investigations Into the Fate of Aromatic Pollutants in Natural Waters”

Kyle Howard (Chisholm) “Convenient Etherification using Trichloroacetimidates and Synthesis of Aminosteroid SHIP Inhibitors”

Alisha Lewis (Maye) “DNA-Mediated Nanoparticle Clustering: Exploring the Role of Size Ratio and DNA Hybridization Energy”

Yan Nie (Doyle) “The Multi-Substrate Binding Specificity of Saposin B”

Daniel Wallach (Chisholm)” Trichloroacetimidates as Alkylation Reagents in C-N Bond Formation and Synthesis of Aminosteroid and Quinoline Inhibitors of Src Homology 2 Domain-Containing Inositol Phosphatase (SHIP)”
**ALUMNI CORNER**

**Mark Bartholoma**  
(2010, Zubieta postdoctoral fellow)

After his graduation from Prof. Kaspar Hegetchewieller’s group working on the complex formation of novel hexadentate derivatives of a polyamino polyalcohol ligand, Bartholoma joined the chemistry department at SU for a postdoctoral appointment in Prof. Jon Zubieta’s group in October 2007. During his time at SU, he worked on rhenium-labeled nucleosides as anticancer agents in collaboration with the Doyle laboratory and industry partners. He also performed research on the hydrothermal and solvothermal synthesis of coordination polymers and metal-organic frameworks. In late 2009, he moved on to Harvard Medical School to work on radiolabeled rhodamine dyes as myocardial perfusion agents for positron emission tomography in Prof. Alan Packard’s lab at Children’s Hospital Boston. In late 2011, he accepted a position as lab head in the Department of Nuclear Medicine at the Medical Center of the University of Freiburg, Germany. In this position, he is responsible for the GMP-compliant production and quality control of nonstandard radiopharmaceuticals for clinical applications. In recent years, he led the installation of the GMP facilities, including clean room and quality control laboratories as well as the preclinical research laboratories until 2014. During that time, he also established a GMP system with accompanying documents to fulfill regulatory documentation requirements. He currently supervises two lab techs and one chemist. In close collaboration with several departments of the University of Freiburg, he is also training students at different levels and acts as instructor for radiation protection courses and as lecturer for medical, pharmaceutical, and chemical students of the University. His research focuses on novel chemical approaches in the development of radiopharmaceuticals with an emphasis on chelator design. In his spare time, he takes advantage of the numerous amenities of the Black Forest, including the enjoyment of the huge selection of excellent beers.

**Kelly Henry**  
(2015, Doyle and Zubieta)

After defending her dissertation in May 2015, Henry started a postdoctoral research position in the lab of Jason Lewis, a world-renowned molecular imaging principal investigator, at Memorial Sloan Kettering Cancer Center in New York City. She began working in the field of radiochemistry and molecular imaging, specifically using PET imaging to interrogate oncogenic signaling pathways. Her main project includes annotating oncogene status using a zirconium-89 labeled transferrin PET imaging probe. Her work has focused on assessing the effects of small-molecule inhibitors on different oncogenic proteins to uncover relevant biomarkers in challenging malignancies such as triple negative breast cancer and pancreatic ductal adenocarcinoma. The primary focus of this work is to noninvasively detect and survey the biochemistry of tumors, ultimately to improve patient selection and therapy regimens. She has recently submitted a review to PET Clinics about clinically validated HER2-targeted PET and SPECT molecular imaging probes in breast cancer that has been accepted. In her free time, she enjoys traveling and being outdoors, along with taking advantage of the many cultural activities New York City has to offer.

**Nerissa Viola**  
(2012, Doyle)

Viola started postdoctoral research at the University of California in San Diego immediately after she defended her thesis in July 2009. Under the supervision of David Vera and William C. Eckelman, she worked on 18F fluorination of dextran for sentinel lymph node detection. While she enjoyed the West Coast and its laid-back vibe, she found herself driving cross-country less than a year later to pursue postdoctoral research in Prof. Jason Lewis' group at Memorial Sloan Kettering Cancer Center in New York. Under his mentorship, she worked on positron emission tomography non-standard radiometal isotopes and their potential use for imaging and detection of malignant lesions. Her efforts were rewarded by eight publications, of which six are as first author. In addition, Viola was inventor on a patent. She was awarded the first place poster presentation in the molecular targeting probes track and first place in the Nuclear Oncology Young Investigator Award in 2012 and the Society of Nuclear Medicine and Molecular Imaging Annual in 2013. In her final year, she was awarded an NIH/NCI K99/ R00 Pathway to Independence Award. She then accepted a junior tenure track faculty position at the Department of Oncology, School of Medicine at Wayne State University, Detroit. She is also currently a scientific member of the Karmanos Cancer Institute, an NCI-designated cancer center. Her research focuses on the development of PET imaging probes for detecting cancer as well as measuring tumor response to therapy. During her downtime, she is mom to a 2-year-old son, Michael, and goes to parks and places like Chuck E. Cheese for quality time.
Awards and General Information

Kyle Blaha (Kahan group) has been awarded an EMPOWER NRT Fellowship for the 2016-17 academic year.

