College Invites Emeritus Faculty to Lunch

On Thursday, August 3rd, College of Science Dean, Cynthia Peterson, hosted a “lunch and learn” for emeritus and retired faculty.

The event was held at the new LSU Foundation Center for Philanthropy on Nicholson Drive. The meeting was well-attended, with Chemistry outnumbering the other departments. Over lunch, Dean Peterson introduced herself and shared the video of her TEDxLSU talk from earlier in the year titled “Science and All That Jazz” [http://www.tedxlsu.com/2017.html]. She then gave some updates on the College, including the successful recruitment of several new faculty to the College. The event was the brainchild of the Dean’s Circle Executive Committee and further gatherings are planned into the future. Suggestions are welcome with regard to meeting format, speakers and venues.
2017 LSU Faculty Awards

LSU Alumni Association Rising Faculty Awards. This award recognizes faculty at the rank of assistant professor who have outstanding records of scholarship and published research. Professor Rendy Kartika was a 2017 awardee; his accomplishments were reviewed in the Summer 2017 newsletter, following his receipt of the STEM Emerging Researcher Award of the Rainmaker series.

Professor Daniel Kuroda was also the recipient of a 2017 LSU Alumni Association Rising Faculty Award. He joined the faculty at LSU in 2013, after graduate work at the University of Florida with Valeria Kleiman and postdoctoral studies at the University of Pennsylvania with the late Robin Hochstrasser. In four years at LSU, he has established a highly advanced laser laboratory. He has built a state-of-the-art ultrafast infrared spectroscopy apparatus that enables the measurement of interactions between the different molecular components of a sample with themselves or their surroundings with a femtosecond time resolution. He has published 7 papers to-date on research conducted at LSU and he and his group members have given presentations at several ACS meetings. Moreover, he was an invited speaker at the 9th International Meeting on Photodynamics and Related Aspects, in Mendoza, Argentina in 2016. He has received funding from the Louisiana Board of Regents Research Competitiveness Subprogram and was one of 75 recipients, nationwide, of an ACS PRF Doctoral New Investigator grant in 2016.

LSU Tiger Athletic Foundation President’s Award

Professor George Stanley. This award recognizes “extraordinary classroom teaching as demonstrated by an impact on and an involvement with students, a scholarly approach to teaching and learning, and contributions to the profession of teaching.” According to one of George’s letters of support, as he is “entering his fourth decade as a faculty member at LSU, George cares passionately about teaching, engages at all levels and gives everything he’s got for our students at LSU, both at the undergraduate and graduate levels. His student evaluations have been excellent over a sustained period and he goes above and beyond to make his classes memorable.” Professor Stanley is proud of his methods of teaching that he has developed over his career. He was doing active learning long before it was formally defined. Even in large classes he has his students work in small groups to discuss things and they appreciate that this is a productive way to learn. He is determined to make class fun and doing experiments is part of his regular routine. Professor Stanley regularly teaches Chem1201 (General Chemistry I) and at more advanced levels he has taught organometallic chemistry and symmetry in transitional metal compounds.

LSU Alumni Association Faculty Excellence Award

Professor John Pojman. This award recognizes “faculty members for outstanding teaching, research, and/or service.” Professor Pojman came to LSU in 2008, from the University of Southern Mississippi. To quote from one of his supporting letters, “Professor Pojman embodies the old-fashioned notion of the professor who is engaged deeply in all aspects of his job – teaching, research and service. He serves the Department of Chemistry and LSU at an exceptional level in all three spheres. He exudes personality with his immaculate attire (bowties and suits), the world’s largest collection of pocket protectors and his two office mates, Chrissie and Dionne, the three-toed amphiumas (a genus of salamander found in the Louisiana bayous).” Professor Pojman is an expert in frontal polymerization and his research was featured in the Spring 2016 Newsletter. He takes great pride in teaching Chem1002 (Chemistry of Life and the Environment) to non-science majors. He served a term as Director of Graduate Studies and is currently Chair of the LSU Graduate Council.
Sweetness of Synthesis

