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University of Arkansas, Fayetteville. Dept. of Chemistry and Biochemistry

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Special points of interest:

- Moradi develops new theory
- Staff member retires
- Alumni to present seminar February 17
- Stenken receives Scholar in Residence grant
- Alumni opens new lab facility
- Students pass cumes
- Scholarships awarded

Inside this issue:

Faculty News

Alumni News

Student News

Calendar

Moradi Develops New Theory for Explaining the Function of Proteins

~ Newswire January 13, 2017

A University of Arkansas chemist and his collaborator at North Carolina State University have developed a new theory for explaining how proteins and other biomolecules function based on movement and change of shape and structure rather than content.

Proteins are considered the workhorse molecules of cells. They are responsible for nearly all tasks in cellular life, including product manufacture, waste cleanup and routine maintenance. For example, some proteins are responsible for transport of materials and information between the cell and its environment, a vital task for the survival and normal function of the cell. Any disorder in protein function could result in disease, and the study of protein function is necessary for understanding the molecular basis of disease.

“To function, proteins change their shape,” said **Mahmoud Moradi**, assistant professor of chemistry and biochemistry in the J. William Fulbright College of Arts and Sciences. “Because proteins are not static objects, understanding their conformational dynamics is a necessary step in deciphering the molecular mechanisms underlying their function. The study of protein dynamics is therefore important for understanding the molecular basis of the disease and establishing a ‘rational design’ for developing more efficient drugs.”

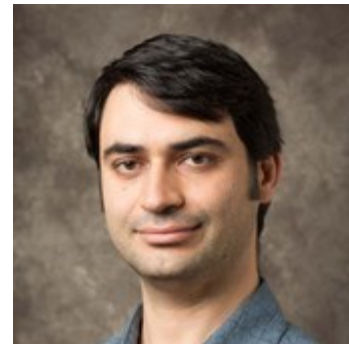
The theory developed by Moradi and Ashkan Fakharzadeh, a graduate student North Carolina State University, describes and simulates the way proteins and other biomolecules change their shape to function. “Conventional theories of protein dynamics ignore the curved nature of the configurational space of biomolecules,” Moradi said. “In this work, we have developed an innovative formalism that relies a geometric theory, traditionally used in general relativity and similar fields, to modify theories of protein dynamics.”

Moradi and Fakharzadeh will address two interrelated questions to further develop their theory: How do proteins function by changing their conformation and by undergoing concerted motions, and how can these conformational changes be simulated at an atomic level? Answering these questions would shed light on the structure-function relationships in proteins, Moradi said, and could improve scientists’ understanding of diseases at a molecular level.

The researchers’ findings were published in the December issue of The Journal of Physical Chemistry Letters, which reports new and original experimental and theoretical research in physical chemistry. A criterion for acceptance in the journal is that the research “reports a significant scientific advance and/or physical insight such that rapid publication is essential.”

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Mahmoud Moradi, Assistant Professor

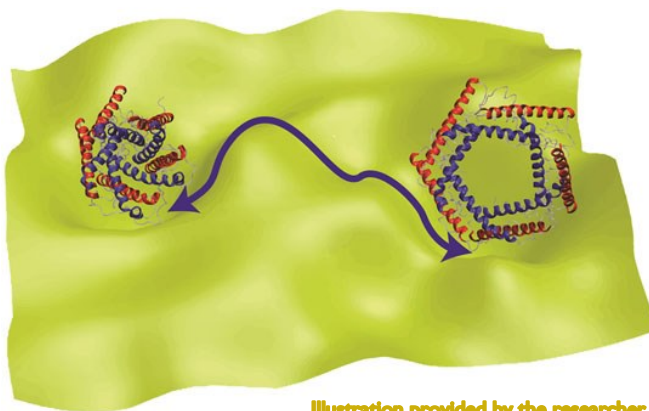


Illustration provided by the researcher.

Open and closed forms of channel proteins, which function by changing their shape.