Joseph Darling (Hougland group) received an all-University doctoral prize from the College of Arts and Sciences.

Soumyashree Gangopadhyay (Hougland group) received an all-University doctoral prize in the College of Arts and Sciences for the thesis titled “Protein Prenylation by Geranylgeranyltransferase Type I (Ggtase-I): Understanding the Substrate Recognition and Activity Regulation of a Multispecific Enzyme.”

Anil S. Guram (Ph.D. 1989 with Grant Krafft) has received the 2016 Paul N. Rylander Award for developing catalysts for industrially important organic reactions. Guram presented a talk about his accomplishments to the department on May 9.

Arman Hussain (Brainman group) has been awarded the Jonathan Chayat Memorial Award, which is presented to the student who best reflects the broad spectrum of values and interests—intellectual, moral, and aesthetic—that informed the life and mind of Jonathan Chayat.

Shawn Kowal (Kahan group) won an outstanding TA award from the Graduate School.

Alisha Lewis (Maye group) is the first IGERT Fellow to graduate with a doctoral thesis, titled “DNA-Mediated Nanoparticle Clustering: Exploring the Role of Size Ratio and DNA Hybridization Energy.”

Phil Malley (Kahan group) successfully defended his Ph.D. thesis titled “Investigating the effects of environmental solutes on the reaction environment in ice and at ice surfaces.”

Yan Nie (December 2016) defended her thesis, “The multi-substrate binding specificity of Saposin.” She has accepted a postdoctoral position at Wake Forest School of Medicine.

Alexa Stathis (Kahan group) has been awarded a University Water Fellowship for the 2016-2017 academic year, as well as an EMPOWER NRT Fellowship for the 2017-2018 year.

OUR DEPARTMENT IN THE NEWS

NEW FACULTY

Olga Makhlynets received her Ph.D. in 2011 from Tufts University under the direction of Elena Rybak-Akimova. She stayed in Boston for two more years to do postdoctoral research with JoAnne Stubbe at the Massachusetts Institute of Technology. After this, Makhlynets received a three-year Chancellor’s Faculty fellowship from Syracuse University, which was extended to a tenure-track position starting fall 2017. Her current interests focus on fundamental problems at the interface between chemistry and biology. One of the projects uses bioinorganic chemistry and microbiology approaches to study how human pathogen Streptococcus pneumoniae controls manganese levels inside the cell. Since regulation of manganese levels is critical for the ability of S. pneumoniae to cause disease, this research may ultimately lead to new therapeutics. Another project aims to develop peptide-based antimicrobial hydrogels to treat infections associated with methicillin-resistant Staphylococcus aureus (MRSA), E. coli, P. aeruginosa, and Candida species. A third project relates to the design of a protein catalyst for oxygen activation. Currently, Makhlynets is teaching general chemistry honors and inorganic technique laboratory courses. She envisions

From left to right, Nienka Dose, daughter of Prof. Prins; Tim Korter; and Axel Zeitler.

developing new courses with emphasis on physical methods in inorganic chemistry and structure/function of enzymes.

MEDICINAL CHEMISTRY PROGRAM

The chemistry department now offers a chemistry B.S. degree (medicinal chemistry track). The new medicinal chemistry track incorporates the principles of chemistry and the biological sciences to help students develop an understanding of the design, synthesis, evaluation, and optimization of pharmacologically relevant small molecules and biologics. This program provides a strong background for employment as a B.S.-level medicinal chemist in industry, government laboratories, and other venues. A strong foundation in medicinal chemistry may also be used to facilitate entrance to graduate school in related areas, including professional schools in the health sciences or medical school. More details may be found on the Department of Chemistry website: http://www-che.syr.edu/.