Associate Professor Justin Ragains’ new grant from the NSF, titled, “Stable and Easily Activated Thioglycosides for the Stereoselective Synthesis of Oligosaccharides” is geared toward a new approach to linking monosaccharides together. Specifically, 4-aryl-3-butenylthioglycosides (ABTGs) will be developed as building blocks for the construction of a range of oligosaccharides with useful biological function. Potential synthetic targets include human milk oligosaccharides like lacto-N-neotetraose and components of bacterial endotoxins. The ABTGs combine useful properties from other oligosaccharide building blocks while avoiding most of the pitfalls. The ultimate goal is to make oligosaccharide synthesis just as accessible to non-synthetic chemists as oligopeptide synthesis has become in recent decades. An educational feature of this NSF-funded work is a summer program to help develop the laboratory skills of underprivileged high school students from LSU’s Upward Bound program and elsewhere. The ultimate goal is for these students to “hit the ground running” when they take their first college-level laboratory courses. Not surprisingly, there will be a focus on carbohydrate chemistry in this outreach work.

Professor Ragains joined the LSU faculty in Fall 2010, following his PhD with Professor Jeffrey Winkler at the University of Pennsylvania and postdoctoral studies in chemical biology at Harvard Medical School with Professors Jon Clardy and Ralph Mazitschek. In the intervening six years he has established a program in organic synthesis that actively engages graduate students, undergraduates and high school students. He was recently promoted to associate professor with tenure.

2017 DOE Early Career Awardee

Assistant Professor Ken Lopata has received an Early Career Award from the US Department of Energy (DOE). This program, now in its eighth year, supports the development of individual research programs of outstanding scientists, at universities and national laboratories, early in their careers and stimulates research careers in the disciplines supported by the DOE Office of Science. The grant is for $750,000 for a period of 5 years, starting September 2017, from the Basic Energy Sciences Division.

Dr Lopata is an expert at first-principles simulations of the motion of electrons during and immediately following the interaction of matter with high energy and/or high intensity light. Since he began his independent career at LSU in the Department of Chemistry and the Center for Computation and Technology (CCT) in Fall 2013, Dr Lopata has developed time-dependent density functional theory (TDDFT) methods for a range of processes including: UV-Visible and X-ray spectroscopy, strong-field ionization, plasmon/molecule dynamics, and attosecond charge migration. These simulations are crucial for elucidating excited state mechanisms in molecules and solid-state materials, interpreting ultrafast time-resolved experiments, and for motivating new directions as the drive towards faster experimental time resolutions continues.

First Principles Tools for Nonadiabatic Attosecond Dynamics in Materials

Controlling materials at the level of electrons, and characterizing and controlling matter far-from-equilibrium, are two ongoing grand challenges in solid-state science. These have the potential to revolutionize fields ranging from energy storage to conversion of light into electrical and chemical energy. In particular, the mechanisms of ultrafast light-induced changes in solids are poorly understood at an atomic level. These dynamics occur at the attosecond (billionth of a billionth of a second) time scale and involve a complex interplay of electron motion coupled to the movement of the atoms in a crystal lattice.

The objective of this research is to develop computer simulation tools for predicting the ultrafast response of materials subjected to intense pulses of light. This is crucial for understanding the underlying mechanisms and for interpreting and motivating attosecond experiments. There is a lack of first-principles approaches for this type of dynamics, especially for photochemistry-like processes near dopants and defects. This project will develop density functional theory-based methods for attosecond electron/nuclear dynamics in semiconductors and insulators under the influence of high intensity and/or high energy (X-ray) laser pulses. These will be validated against experiments and enable computation of optical breakdown, electron/lattice couplings, excited state lifetimes, and the origins of non-thermal damage.
Professor Mario Rivera to Join LSU as the Inaugural William A. Pryor Chair in Chemistry

Following a nationwide search over the past couple of years, we are delighted to announce that Professor Mario Rivera will be joining LSU Chemistry in Spring 2018. He will be the William A. Pryor Chair in Chemistry, an endowed position established by Professor Pryor, Mrs Gail Pryor and Dr Michael Griffith and matched by the Louisiana Board of Regents. The chair honors the legacy of Professor Pryor’s research in the field of oxidative biology and free radicals. The primary criterion for the chair is that research interests lie at the interface of chemistry, biology and medicine, with clear relevance to human health.