Faculty News On the Go

Joshua Lochala presented a poster at the Materials Research Society (MRS) 2016 fall meeting in Boston, November 26-December 2. Titled "Synthesis of Graphene by Electrochemical Exfoliation," it was co-authored by **Jie Xiao**.

Nan Zheng, "Development of Annulation Reactions of Cyclopropylanilines and Cytobutylanilines by Visible Light Photocatalysis." Université de Haute-Alsace (UHA), Mulhouse, France, November 22, 2016. Dr. Zheng gave the same talk two other places: the Institute de Chimie des Substances Naturelles (ICSN), Gif-sur-Yvette, France, November 24, 2016, and University of Bern, Bern, Switzerland, November 29, 2016.

Balayeva, N.; **Nan Zheng**, R. Dillert, and D. Bahnemann. "Photocatalytic Aerobic Dehydrogenation of Nitrogen Heterocycles by Grafted TiO₂" Russian-German Workshop "Solar Fuel Generation," Hannover, Germany, November 30, 2016.

Matt McIntosh gave a talk at the University of California-Davis January 26, "Radical Chemistry of the Breslow Intermediate." It was based on the work of PhD graduates **Sefat Alwarsh** and **Kola Ayinuola**.

Publications

Two patents were issued December 27, 2016.

Inventors: Ponnappakkam; Tulasi (New York, NY), Philominathan; Sagaya Theresa Leena (Cheshire, CT), **Sakon; Joshua** (Fayetteville, AR), Katikaneni; Ranjitha (New York, NY), Koide; Takaki (Tokyo, JP), Matsushita; Osamu (Kanagawa, JP), Gensure; Robert C. (New York, NY)

Title: Delivery of therapeutic agents by a collagen binding protein. Application 14/378,067 issued in USA 12/27/16 as patent 9,526,765. Divisional application 15/386,626 was filed 12/21/2016 in the USA.

Inventors: Gensure; Robert C. (New York, NY), **Sakon; Joshua** (Fayetteville, AR), Matsushita; Osamu (Okayama, JP), Ponnappakkam; Tulasi (New York, NY).

Title: Fusion proteins of collagen-binding domain and parathyroid hormone.

Application 14/743,629 issued in USA 12/27/2016 as patent 9,528,099.

Marlena M. Patrick, Julianna M. Grillot, Zayne M. Derden, David W. Paul. Long-term Drifts in Sensitivity Caused by Biofouling of an Amperometric Oxygen Sensor. *Electroanalysis* 2016, <http://dx.doi.org/10.1002/elan.201600653>.

Qinglei Gan, Brent P. Lehman, Thomas A. Bobik, and **Chenguang Fan**, Expanding the genetic code of Salmonella with non-canonical amino acids. *Sci. Rep.* 2016, 6:39920.

Venkatesan Rajagopalan, Denise V. Greathouse, Roger E. Koeppe II, Influence of glutamic acid residues and pH on the properties of transmembrane helices, *BBA – Biomembranes* 1859 (2017) 484-492.

Ashley N. Martfeld, Denise V. Greathouse, and Roger E. Koeppe II. Ionization Properties of Histidine Residues in the Lipid-Bilayer Membrane Environment. *J. Biol. Chem.* 2016, Sep; 291(36):19146-19156.

A. Fakharzadeh and **M. Moradi**, Effective Riemannian Diffusion Model for Conformational Dynamics of Biomolecular Systems. *J. Phys. Chem. Lett.*, 2016, 7:4980-4987.

A. Singharoy, C. Chipot, **M. Moradi**, and K. Schulten. Chemomechanical coupling in hexameric protein-protein interfaces harness energy within V-type ATPases. *J. Am. Chem. Soc.*, 139:293-310, 2017.

K. Immadisetty, J. Hettige, and **M. Moradi**. What can and cannot be learned from molecular dynamics simulations of bacterial proton-coupled oligopeptide transporter GkPOT? *J. Phys. Chem. B, Article ASAP*, 2017. (Published online on Dec. 13, 2016; DOI: 10.1021/acs.jpcc.6b09733).