THE PRINS LECTURESHIP SERIES

On April 11, the department hosted the Prins Lectureship for 2016. The lectureship is named in honor of Willem Prins, professor of physical chemistry, who died on July 20, 1974, as the result of a boating accident. The lectureship has been made possible by the generosity of the Prins family, who have provided an endowment to support the series. Previous speakers include such notables as Ei-ichi Negishi (Nobel laureate), Harold Scheraga (Nichols medalist), Joseph Francisco (NAS, AAAS, Guggenheim fellow), Elsa Reichmanis (Perkin medalist, ACS president), and Stephen Lippard (Priestley Medal, Linus Pauling Medal). This year’s speaker was Prof. Axel Zeitler, a reader at the Department of Chemical Engineering and Biotechnology, University of Cambridge, where he leads the Terahertz Applications
Group. In addition, he is a fellow at Gonville & Caius College, where he was a research fellow prior to his university appointment in 2010 and where he now also holds a college lectureship in chemical engineering as well as in chemistry. In 2007, Zeitzer completed his Ph.D. at the School of Pharmacy, University of Otago, New Zealand, following his undergraduate degree at the University of Würzburg, Germany. He previously held research positions at the Cavendish Laboratory, University of Cambridge, UK, and TeraView Ltd. His presentation was titled “Applications of Terahertz Spectroscopy to Pharmaceutical Sciences.” The accompanying photograph shows, from left to right, Nienka Dose, daughter of Prof. Prins; Tim Korter; and Axel Zeitler.

SYRACUSE CHEMISTRY RESEARCH EXPERIENCE FOR UNDERGRADUATES PROGRAM RENEWED

The department’s long-standing Research Experience for Undergraduates (REU) program, funded by the National Science Foundation, was recently renewed. The new three-year grant, with Michael Sponsler as principal investigator (PI) and Bruce Hudson as co-PI, will fund 11 research students each summer through 2019. Additional summer students will participate in research and REU program activities funded by other sources, and the full 2017 contingent numbers 28! This is even without any students from Austria, as we have had most years since 2005. The NSF international REU (iREU) program is also funded through 2019 (PI Karin Ruhlandt and co-PI Sponsler), and six students from across the U.S. are doing research at the Technical University of Graz this summer. We anticipate that the exchange program will be active again in both directions in 2018.

DIA DE CIENCIAS

Gary Bonomo participated in the Dia de Ciencias event, organized by the Society of Hispanic Professional Engineers (SHPE) in the College of Engineering and Computer Science under the direction of Emma I. Scavo Alarcón and Dean Karin Ruhlandt. The goal was to create interest in STEM (Sciences, Technology, Engineering, and Mathematics) for young students; to this end, they partnered with the Syracuse City School District, focusing on fourth graders from Delaware Elementary School and Seymour Elementary School. More than 20 organizations on campus were invited from the College of Arts and Sciences, the College of Engineering and Computer Science, and the School of Information Studies. The activity Bonomo did was “Making a Slimy Toy: Fun with Polymers!” The students made a slime-like toy by mixing polyvinyl alcohol, Borax, and food coloring. This is a fun example of the concepts of cross-linking polymers.

FACULTY NEWS AND ACHIEVEMENTS

Prof. Doyle was a visiting professor of inorganic chemistry at the University of Valencia, Spain, working in the lab of Professor Miguel Julve. Doyle graduate student Tiffany Greenfield also visited the lab in Spain. Doyle filed and/or was awarded several patents in 2015, several of which were licensed to pharmaceutical companies: Improved Enzymatic Treatment of Macular Degeneration (Patent SU 100859); Methods And Systems for Zinc Delivery Using Intrinsic Factor or Haptocorrin (Patent SU 100739); Intrinsic Factor Binding of a Vitamin B12 Conjugate for Enhanced Peptide Stability Against Protease Digestion (Patent SU 100822); Coagonists of Glucagon-Like Peptide 1 Receptor and Neuropeptide Y2 Receptor (with R. L. Bonaccorso. SU 100846)

Bruce S. Hudson and Jack Melton have been awarded a patent titled “Method and apparatus for separation of pharmaceutical materials on the basis of their density.” (U.S. Pat. US 9089850).

John Chisholm was promoted to professor.

Ivan Korendovych was promoted to associate professor.

Mathew Maye was promoted to professor.

Steluta Dinca has just received an award for two full days (48 hours) of beam time at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL) for her study of very high molecular weight polyacetylene prepared in urea inclusion channels.

James Spencer received a small grant (SyracuseCoE Innovation Fund; $10K) from the Syracuse Center of Excellence for work on the functionalization of piezoelectric crystalline surfaces. The work will hopefully lead to the formation of a new generation of solid-state sensor systems.

