



Fall/Winter 2016

Number 46

# Mudd **IN YOUR EYE**

Department of Chemistry • Lehigh University

## Harry Ullmann moonlights for LVRR

*Notebooks of water analysis done for the LV Railroad by 1914-38 Department Chair Harry Ullmann end up back in the hands of Lehigh Chemists.*

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Chem alumnus, Stephen “Stew” Huminski (BS 1996) of Aberdeen, Maryland, recently contacted the Department to say he’d acquired two old lab notebooks once owned by chemistry professor, Harry M. Ullmann. The two notebooks cover 1899 and 1904 and are obviously part of a longer incomplete series. Ullmann was an analytical chemist hired at Lehigh as an Instructor in 1894, became chair in 1914, and retired as full professor and chair in 1938. He is noted as the chairman who in 1936 restarted the PhD program that had been put on hold by Chandler in 1896. Like Professors Wetherill, Chandler, and Schober before him, all of whom provided private analytical services from their Lehigh labs, Harry Maas Ullmann did, too. Wetherill’s analytical service was on zinc and iron ores for local smelters, Chandler did forensic analyses and tested local milk for adulterants, and Schober analyzed industrial dyes and pigments. Ullmann’s main client was Asa Packer’s Lehigh Valley Rail-

road. He conducted hundreds of water analyses for the LVRR. He analyzed the water used to charge the boilers of steam engines running on the Lehigh Valley line from western New York, to Baltimore, through the Lehigh Valley and on to Perth Amboy, New Jersey. While the boiler water was pumped from streams and overhead water towers, it was never purified and as such could have proved damaging to the boilers. Ullmann analyzed the water for acidity, suspended solids, elemental composition of dissolved minerals, and biological matter. The Ullmann note-

*Go to page 6 to read more*

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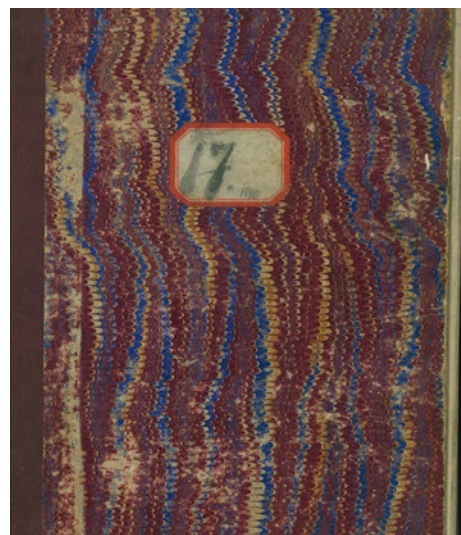
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*Front of notebook at right. Flip through pages of Ullmann’s notebooks on page 6 to view more of the water analysis study.*



Mudd in Your Eye

## Professor Robert Flowers named as new Deputy Provost for Faculty Affairs

This fall, Professor Roberts accepted the position of Deputy Provost for Faculty Affairs which officially begins in late January of 2017. Flowers will provide a supporting role to the provost and vice president for academic affairs and be the representative for many faculty issues such as tenure, faculty work/life balance, professional development and more. [Read more of Linda Harbrecht's article here](#)



## Welcome New Students

2016 - 17 Academic Year

Ashley Baxter  
Megan Blauch  
Ryan Charlton  
Noel Ferraro  
Reaid Hasan  
Devon Jakob  
Lucie Loftus  
George Ongwae  
Eden Reichard  
Zhe Wang  
Darian Waugh

## Mark Chen

The **Chen** Lab welcomes graduate student, Ryan Charlton, who will be joining the research group in the Spring of 2017. Main research efforts are continuing to pursue new design strategies for organic semiconducting materials. As the group anticipates completing their synthetic efforts soon, they have begun to install and set up a multi-station glove box system for fabrication and testing of electronic devices under inert atmosphere. Stay tuned for what happens next.