Mario was born in Bolivia, a country that was experiencing considerable turmoil as a teenage Mario was contemplating his future. He and some classmates investigated prospects to study abroad and Mario moved to Guadalajara, Mexico to study chemistry. He carried out undergraduate research under the guidance of the late Tetsuya Ogura and received his Bachelor’s Degree in Chemistry from the Universidad Autónoma de Guadalajara in 1984. He came to the USA to attend graduate school at the University of Arizona where he worked with the late Quintus Fernando (Chemistry) and H. Vasken Aposhian (Toxicology) on the complexation properties of molecules targeted for lead detoxification in humans, which resulted in a dissertation titled, “Complexing Properties of 2,3-Dimercaptosuccinic acid and its Monomethyl and Dimethyl Esters.” He stayed on at the University of Arizona, working with F. Ann Walker, also in the field of bioinorganic chemistry, developing skills to merge recombinant DNA methodology and NMR spectroscopy to study paramagnetic heme proteins.

In 1994, Assistant Professor Rivera began his independent career at Oklahoma State University in Stillwater, OK. He moved to the University of Kansas in 2003 and was promoted to Full Professor in 2006. His teaching has included standard courses in general chemistry, analytical chemistry and graduate classes in NMR spectroscopy and electrochemistry. Since 2015, he has been involved in steering the General Chemistry lecture sequence offered to science majors.

Throughout his career, Professor Rivera has been involved in investigating structure function relationships in heme proteins and in elucidating the molecular mechanisms of heme-iron acquisition and iron homeostasis in bacteria. His publications have contributed to shape current understanding of heme-iron utilization and iron metabolism in the opportunistic pathogen Pseudomonas aeruginosa. His current direction is on understanding the fate of iron in the bacterial cytosol, with emphasis on the roles played by iron storage proteins, such as bacterioferritin. These studies have led him to propose the hijacking of iron storage/mobilization from bacterioferritin as a potential avenue for the development of small molecule probes for the rational perturbation of bacterial iron homeostasis and possibly the development of new antibacterial agents. Earlier this year he published a review titled, “Bacterioferritin: Structure, Dynamics and Protein-Protein Interactions at Play in Iron Storage and Mobilization” (Acc. Chem. Res. 2017, 50, 331-340).

Professor Rivera has served his former Departments well, with special interests in graduate student recruiting, junior faculty mentoring and various aspects of equipment acquisition and management. He has retained funding from both NSF and NIH through tough times over two decades and is well-known in the bioinorganic community for his service on review panels and conference organization and participation. We look forward to Mario joining us and sharing his experience and vision for the chemistry-biology interface at LSU.

Professor William A. Pryor

Boyd Professor Emeritus William A. (Bill) Pryor was a Professor of Chemistry and Director of both the Biodynamics Institute and the Pennington Biomedical Research Center at LSU. He was a pioneer in the field of free radical research. His expertise includes oxidative stress and the use of the antioxidant vitamins in human health. In the 1960s, he was the first free radical chemist to apply the insights of organic free radical chemistry to the study of radical reactions in biology and medicine. Throughout his long career at LSU, Professor Pryor’s research was supported by the National Institutes of Health, the National Science Foundation, and the National Foundation for Cancer Research, the Environmental Protection Agency, the Health Effects Institute, U.S. Army and Air Force, and a substantial number of national and international corporations. He has authored close to 1,000 publications, the first textbook on free radical chemistry and was the Founding Editor of the journal Free Radical Biology & Medicine. He has received a number of awards including one of the NIH’s first MERIT Awards, the Lifetime Achievement Award of the Oxygen Society and the ACS Gustavus John Esselen Award for Chemistry in the Public Interest. Professor Pryor has a long-standing love for jazz music, having played in a band when he was a graduate student at the University of Chicago. More than 50 years ago he started a radio program Classic Jazz that he hosts, to this day, on Public Radio. Professor Pryor lives in Baton Rouge with his wife Gail.
Alumni Spotlight - BS, MS