Mona Dyer Retires

Since 2008, **Mona Dyer** has been the smiling face who greeted both visitors and employees of the Department of Chemistry and Biochemistry. She began as a Razortemp, splitting the job with Markeeta Leray, and moved into the position full time four years afterwards. Mona will be retiring February 3rd and will be greatly missed. A reception in her honor was held January 30.



From the Chair ~ *Wesley Stites*

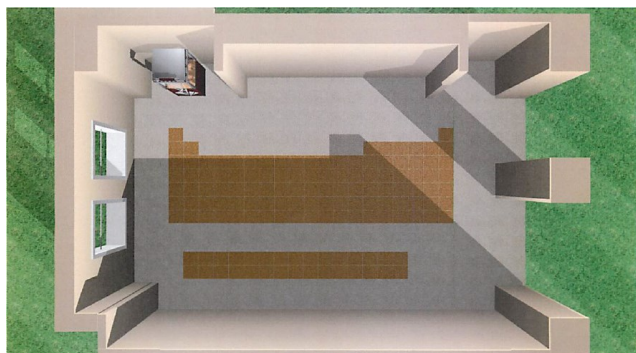
We are well into the new semester and much has already happened. As discussed elsewhere at more length, Peter Pulay retired at the end of December. This is major change, to say the least, but Peter is still showing up every day. So in another way, it is as if nothing has changed. Mona Dyer, our receptionist and the face of the department to our students and visitors retired at the beginning of February. We are leaving the position unfilled until the budgetary uncertainty related to the administration's reallocation of funds is resolved. We ask that if you call or visit, please be patient as our office staff is covering phones, mail room, and greeting our students and visitors on an ad hoc basis.

As you may know, the campus welcomed a new provost, Jim Coleman, at the start of the year. We are all getting acquainted with him and so far, I am pleased to report, our interactions have been very positive. He is a biologist, so he 'gets' in general the challenges facing science departments. As the administration and various committees across campus work through our planning process I think that Chemistry and Biochemistry will be well positioned to respond to help the campus achieve its goals and to improve our department. We have interviewed four excellent candidates for an assistant professor in organic chemistry and hope to have an offer accepted soon. This, of course,



is a replacement hire; keeping us at steady state. We hope that as part of the changes coming through the planning process that we will be allowed to expand the number of tenure-track faculty.

Less momentous perhaps, but very noticeable in the long run, Bill Durham has been able to tackle the design for the project that several of you generously donated to support where we are putting a periodic table terrazzo tile floor in the student waiting area. This project got stalled when Bill's mother passed away in the fall. He produced this drawing for us to show placement. Hopefully before too long we can include pictures of the finished project!



Alumni Updates

Lindsey Rasmussen, BS 15, is currently working full time at a company called Brewer Science as a QC Technician in Rolla, Missouri, and taking graduate level chemistry classes as a non-degree student at the University of Missouri Science and Technology in Rolla. She will enter their masters program for chemistry this fall.

Leremy Colf, BS 04, will be presenting a lecture to the department on February 17, 3:30 p.m., in the Harrison Hale Lounge (CHEM 220). Leremy graduated with highest honors and gave one of the commencement addresses. He was awarded an NSF Fellowship to continue his structural biochemical study at Stanford University of Medicine (PhD 08). After he published multiple Cell, PNAS and Science papers, he left academe to become a Scientific Representative for the American Cancer Society. As an AAAS Science Technology Policy Fellow at the Department of Homeland Security, he wrote about preparedness against nontraditional bio-threats. He recently became a Director of Disaster Research at the U.S. Department of Health and Human Services. His role is to develop science-based strategy for responding to public health crises - which includes everything from deep-water horizon to Flint, Michigan to Ebola. He did his undergraduate research with **Joshua Sakon**.