## Greg Ferguson

The **Ferguson** group's research addresses fundamental questions and practical problems in the areas of surface and materials chemistry. A current project focuses on the open-circuit decomposition of gold-oxide films on gold electrodes. Their studies in this area have not only discovered new aspects of chemical processes involved, but also allowed an examination of a standard electrochemical technique used for quantifying thin films in general. They have recently submitted a paper describing the use of quartz-crystal microgravimetry to provide insights into both aspects of the project. A second project focuses on a new method for chemically modifying the surface of silicon wafers that produces no by-products which could contaminate sensitive microelectronics built on these important substrates. They have submitted a paper recently on this project as well.

## Robert Flowers

Robert Flowers gave an invited lecture entitled, "Unraveling the Mechanism of Single-Electron Transfer in Synthetic Reactions" at the International Symposium on Organic Free Radicals in Shanghai, China on October 13, 2016. He also gave an invited seminar at the Department of Chemistry, Loyola University Chicago in April 2016.

His research group has been very busy and published the following:

- "The Role of Solvents and Additives in Reactions of Samarium Diiodide and Related Reductants" Chciuk, T.V.; Flowers, R.A. II in *Science of Synthesis*, Marek, I., Ed.; *Georg Thieme Verlag KG*: Stuttgart, **2016**.
- "Highly Active Titanocene Catalysts for Epoxide Hydrosilylation - Synthesis, Theory, Kinetics, EPR" Henriques, D.S.G.; Klare, S.; Zimmer, K.; Meyer, A.; Rojo-Wiechel, E.; Bauer, M.; Sure, R.; Grimme, S.; Schiemann, O.; Flowers, R.A. II; Gansauer, A. *Angew. Chem. Int. Ed.* **2016** *55*, 7671-7675.
- "High Affinity Proton Donors Promote Proton-Coupled Electron-Transfer Samarium Diiodide" Chciuk, T.V.; Anderson, W.R.; Flowers, R.A. II; *Angew. Chem., Int. Ed.* **2016**, *55*, 6033-6036.
- "Proton-Coupled Electron-Transfer in the Reduction of Carbonyls by  $\text{SmI}_2$ -Water Complexes" Chciuk, T.V.; Anderson, W.R.; Flowers, R.A. II; *J. Am. Chem. Soc.* **2016**, *138*, 8738-8741.

## Jebrell Glover

Keep yourself updated with the latest information from the Glover Research group by visiting their website at <https://gloverlab.cas2.lehigh.edu/>.

## Kai Landskron

The Landskron group welcomes new Postdoctoral Research Associate, Damian Paliwoda.

Stay up to date with the Landskron group by visiting their website at <http://www.lehigh.edu/~kal205/> or follow them on <https://twitter.com/KaiLandskron>.

## Ned Heindel

Supported by a grant from the Teagle Foundation, six faculty from the private colleges of the LVAIC consortium just completed the creation of a team-taught online course, "Topics in Modern Drug Discovery." This new course, constructed as a set of 27 modules, covers the science and the regulatory hurdles for developing biologically active small-molecules and proteins into commercial drugs. It covers concept to clinic to marketplace for more than a dozen types of therapeutics and includes modules on process R&D, on dosage form optimization, and on intellectual property as well as on the more traditional organic chemistry of preparing pharmaceuticals. Each module is self-contained

and consists of readings (PDF files and links to web-based information), a video lecture, self-study questions, and learning objectives. Each faculty contributor developed particular modules reflecting his/her specialty areas. The course had the services of a graphic designer to create visually attractive Powerpoints; a closed-caption version is available for the hearing impaired. Rights to the course are owned by the Lehigh Valley Association of Independent College and Universities. All six colleges are using it in whole or as modules in their curricula.



The Teagle Teaching Team from left to right H. David Husic (Lafayette); Ned D. Heindel (Lehigh); Sherri Young (Muhlenberg); Marianne Staretz (Cedar Crest), Francis Mayville (DeSales), Michael Bertucci (Moravian)

## Steve Regen

Recent publications from the Regen Group:

Mukai, M.; Glover, K. J.; Regen, S. L. "Evidence for Surface Recognition by a Cholesterol-Recognition Peptide", *Biophys. J.*, **2016**, 110, 2577-2580.