Paul Buras was a National Merit Scholar at Catholic High School in Baton Rouge. The summer before his senior year of high school, he attended an NSF Summer Science Training Program led by Dr Clyde Day at LSU. Paul says, “this experience really turned me on to science, and I decided to major in chemistry.” He accepted a “Top 100” Scholarship to LSU, whilst declining full scholarship offers to Rice and MIT.

After completing his BS in 1975, Paul remained at LSU to obtain his MS with the intent of attending medical school after being promised the MS could be achieved in 18 months. In the summer of 1978, Paul finished his research and forwarded a draft of his thesis to his advisor who was abroad on sabbatical. Paul also decided to bypass medical school and pursue a career as a process chemist for Celanese Chemical Company in Corpus Christi, TX. A job of this nature was Paul’s dream as it allowed him to gain knowledge of plant operations and to perform bench research as well. Whilst working in Texas, Paul remained enrolled at LSU, completing experiments required by his advisor and finally graduated with his MS in 1979.

To compliment his MS in Chemistry, Paul went on to attend Texas A&M at Kingsville, and received a MS in Chemical Engineering. Shortly thereafter, he transferred to a plant near Houston as a process engineer and contributed to the development and piloting of a process to purify acrylic acid via crystallization. Next, he spent two years in plant operations where he was instrumental in introducing statistical techniques and continuous improvement methods to operations personnel. Based on Deming’s Plan-Do-Check-Act methodology, this managerial style aims to eliminate waste of various kinds and is known today as Lean Six Sigma.

Paul returned to the lab as Process Support Section Leader, managing a team of chemists and engineers who worked on improving the performance of base chemical units including methanol, acetic acid, vinyl acetate, acrylic acid and esters, and ethylene oxide/glycol. He also led the effort to obtain ISO 9001 registration for the plant – the first such registration at Celanese. In 1987, the German chemical giant Hoechst merged with Celanese to form what was then the largest chemical company in the world, Hoechst Celanese.

After a series of mergers, Paul became an employee of Total where he was increasingly involved in marketing. This included time as an animateur (Group Leader) at a research facility in Solaize, France. He returned to the USA in 2007 to spearhead a new venture direct-marketing sulfur from Total’s refinery in Port Arthur, Texas. He eventually retired from Total in 2014 with 36 years of service. He lives in New Orleans and consults for Heidelberg Cement. Despite the wide range of products and technologies Paul experienced during his long and productive career, he says, “a key element of success in every job was an understanding of testing procedures and specifications. My training as an analytical chemist at LSU prepared me well for this, even in marketing assignments where this experience gave me a leg up on others without a background in chemistry.”

Remembering Sidney Vail

Sidney L. Vail was a native of New Orleans who received his BS and PhD degrees from Tulane University. He did, however, have strong ties with LSU, having written a thesis titled, “Synthesis and dehydration of some cyclopentyl carbinols,” earning him an MS degree from our Department in May 1951.

Dr Vail worked at Dow Chemical (Freeport, TX), the Army Chemical Center (Edgewood, MD) and American Cyanamid (Fortier, LA) before landing at the US Department of Agriculture, Southern Regional Research Center (SRRC) in New Orleans where he rose through the ranks to become the lab chief in cotton textile chemistry. He was an adjunct professor of textile chemistry at North Carolina State University. There was also a period where he worked on crop protection.