Michael Brannon, PhD 85: I always enjoy reading the Mole and particularly enjoy Dr. Durham's safety tips. I was in one of the first Advanced Inorganic classes that Dr. Durham taught after joining the UA faculty. I recently retired after working at Eastman Chemical for 29 years, where I spent quite a bit of time dealing with laboratory and plant safety. His latest tip on pouring acid into water reminded me of several incidents I remember.

The first involves pouring acid into acid. In some analytical labs, technicians pour acid from gallon jugs into smaller containers that supply the acid to instruments. A technician was going to fill a liter container that was about half full with concentrated sulfuric acid. The problem was that the container was half full of hydrochloric acid and when the sulfuric was added, the HCl rapidly degassed and blew everything back out of the container. Incredibly, the technician escaped without injury. I know they were wearing a lab coat and safety glasses and I believe a face shield also.

I also remember a couple of incidents when acids were unloaded from tank trucks but were unloaded into the wrong storage tanks. These tanks contained compounds that reacted with the acid, often rupturing the tank and emitting clouds of toxic gases. Care needs to be taken when you add acid to almost anything!

Department of Chemistry and Biochemistry Gives \$69,000 in Scholarships

The Chemistry and Biochemistry Department in the J. William Fulbright College of Arts and Sciences congratulates the 22 undergraduate chemistry majors selected to receive scholarships in the 2016-17 academic year.

- ACS-Hach Land Grant Scholarship – **Jasmine Pendry**. Awarded to chemistry and biochemistry majors for remarkable academic achievement, and who intend to teach chemistry at the high school level.
- Arthur and Lois Fry Scholarship – **Wayne Hawkins**. Fry Scholars are selected for their outstanding academic achievement in the chemistry and biochemistry program and commitment to a career in professional chemistry.
- Dupont Chemistry Scholarship – **Brianna Hooker**. Chemistry majors, freshman through senior, with demonstrated academic achievement are eligible for this renewable scholarship established through industrial gifts from DuPont-Conoco.
- Jacob and Wilma Sacks Scholarship – **Lydia Ganaden, Caleb Bonge, and Lemuel Reber**. This scholarship is named in honor of Professor Sacks and his wife, Dr. Wilma Sacks, who helped establish many projects in maternal and child health, and is awarded to chemistry majors with demonstrated academic achievement.
- Octa N. High Scholarship – **Jordan Burkdoll, Cody Canote, Dhruva Dasgupta, Catherine Halloran, Zena Hicks, Justin Klucher, Karli Lipinski, Kathleen McClanahan, Cayley McCollough, Attrice Meeks, Fred Pohlman II, and Julia Scott**. The Octa N. High Scholarship awards full tuition scholarships to worthy chemistry majors. This scholarship was established in 2009 by the late Octa N. High, a 1933 alumna who almost dropped out of school during the Great Depression, but was able to continue through financial support by the university.
- Virginia R. Hicks Endowed Scholarship in Chemistry – **Mattison Cato, Stephanie Oyibo, Christopher Randall, Alexis Weeks, and Victoria Weeks**. This endowed scholarship is available to full-time chemistry majors with a preference to students from Arkansas, and/or students who may be underrepresented in the fields of chemistry and science.

The Department and all the student are very grateful to all those whose past generosity made these awards possible. Unfortunately, our scholarship awards were down this year from last as several of our scholarship endowments are not high enough to generate the income required to make an award every year. If you are interested in donating to any existing scholarship fund or establishing a new one, please let us know and we will be delighted to share information about the possibilities for helping future students, either graduate and undergraduate.

Undergraduate Chemistry Major Receives International Scholarship

~ Newswire December 2, 2016

Four University of Arkansas undergraduates have been awarded Benjamin A. Gilman International Scholarships to fund education abroad opportunities in the spring 2017 semester. The Gilman scholars will receive up to \$5,000 to apply towards their study or internship abroad costs.

The scholarship program, which is sponsored by the U.S. Department of State, is intended to increase international experiences for American students, so they will be better prepared to thrive in the increasingly global economy.