Yi, S.; Lin, C.; Leon, W.; Vezenov, D.; Regen, S. L. "Gas Permeability of Hyperthin Polyelectrolyte Multilayers Having Matched and Mismatched Repeat Units", *Langmuir*, **2016**, DOI: 10.1021/acs.langmuir.6b00578

Yi, S.; Leon, W.; Vezenov, D.; Regen, S. L.; "Tightening Polyelectrolyte Multilayers With Oligo Pendant Ions", *ACS Macro Lett.*, **2016**, 5, pp 915-918

Yu, Y.; Sabulski, M. J.; Schell, W. A.; Pires, M.M.; Perfect, J. R.; Regen, S. L. "Simple Strategy for Taming Membrane-Disrupting Antibiotics", *Bioconjugate Chem.* DOI: 10.1021/acs.bioconjchem.6b00629

## Emeritus Faculty

Click [here](#) to find out more about Kamil Klier's active projects.



## Faculty News

### Damien Thévenin

Recent publications from the **Thévenin** group:

Burns, KE.; McCleerey, TP; **Thévenin, D.** "pH-Selective Cytotoxicity of pHLIP-Antimicrobial Peptide Conjugates", *Science Reports* (2016);6:28465.

Burns, KE.; Hensley, H.; Robinson, MK. and **Thévenin, D.** "Therapeutic Efficacy of a Family of pHLIP-MMAF Conjugates in Cancer Cells & Mouse Models", *Molecular Pharmaceutics*

**Damien Thévenin** was invited to speak at Syracuse University and the ACS 41st Northeast Regional Meeting held in Binghamton, NY in October. This fall, he also co-organized along with Profs. Dimitrios Vavylonis (Physics) and Jeetain Mittal (Chemical and Biomolecular Engineering) the 4th Biophysical Society Pennsylvania Network Meeting held at Lehigh University. This symposium took place on October 14 at Iacocca Hall, gathering over 100 scientists from 17 institutions.

### Dmitri Vezenov

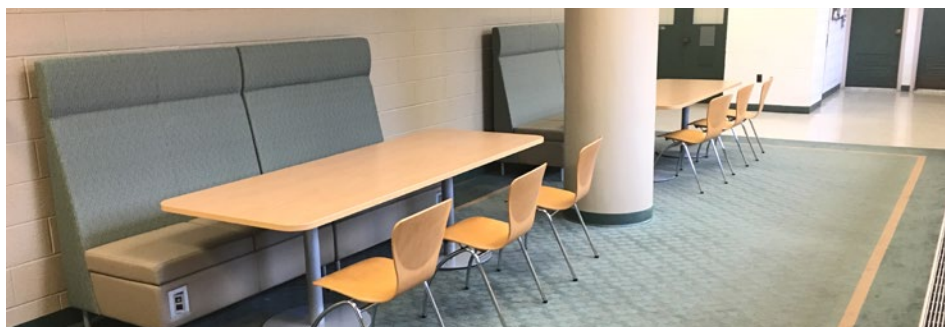
The **Vezenov** group has reported a quantitative nanoindentation method in two papers "Gas Permeability of Hyperthin Polyelectrolyte Multilayers Having Matched and Mismatched Repeat Units" in *Langmuir*, and "Tightening Polyelectrolyte Multilayers with Oligo Pendant Ions" in *ACS Macro Letters*, in collaboration with **Regen** group.

### Professors of Practice

Professor of Practice for Lehigh's Organic Chemistry classes **Dr. Suzanne Fernandez** continues to experiment when it comes to the challenge of teaching over 200 students in a traditional lecture hall setting. In this often passive learning environment how can an instructor know if their students are comprehending and learning the material before a quiz or exam? Learn what steps she took to create an active learning environment for her students within the confines of a lecture hall for a large number of students [here](#).

### Mudd gets an update

This summer the halls of Mudd got a little cozier with the addition of new lounge furniture. The photo below was taken early in the morning, but rest assured by days end the benches and chairs are filled with students needing a comfortable place to study and read all the while charging their electronic devices thanks to the USB ports built into the furniture. Charge on!