Following retirement from SRRC, Sid consulted in various capacities and became associated with LSU Chemistry again in 2001 as a Visiting Scientist. He worked alongside graduate students in the laboratory of Professor Bob Hammer, teaching them good techniques. The project he participated in was related to Alzheimer’s disease and resulted in an Organic Syntheses publication detailing the preparation of an orthogonally protected α,α-disubstituted analog of the amino acid, lysine. Sid passed away unexpectedly in late 2004 around the time the work was published.

Professor Hammer, now a Senior Scientist at Ra Pharma in Cambridge, MA, recalls, “He was old school in the best possible way,” and “he was a great guy and really loved science and was universally liked by all.” Sid’s widow, Margaret Vail Roussel, lives in Baton Rouge, with her husband Will Roussel, and she takes a special interest in our ChemDemo program.
Alumni Spotlight - PhD

Dr Rolanda Johnson Wilkerson is a native of Baker, LA. In her early days, she styled hair and experimented with makeup on her dolls and friends. She decided to turn this hobby into her reality and obtained a Bachelor’s degree in Chemistry from Southern University. Rolanda enrolled as a graduate student in the Department of Chemistry at Louisiana State University where she received a Huel Perkins Graduate Fellowship. She was drawn to organic chemistry and worked in Professor Robert Strongin’s laboratory where she elucidated the mechanism of chromophore formation in resorcinarene compounds. Her research presented industrial implications for the detection of glucose in blood. Rolanda was responsible for developing synthetic routes to proprietary chemical indicators and cationic chiral surfactants for unique and facile enantiomeric separations. She defended her dissertation, “The Syntheses of Novel Indicators and Materials for Chiral Separation,” in December of 2003 and graduated in May 2004.

When asked what she appreciated most about her time at LSU as a graduate student in the Department of Chemistry, Rolanda answered, “I appreciated the supportive relationships that were fostered by fellow graduate students and faculty. When pursuing a PhD, it’s important to have support of not only the professors but also of fellow peers. When I entered the PhD program in Chemistry, there were more tenured graduate students who reached out to network and to ensure that the newer students had the support that they would need. I still have some of those relationships to this day, both within P&G, my current company, and outside of P&G.”

Rolanda accepted a position with P&G and started working there in December of 2003. Today, she is a Principal Scientist and Senior Manager of Scientific Communications in Beauty Care at P&G. Rolanda has had the pleasure of working on skin and hair care brands such as Olay, Secret, Venus, Clairol, Head and Shoulders and Pantene. She explains, “I am responsible for developing scientific communication strategies and working with dermatologists, clinicians, and P&G Beauty scientists to research and report on the latest and emerging skin and hair science and technologies that have applications for consumer products.”

On November 17, 2017, Rolanda will visit LSU and deliver the Chemistry Colloquium at 3:30pm in the Life Sciences Annex Auditorium. We look forward to the seminar as she shares her experiences and insights. All welcome.

News in Brief

♦ Nicholas Speller (PhD 2016, Warner Group) is the recipient of a prestigious 2017 NASA Astrobiology Postdoctoral Fellowship. Speller is at Georgia Tech working in the laboratory of Amanda Stockton.

♦ Ning Xie (PhD 2013, Taylor Group) was recently promoted to Senior Research Chemist at Sasol North America

♦ Professor Emeritus Jim Robinson has established a new fellowship for an entering graduate student in Analytical Chemistry. In addition to the base stipend, this will present a strong enticement to study Analytical Chemistry at LSU. The first offer will be made in Spring 2018.

♦ Gloria Thomas (PhD 2002, Soper Group) was recently named the Director of LSU’s Center for Academic Success. She is an Adjunct Assistant Professor in Chemistry and formerly the Executive Director of Research, Education, and Mentoring Programs in LSU’s Office of Strategic Initiatives.
New Graduate Travel Award in NMR Spectroscopy

This semester, students hoping to travel to attend an NMR conference, workshop, or perform NMR experiments, can apply for a new travel award – the Simeral Graduate Travel Award in NMR Spectroscopy.