Holly Hamblen, a U of A Gilman scholarship winner, said she is grateful to have earned the scholarship and is thankful for the support she received during the application process.

"I feel so blessed and thankful to be honored with this award," she said. "I was fortunate to have a lot of help and support from my family, friends and adviser, Angela LaPorte."

GILMAN INTERNATIONAL SCHOLARSHIP RECIPIENTS

Cassidy Dutton, international studies major, studying Arabic in Morocco

Brett Glenn, mechanical engineering major, studying engineering in Italy

Holly Hamblen, art education major, interning as a student teacher in Sweden

Breanna Jones, chemistry major, studying on exchange in the United Kingdom

The number of University of Arkansas students making study abroad part of their curriculum continues to grow. During the 2015-16 academic year, a record number of students participated in study abroad opportunities. More than 1,000 students went abroad, visiting nearly 50 countries.

Students interested in more information about applying for the Gilman Scholarship should contact the Office of Study Abroad and International Exchange. Undergraduate students with limited financial means who plan to study abroad are encouraged to apply.



Breanna Jones

NSF Awards Scholar in Residence Grant to University of Arkansas Chemist

The National Science Foundation has awarded a one-year, \$100,000 grant to University of Arkansas bioanalytical chemist **Julie Stenken** to serve as a scholar in residence at the U.S. Food and Drug Administration in Silver Spring, Maryland. The project will focus on monitoring chemical communication called “quorum sensing” arising from thin films of bacteria that adhere to medical implants such as catheters, ventilators – even artificial joints. About 60 percent of healthcare-associated infections are caused by infection of medical devices, leading to about 100,000 deaths annually. The Food and Drug Administration regulates medical devices.

Stenken, a professor in the Department of Chemistry and Biochemistry, is a leading expert in the technique of microdialysis sampling. Stenken will work with Dr. Steven Wood, an immunologist at the Food and Drug Administration who has experience with medical devices. A microdialysis is a probe that is placed under the skin to mimic medical implants.

“We will use microdialysis sampling to monitor the chemical communication between bacteria in a biofilm and extend this to complex systems involving biofilms and macrophages,” Stenken said. “We will be able to measure the bacterial chemical communication and try to determine methods to prevent these films from forming.”

Stenken’s research group infuses different agents through the microdialysis probe that are designed to direct large white blood cells called macrophages into a healing state. Macrophages exist in our bodies to engulf or digest foreign objects, typically a virus or bacteria. In this project, the researchers will coat the membrane of the probe with bacteria to induce a biofilm.

“There are suggestions from the medical literature that if we can get macrophages to the implant, we could prevent a lot of this bacterial growth,” Stenken said.

Stenken holds the Twenty-First Century Chair in Proteomics in the J. William Fulbright College of Arts and Sciences. In addition to NSF, her research is supported by the National Institutes of Health and Arkansas Biosciences Institute.

~ Newswire, December 2, 2016



Chemistry Major Selected as November’s Student Leader of the Month

~ Newswire December 5, 2016

Senior **Madison Cole** has been selected as the Student Leader of the Month for November. Originally from Conway, Madison came to the University of Arkansas to major in biochemistry with a minor in psychology. She currently serves as the director of alumni relations on the Student Alumni Association; president of Order of Omega Honors Society; and a member of Kappa Kappa Gamma Sorority and Alpha Epsilon Delta Pre-Medical Society. Madison has stated that a large reason she became involved was to interact with diverse populations and build lasting relationships while making her mark on campus.

When asked what she thought a leader's most important qualities were, Madison said, "First and foremost I believe a leader should always have integrity. With the quality of integrity comes honesty, truthfulness, responsibility, and a leader with sound values. I also think a very important quality a leader should have is an encouraging spirit. Those around you are more willing to give their best and persevere if they are continually encouraged and recognized for their hard work and dedication. Every person on a team is important and it is the leader's job to ensure they know their value." Madison also identified her older brother and fellow Razorback Austin Cole as a primary mentor saying he is her "biggest encourager ever!"