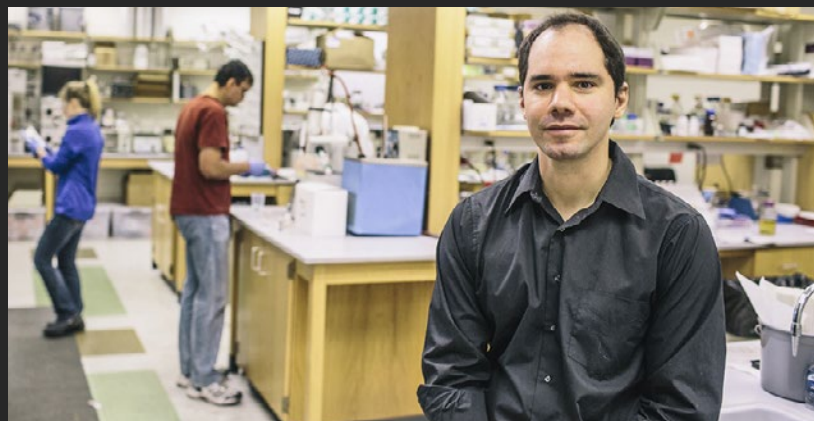
### Welcome Director of Instrumentation



Wendy Breyer grew up in Wallingford, PA and went to Bryn Mawr College for one year before renouncing the east coast and heading to Portland, OR to attend Reed College. After graduation, she spent a year in New Zealand on a fellowship in a protein crystallography lab. When she returned to the States, she attended the University of Oregon where she continued her education in crystallography by earning her Ph.D. in Prof. Brian Matthews' laboratory. Eventually she ended up back at Reed College, first as the director of the Introductory Chemistry labs then as the Instrumentation Chemist. After living in the west for 25 years, Wendy decided it was time to return to Pennsylvania and was delighted to accept the position of Director of Instrumentation for Lehigh's Chemistry Department. She and her partner, Bob Ryan, own four dogs and two cats. They are both avid sports fans and look forward to attending as many Phantoms and Iron Pigs games as possible. When she is not walking her dogs or watching sports, Wendy can be found gardening, crocheting, reading or binge-watching Netflix.

## Research at Lehigh

In the fall of 2016, the *Morning Call*, the *Brown and White*, the *Acumen*, and the *Contagion* visited Professor Pires and his research group to learn more about their work into developing bacterial immunotherapy methods which could one day halt the spread and ultimately destroy superbugs that are quickly becoming resistant or are now resistant to several classes of antibiotics. Drug-resistant bacterial infections threaten to overburden the healthcare system and disrupt modern medicine. A large class of potent antibiotics, including vancomycin, operates by interfering with bacterial cell wall biosynthesis. Vancomycin-resistant Enterococci (VRE) evade the blockage of cell wall biosynthesis by chemically altering cell wall precursors, rendering them drug insensitive, we reveal, for the first time, the phenotypic plasticity and cell wall remodeling of VRE in response to vancomycin in live bacterial cells. Synthetic cell wall analogs were designed and constructed to monitor cell wall structural alterations. Our recent results demonstrated that the biosynthetic pathway for vancomycin-resistant precursors can be hijacked by synthetic analogs. The direct monitoring of VRE cell wall remodeling established the contribution of individual metabolic processes to the evolution of drug resistant phenotypes. Finally, we described a rapid proof-of-principle diagnostic tool based on our synthetic cell wall reporter strategy for the visual classification of VRE. Marcos Pires was the recipient of the American Chemical Society Young Investigator Award at the National Meeting in the fall.



Marcos Pires is one of three recipients of the inaugural ACS Infectious Diseases Young Investigator's Award for "exceptional researchers". Read the *Brown & White*, *Lehigh News* and *Morning Call* articles.



Graduate students Jonathan Fura at left (Kate Morrell/B&W Staff) and Mary Sabulski at right (Addison George / Special to the *Morning Call*) work in Dr. Pires lab developing bacterial immunotherapy methods that may one day treat antibiotic resistant bacterial infections.



## Congratulations

Congratulations to our General Chemistry Lab Manager, **Denise Beautreau**, on receiving the Alfred Noble Robinson Exempt and Non-Exempt Staff Award recognizing outstanding performance in service to the University in Spring of 2016.