Yan-Yeung Luk, with Anthony Garza of the biology department, has received a three-year, $375,000 grant award from the National Institute of the General Medical Sciences (NIGMS). The award is a federal response to the urgent need for new classes of antibiotics, as infectious bacteria become increasingly resistant to existing antibiotics. “This will enable new polyketides and non-ribosomal peptides to be identified and
tested for antibiotic properties,” Luk says. “A better understanding of their gene regulation will aid in the selection and engineering of a heterologous [i.e., different] host, since the compatibility of the host regulatory machinery is crucial for the heterologous expression of these gene clusters.”

**Mathew Maye** and his research group have designed a nanomaterial that changes color when it interacts with ions and other small molecules during a chemical reaction. The subject of an article in ACS Nano (American Chemical Society, 2016), their discovery enables researchers to monitor reactions qualitatively with the naked eye and quantitatively with simple instrumentation.

Malaria is a worldwide menace. According to the Centers for Disease Control and Prevention, over 500,000 individuals died from malaria in 2013 alone. While treatments for the disease exist, cures can also take a hefty physical toll. **Robert Doyle** and his graduate students, Brian Huta and Yan Nie, and an international team, including Chloe Zubieta of the Zubieta clan, have begun to unravel the biochemical action of one such malarial drug. The drug chloroquine has long been used to treat malaria, but it is not without side effects. Chloroquine kills malaria by causing the pH in certain parts of the parasite’s cell to increase, preventing important biochemical reactions.

Unfortunately, excessive use of the drug can be toxic to humans too. Long-term use of chloroquine can lead to side effects from gastrointestinal distress all the way up to chemical harm to the heart and death.

**Nancy Totah** (director) and **John Chisholm** (teaching coordinator) have been awarded a $738,195, three-year Graduate Assistance in Areas of National Need (GAANN) award from the U.S. Department of Education to support the program’s quest to increase graduate student diversity. “We hope to use funding from this grant to further increase the number of women and underrepresented individuals who pursue a Ph.D.,” Chisholm says. “We also hope that we can mentor more female and minority Ph.D. students to consider faculty positions, as these groups are still underrepresented in chemistry faculty.”

**Ivan Korendovych** was recently awarded a Maximizing Investigators’ Research Award (MIRA) from the National Institutes of Health (NIH). Korendovych, who is also an adjunct professor in the departments of biology at Syracuse University and radiology at SUNY Upstate Medical University, will use the $1.85 million award to study catalytic activity related to neurodegenerative diseases, drug resistance, and new antimicrobial therapies.

**Carlos A. Castañaeda** is the University’s inaugural recipient of a one-year, $50,000 starter grant from the ALS Association, a nonprofit organization that seeks to find a cure for amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig’s Disease. ALS is a progressive neurodegenerative disease that affects nerve cells in the brain and spinal cord. Castañaeda will use the award to investigate the effects of a protein called Ubiliquin-2 (UBQLN2) on ALS. Castañaeda also is the recipient of ORAU’s 2016 Ralph E. Power Junior Faculty Enhancement Award, whose $5,000 prize is being matched by the University. He will use the grant to study Ufm1, a protein that regulates the cellular stress response of the endoplasmic reticulum (ER), and is linked to diabetes, migraine, breast cancer, and other diseases. ORAU is a national consortium of more than 100 major institutions, committed to groundbreaking research in science, education, security, and health.

**James Hougland** is the recipient of a Junior Faculty Development Award from the American Diabetes Association in support of his research. The $414,000 grant will support three years of investigation into hormone interactions, which may lead to new diabetes treatments. “The research aims to develop a new biochemical avenue for treating type II diabetes,” he says.

**James Dabrowiak** has published “Metals in Medicine, 2nd Edition.”
2017 DEPARTMENT OF CHEMISTRY AWARDS

Birge Award for Exceptional Performance in Biochemistry Research
Tamra Takemoto

Clayton Spencer Award for Exceptional Performance in Undergraduate Research—Sponsored by Alpha Chi Sigma
Amanda Lieu

Department Award for Exceptional Performance in Analytical Chemistry
Katerina Armstrong

Department Award for Exceptional Performance in Biochemistry
Michael Aiduk and Thomas Knoerl

Department Award for Overall Excellence in Chemistry
Thomas Knoerl and Anniya Gu

Department Award for Exceptional Performance in Honors Chemistry
Jenna Neumaier and Benjamin Weiss

Department Award for Exceptional Performance in Inorganic Chemistry
Albanie Hendrickson-Stives

George Wiley Award for Exceptional Performance in Organic Chemistry
Bridget Clark and Dan Hansmeier

Gershon Vincow Award for Excellence in General Chemistry
Katharine Stasior, Hao Zhou, Joshua Tan, Zhewen Tang

Willem Prins Award for Exceptional Performance in Physical Chemistry
Christopher Jaquin

Distinction in Chemistry
Amanda Lieu

Albanie Hendrickson-Stives

Bianna Shores

WHERE ARE THEY NOW?