Dr Larry S. Simeral was born in California and received his undergraduate degree from Occidental College in Los Angeles. He began graduate school at the University of California at Davis, and moved with his advisor to Colorado State University, from whence he received his PhD in analytical/physical chemistry. He pursued postdoctoral studies at UC San Diego and began his long and distinguished career in the chemical industry at Ethyl Corporation in 1979, becoming part of Albemarle Corporation in 1994. Larry held several leadership and advisory positions, retiring as Distinguished Advisor of Analytical Research and Quality in 2014.

In retirement, Larry has become affiliated with the Department of Chemistry at LSU, where he is particularly interested in helping our students with their professional development. He serves as a mentor in the NSF-ICorps Program. In 2016, he was the Chair of the Baton Rouge Local Section of the ACS. During this time, he ran a video competition that ultimately sponsored a group of undergraduates in our SAACS club to attend the Southwest Regional Meeting in Galveston. Inspired by the opportunity this provided for students to present their research and to network, Larry has started this travel award in his name, in the area nearest and dearest to his research heart.

New Research Grants

- Robert Cook: Fundamental Studies of the Sorption of Organic Molecules within Engineered Soil Surrogates, instrument time at DOE’s Environmental Molecular Science Laboratory (EMSL)
- Kermit Murray: Two Laser Ablation Electrospray Ionization Mass Spectrometry Imaging, R21 grant from NIH’s Division of Biomedical Imaging and Bioengineering
- Kermit Murray: Infrared Laser Ablation Microsampling for Mass Spectrometry Imaging from NSF’s Chemical Measurement & Imaging Program
- Robin McCarley: Enzyme Activatable Substrate Probes for Fluorescence Imaging and Quantification in Cells, a special creativity extension to his existing award from the Chemical Measurement and Imaging Program of the NSF
- Evgueni Nesterov: Upgrade of the Small-Angle X-Ray Scattering Beamline at LSU CAMD, Louisiana BOR Traditional Enhancement Program
- George Stanley: Enhancement of the LSU Chemistry X-Ray Facility, Louisiana BOR Traditional Enhancement Program
- Les Butler: High Energy X-ray Optics for Clinical Imaging, Louisiana BOR Proof-of-Concept (PoCP)

For back issues of newsletters, visit:  
Upcoming Events

20 Years of ChemDemo

Saturday, September 16th, 2017

♦ 12 pm  Jambalaya Lunch (outside Williams Hall)
♦ 1 pm  Doing the Demos (Williams 103)
♦ ~2 pm  Better Ice Cream Through Chemistry

If you wish to reserve a seat for the “show” in Williams 103, at 1 pm
RSVP to Charlotte Moore by September 12th.

2017 Boussert Lecture

Friday, October 6, 2017

Dr Emory M. Chan
Staff Scientist, Inorganic Nanostructures,
The Molecular Foundry,
Lawrence Berkeley National Laboratory
http://foundry.lbl.gov/people/emory_chan.html
3:30pm  101 Life Sciences Annex Auditorium
Reception to follow seminar at the Benjamin Pierre Boussert Conference Room (CMB 100)

RSVP to Charlotte Moore by September 22nd.

A significant measure of a great university is the support it receives from its alumni. Join us as we work on the leading edge of discovery and innovation to educate the next generation of scientists. If you would like to support LSU Chemistry, regardless of the amount, we would be most appreciative. All donations are tax deductible and qualify for Tiger Athletic Foundation (TAF) points.

To make your gift online, go to www.lsufoundation.org/givetoscience. Click ‘Designations’ and choose ‘Chemistry Development Fund’.

To send your gift by mail, make your check payable to “LSU Foundation,” note “Chemistry Development Fund” on the memo line and mail your check to: LSU Foundation, 3838 West Lakeshore Drive, Baton Rouge, LA 70808