**Denise Beautreau** along with Professors of Practice, **Rebecca Miller** and **Andy Ho**, attended a three-day workshop at Texas A&M University, San Antonio campus in May titled "Implementing iPads in the Chemistry Curriculum Miniworkshop". The workshop was organized by The Chemistry Collaborations, Workshops and Communities of Scholars (cCWCS), funded by the National Science Foundation (NSF) Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES) program. With the knowledge and experience gained from this two-day workshop, the group was able to acquire 40 iPads through Lehigh's LTS and have started using them for various experiments in the CHM 30, 31, 40 courses this semester. In addition, a \$1000 matching implementation grant from cCWCS was awarded to the group. This grant will be used to purchase Vernier Software and Technology equipment for use with the LoggerPro software and the iPads.



Denise Beautreau accepts the award from President Simon and Provost and V.P. for Academic Affairs, Patrick Farrell





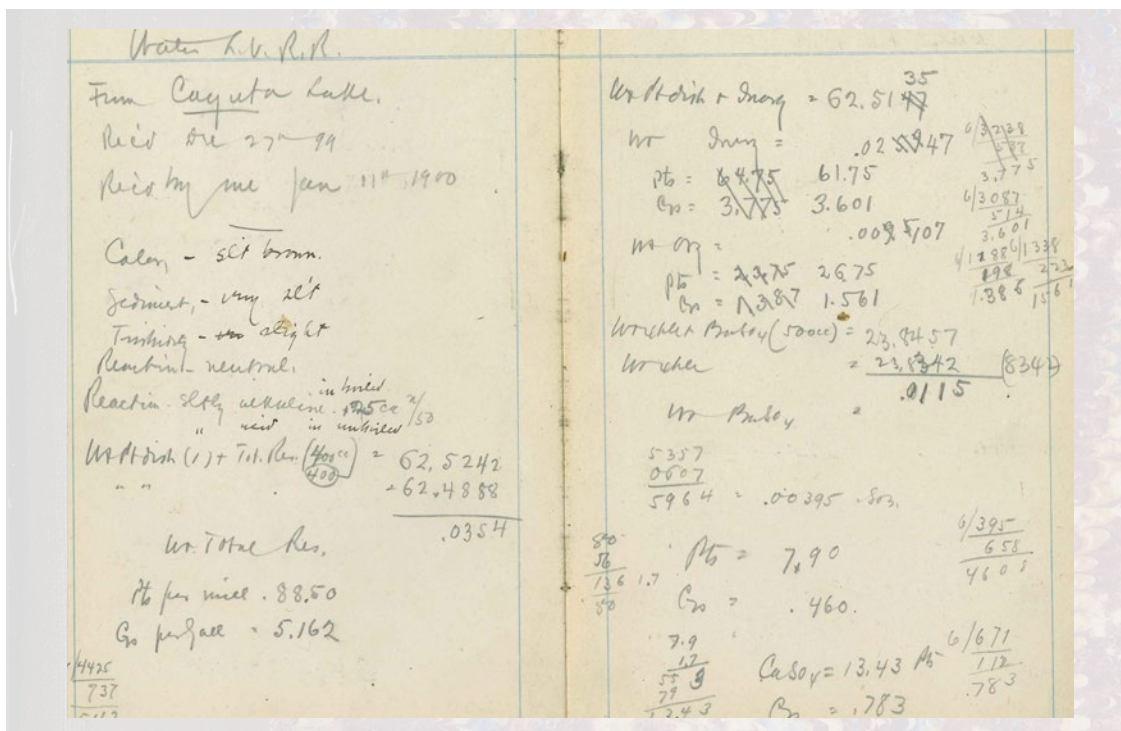
Assistant Professor, **Nate Wittenberg**, new to the Department this year, created a Lehigh logo gif by a process called photobleaching. The movie at left is of the patterned photobleaching of a fluorescent protein (cholera toxin-FITC conjugate) bound to a planar supported lipid bilayer containing ganglioside GM1. GM1 is the primary cell surface receptor molecule recognized by cholera toxin. This movie was collected using a Nikon Ti-E inverted microscope. Nate also welcomed Dr. Luke Jordan to his research group this fall. To stay up to date on Nate Wittenberg's research visit his [website](#) and follow him on Twitter [@WittenbergLab](#)