Tayo Ikotun (Ph.D. Doyle) is a research scientist at Amgen Los Angeles.

Pei Ma (Ph.D. Spencer) is now working for AstraZeneca Pharmaceuticals in Boston in quantitative clinical pharmacology.

Christopher Petrelli (Ph.D. Spencer) is working with Medtronic in Colorado.

Sharon A. Rivera (Ph.D. Hudson) left SU with an NSF international fellowship in Australia. She did neutron scattering there and in Continental Europe. She is now at Highline College, Des Moines, Washington, where she is a professor and director of the MESA program.

Gauri Shetye (Ph.D. Luk) is a postdoctoral scientist at the Infectious Disease Research Institute, Seattle.

Casey Simons (Ph.D. Spencer) has recently started a position with the University of Southern Mississippi.

Nischal Singh (Ph.D. Luk) has taken a position as senior scientist, Analytical Development Innovation & Development Fresenius Kabi USA, LLC.

Gundog Yuscan (Ph.D. 2006 Zubieta) has accepted a position as professor at the Berlin Technical University.

RESEARCH EXPERIENCE FOR UNDERGRADUATES

Twenty-six students from around the country and Austria were on campus in the summer of 2016 doing research in chemistry.

Row 1(front): Jeovanna Rios, Casey Cabrinha, Tanja Rappitsch, Brian Dixon
Row 2: Emily Morton, Hayley Glicker, Melanie Fellner, Garrick Centola, Katelyn Leets, Robinson Neira De Souza, Kim La (high school student)
Row 3: Kristina Arauz, Colin Reynolds, Breanna Tomiczek, Katharina Hiebler, Angelina Eder, Ben Derby, Brian Wilson, Mathias Hobisch
Row 4: Madalynn Marshall, Nicholas Armada, Abigail Bartlett, Bernhard Berg, Rafael Rathner, Johannes Repelning.
Not pictured: Cara Roskoff
We received a letter from a former student who worked with the late Martin Sage:

“Hi - It was fun reading the C.U.S.E. Summer 2016 news update just now. I often think of the great experiences I had at Syracuse 1968-1972 as a Chemistry major. Dr. Martin Sage was my faculty advisor; his brother Sam was a PhD candidate at the same time. 1968 was the first year of the SU Honor’s Program, and I was the only chemistry major in the program. Martin was a Physical Chemist when I arrived - at our first meeting, he gave me a copy of *The Double Helix* and told me to come back in a week to talk about the scientific process and how people innovate. By the time I had to write my thesis 3 years later he had changed gears - he wanted to explore environmental chemistry and had received a start-up NSF grant. By then, the world was concerned by oxygen-depleting algal blooms from phosphate detergents and toxic heavy metals that had been indiscriminately dumped into the lakes in NY - and Ralph Nader had just visited the campus. He wanted me to study the effect of nitrilotriacetic acid (NTA) on algal growth because NTA was being considered as the world’s answer to replacing phosphates in detergents; as you know, it is also a chelating agent. He bought refrigerators, shaker plates, and Erlenmeyer flasks filled with nutrient brews and assigned me to learn how to grow a green algae called *Selenastrum capricornutum*. We varied the concentrations of trace metals and measured growth by assaying extracted chlorophyll and counting algae in counting chambers. My girlfriend used to sneak in the lab at night when I was working to bring me dinner. Ironically, just before the project was done, news broke that NTA was a potential carcinogen - there went the Nobel Prize. As current and past Chairs of Chemistry, I wanted you to know that working Dr. Sage was one of the key building blocks in my career. I owe a big debt of gratitude to him and everyone at SU.

Sincerely,

Jim Dunford

James V. Dunford, MD, FACEP
City of San Diego EMS Medical Director
Professor Emeritus (Emergency Medicine),
UCSD School of Medicine

John Baldwin, Distinguished Professor of Chemistry and the William Rand Kenan, Jr., Professor of Science in SU’s College of Arts and Sciences and the 2010 recipient of the James Flack Norris Award in Physical Organic Chemistry, has moved to Pennsylvania with his wife, the lovely Anne, to be closer to children and grandchildren. The University community wishes the best to these pillars of the University and of the arts in Syracuse.

We would love to hear from you!
If your mailing address has changed or if you have an item of interest for the next newsletter, please send them along!

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