## Chemical Storage Room Clean-up



We recently received the good news that Clean Harbors will dispose of all chemicals in MUDD 184, a room which is colloquially referred to as the "chemical storage room" (pictured at left). Ordering chemicals in bulk and collecting them in a Department were advantageous at a time and age when chemical suppliers could not ship overnight. Lehigh adhered to this practice of collecting chemicals for many years. As a consequence, we were left with a situation where we had thousands of bottles, some of which had containers and stoppers that had corroded away, leaving behind a hazardous situation. Indeed, one cannot enter MUDD 184 without holding one's breath. Beginning the week of December 19<sup>th</sup>, trained personnel from Clean Harbors will come to dispose of all chemicals in the storage room. We would like to take this opportunity to remind all PI's to maintain a healthy balance in your chemical inventory so a major cleanup like this is not needed again in the future. The Department would like to thank Environmental Health & Safety for helping to make this cleanup happen!

## Ullmann's Notebooks - Continued from Page 1

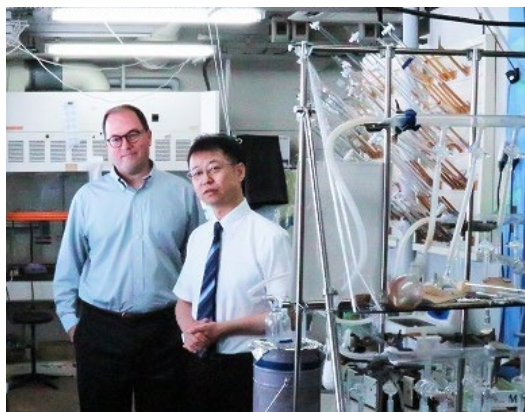


Visit the online version at [adobe.ly/2hLCvLt](https://adobe.ly/2hLCvLt) or scan the QR code above to flip through the pages of Ullmann's notebooks.

books are now preserved in the Lehigh Archives and we thank Stew Huminski for this valuable gift.

## David Vivic

Since the last newsletter, **David Vivic** gave invited lectures at the University of Arkansas, Nagoya Institute of Technology, Tokyo Institute of Technology, and at the Fluoropolymers 2016 Conference in New Orleans. David also presented at the 27<sup>th</sup> International Conference on Organometallic Chemistry, held in Melbourne, Australia. Three members of the Vivic group (Peter Kaplan, Long Xu, and Siqi Yu) presented talks at the ACS National Meeting held in Philadelphia. David's grant proposal "Fundamental Studies Focused on



Professor Norio Shibata of Nagoya Institute of Technology takes David Vivic on a tour of his labs.

the Organometallic Chemistry of Earth Abundant Metals" was funded by the US Department of Energy for three years. Siqi Yu, Mason Chin, and David Vivic were co-authors of a collaborative work with the Klein group from Cologne, Germany entitled "Unsymmetrical N-Aryl-1-

(pyridin-2-yl)methanimine Ligands in Organonickel(II) Complexes - More than a Blend of 2,2'-Bipyridine and N,N-Diaryl- $\alpha$ -diimines?" in the journal *Inorganic Chemistry*. The Vivic lab also welcomed Mikhail Kosobokov, pictured in the group photo above, as a new Postdoctoral Research Associate. Mikhail (Misha) received his PhD from the N. D. Zelinsky Institute of Organic Chemistry in Moscow and recently completed a postdoctoral stay at Nagoya Institute of Technology.



To the right of David Vivic is Professor Norio Shibata (NIT) and Mikhail Kosobokov, Vivic Lab Postdoc and at left sits Professor Hideki Amii of Gunma University.

## Xiaoji Xu

**Xiaoji Xu** was invited to present one colloquium at The New Jersey Institute of Technology on the nanoscale infrared imaging, and one at the American Chemical Society meeting in Philadelphia on nanoscale urban aerosol identifications. Dr. Xu has recently published a research article in *Nature Communications* titled "Scattering-type scanning near-field optical microscopy with low-repetition-rate pulsed light source through phase-domain sampling" with graduate students Haomin Wang and Le Wang. Dr. Xu develops spectroscopy and microscopy tools to see the composition and organization of nanoscale objects and materials.

## Congratulations

Kelly Burns of the Thévenin Research Group and Gabrielle Haddad-Weiser (below) of the Flowers Research Group successfully defended their dissertations this summer while Cong Liu of the Landskron Group defended his in the fall.

Graduate Student William Leon was awarded the College of Arts and Sciences Summer Research Fellowship.



Detection and Analysis of  
Molecular Interactions with  
Backscattering Interferometry

Gabrielle Haddad-Weiser  
Ph. D. Dissertation Defense  
Adviser: Dr. Robert Flowers  
Lehigh University  
August 2, 2016

Tesia Chciuk of the Flowers Research Group on publishing "Proton-Coupled Electron Transfer in the Reduction of Carbonyls by Samarium Dioxide-Water Complexes" in the July 01, 2016 edition of the *Journal of the American Chemical Society*.

## Spirit Week



The Marching 97 conducts its annual Eco-flame tradition. The band marched right into CHM 332 the Friday before the Le-Laf Rivalry football game. Professor Roberts joins in with the band.



# Chemistry Alumni News

- **Ryan Fealy** (MS Lehigh 2006; PhD Bryn Mawr 2014) was promoted to Associate Professor status at Bucks County Community College. Ryan joined the faculty at BCCC in 2008 and advanced from adjunct to Assistant Professor to Associate Professor.
- **Stephen Tang** (PhD Lehigh 1988 in Biochemical Engineering) was named President & Chief Executive Officer at the University City Science Center (Philadelphia). After his Lehigh PhD Steve took his MBA at Wharton (U Penn) in 1992 and was Group Vice President & General Manager for Life Science at Olympus-USA.
- Two Lehigh biochem alumni have been named Directors of Global Regulatory Affairs for their respective employers. **John Spaltro** (LU PhD 1985) has been hired by Amicus Therapeutics of Cranbury, NJ, and **Marsha Miller** (LU MS 1992; U of Penn PhD 1998) has been hired into a similar position with BMS Pharmaceuticals of Lawrenceville, NJ.
- **David Nuechterlein** is President of the MFL Group, a management consulting service located in the Akron/Cleveland area. Dave was a BS-Chem graduate of Lehigh (1970) who obtained an MBA (Harvard 1997) and had a long productive career in pharmaceutical industry management with Procter and Gamble as well as J&J Technicare.
- **Christine Martey-Ochola** (PhD 2005) and Professor Arup Sengupta, Lehigh's Department of Earth and Environmental Sciences, are working on a collaborative project to introduce fluoride-removing water purification units in Kenya. The team has three units installed at present and these substantially improve the quality of the local drinking water.
- **Robert Teichmann** (BS 1977) is the Senior Manager for Quality and Product Safety at Avon ("The Company for Women"). By product specifications and analysis, Bob primarily handles the quality control on company's jewelry line. Bob recently discovered home brewing and as he says, "I'm totally obsessed with it because brewing seems to combine my love of chemistry with microbiology. My dream is to start a microbrewery - call it Thunder Brewery." Go for it Bob! We can offer you the services of Lehigh chemists all of whom will be happy to supply their own personal quality control (taste!) once you launch your brew line.
- **John Texter** (LU BS 1971, PhD 1976) was recently elected a Fellow of the American Physical Society for his achievements in physical polymer chemistry. The Fellowship award stated John's accomplishments in these terms: "For experimental contributions to the understanding of microemulsion equilibria and soft materials derived from microemulsion and ionic liquid polymerizations." John, who had previously received Fellowship status in the American Chemical Society, spent a long career as a research scientist at Kodak (Rochester, NY) and is presently Professor of Chemistry at Eastern Michigan University in Ypsilanti, Michigan. At Lehigh, John was a doctoral student of Professor Kamil Klier who currently serves as Emeritus faculty in the Chemistry department.
- **Sumedha and Vineetha Jayasena** stopped by the Mudd Building (see photo below) on their way to a reunion of their undergraduate college in North Jersey. Both did Biochem PhDs in 1988 and 1989 respectively and have had long and fruitful careers with Amgen Corporation in Thousand Oaks, California.
- **Marcian Van Dort** (PhD 1985), Associate Professor of Radiology, University of Michigan College of Medicine, has

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*In August 2016, Vineetha (PhD 1989) and Sumedha Jayasena (PhD 1988) at right, both doctoral graduates in biochemistry, returned to the department after 25 years. The two Amgen research scientists who now live in the Los Angeles area visited with their former Lehigh professors Behe, Lowe-Krentz, and Heindel.*





published a paper in the March 2016 issue of the Journal of Medicinal Chemistry revealing a promising family of new pharmaceuticals. Marcian's article is entitled "Discovery of Bifunctional Oncogenic Target Inhibitors against Allosteric Mitogen-Activated Protein Kinase (MEK1) and Phosphatidylinositol 3-Kinase (PI3K)"

- **Melissa Kistler Langston**, 2009 PhD graduate, was tenured and promoted to Associate Professor of chemistry at Delaware Valley University in Doylestown, PA. during the 2015-16 academic year.
- After 20+ years in various research and management positions within Johnson & Johnson, **David Nadig** (LU PhD 1992) joined Vertex Pharmaceuticals (Boston) and was recently named Vice President for Analytical Development.
- After a long career doing metabolism research in pharmaceutical industry (mostly with Cephalon and Teva), **James P. Chovan** (LU PhD 1980) retired as Associate Director for Drug Metabolism in May. His colleagues in the Discovery and Product Development Division gave Jim a giant cake with his picture ("they used an old one!") baked on top. In retirement, Jim intends to complete his mission of a vacation in each state of the union with only Oklahoma and Alaska left to go. In Oklahoma, Jim signed up for a "Storm Chasing Adventure Tour" on the prairie, hoping to get the chance to chase a whirlwind during tornado season.
- **Emily Winn-Deen** (LU BS 1974; Boston University PhD) is CEO of Rx Dx Advisors, a consulting group which specializes in molecular and companion diagnostic product development. She has been elected to the National Academy of Clinical Biochemistry and has more than 30 years experience in the diagnostic products industry.



*A Chemistry Department "reunion" at the annual Christmas Party of Digestive Care Inc (DCI) brought together (left to right) Professor Emerita Natalie Foster, graduate student (and DCI employee) Amanda Rennig, Professor Emeritus Jack A. Alhadeff, and corporate CEO, Tibor Sipos (LU PhD 1968)*

## In Memory

**Michele M. Jetter** (LU PhD 1987) passed away on December 10, 2016 at the age of 56. After her Lehigh doctorate in Medicinal Chemistry she took a postdoc at DuPont Central Research and Development and joined the research staff of J&J Pharmaceuticals. She recently worked as a Patent Analyst at Teva Pharmaceuticals and was a registered Patent Agent. In her free time, she enjoyed reading and was involved in many church activities having been a member of Trinity Lutheran Church for almost 30 years.

Michele is survived by her loving husband, James W. Jetter, as well as her four siblings; Anthony S. Morris (Cheryl), Sheree L. Morris, Michael K. Morris, and Gary S. Morris (Nicole). Michele also leaves to cherish her memory many nieces, nephews, and her church family.

**Charles M. Bartish** (LU PhD 1973) passed away on December 1, 2016. Charlie had retired in 2009 from a 36-year career with Air Products during which he advanced from research chemist, to research manager, to senior administrative positions in product safety and regulatory affairs. Charlie came to Lehigh with a BS-chem degree from Villanova and at Lehigh pursued a doctorate in inorganic chemistry/organometallics under the mentorship of the late Professor Charles S. Kraihanzel. Through his last 15 years with Air Products, Charlie represented the firm with a number of professional trade associations such as the Society of the Plastics Industry, National Paint and Coatings Association, and the Compressed Gas Association. In addition to being a 48-year member of the Lehigh Valley Section of the ACS, Charlie served on the advisory boards of ChemTech Magazine and the Chemical Technology Program of the Lehigh-Carbon Community College.



# Fund a New Project

Donations represent an important part of our continuing efforts to create a state-of-the-art environment for teaching and research at Lehigh. The Chemistry Department has created an internet link so that monetary donations can be made hassle-free online at:

[mylehigh.lehigh.edu/ChemistryGifts](http://mylehigh.lehigh.edu/ChemistryGifts)

Donations to the Department through traditional pathways can still be made through Lehigh's Advancement Office. Please contact the Department Chair if you are interested in funding specific projects.

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