Madison's advice to other leaders is to learn to lead "selflessly." She said, "I would encourage other leaders to put your peers' concerns and needs above your own. I think that listening also comes with leading selflessly. I would advise any leader to listen intentionally before speaking and always be open to the other side." Her favorite quote is from Maya Angelou: "I have learned that I still have a lot to learn."

The Student Leader of the Month award, sponsored by New Student & Family Programs, recognizes University of Arkansas undergraduate students for their excellence in leadership through campus involvement, leadership activities, or through volunteer and community service.



Students Pass Cumes



Melissa Hirsch entered the program in the fall semester of 2015. She received her BS from John Brown University in the spring of 2015, and is from Kansas City, Missouri. Her research advisor is Dr. **Wei Shi**.



Randy Tran entered the program in the fall semester of 2015. He received his BS from the University of Arkansas in the spring of 2015. He is from Jonesboro, Arkansas and his research mentor is Dr. **Stefan Kilyanek**.



Elvis Boateng entered the program in the fall semester of 2014. He received his BS in 2008 from the University of Ghana, and his MS from Texas A&M University-Commerce.

Research Featured in World Biomedical Frontiers

Ashley Martfeld Henderson's research was featured in the 2016 Oct-Dec website of World Biomedical Frontiers. World Biomedical Frontiers - founded in 2012 and headquartered in New York, - is an organization that focuses on cutting-edge biomedical research from around the globe. WBF is dedicated to being on the lookout for biomedical breakthroughs that embody exploration, innovation and significant promise for pharmaceutical development. Focusing on frontiers in biomedical research, they serve as a platform for exchange of the latest research progress and groundbreaking discoveries in biomedical science, including strategic and emerging research areas such as cancer, diabetes, aging, infection, immunology, public health, stem cells and genomics.

Ashley was the lead author on the paper, Ionization Properties of Histidine Residues in the Lipid-Bilayer Membrane Environment. Co-authors were **Denise V. Greathouse** and **Roger E. Koeppe II**. It was published in The Journal of Biological Chemistry, 2016 Sep; 291(36):19146-19156.



Pictured from left to right are the Koeppe Lab members: Denise Greathouse, Armin Mortazavi, Ryan Wendt, Venkatesan Rajagopalan, Alexandria Kim, Jordana Thibado, Roger Koeppe, Ashley Martfeld, Karli Lipinski, Matthew McKay, and Jenny Afrose.



Alumni Gordon Whitbeck Opens New Lab Facility



SPRINGDALE (Jan. 17, 2017) – Whitbeck Laboratories, Inc., a full-service independent commercial laboratory offering a unique mix of microbiology, chemistry and serology testing to an international clientele, will celebrate its new 7,500 square foot research and testing facility with a Grand Opening Wednesday, January 18. The new facility is located in the Springdale Technology Park.

Company officials will make brief remarks at 11 a.m. followed by facility tours.

The new facility provides the company with room for both initial and future expansion. The company's microbiology lab has more than doubled in size as a result of the new construction. Currently, the company employs 19.

In 1989, A&A Laboratories of Springdale was acquired by Whitbeck Labs to add chemistry testing to the services it already provided.

In 2012, Whitbeck Labs acquired The Poultry Federation laboratory located in Fayetteville to add the ability to perform serology assays. Whitbeck Laboratories holds a full National Poultry Improvement Plan (NPIP) certification and is the nation's largest, independent NPIP certified lab.

The new facility has almost doubled the amount of lab space previously available to the Springdale firm that was founded in 1978 by Gordon Whitbeck. Whitbeck Laboratories offers a comprehensive laboratory solution for the food and poultry industries, as well as diagnostic services for local veterinarians. The company works closely with food industry research and development companies, providing facilities and testing for product innovations and global consulting services.

"This new facility is the result of many years of planning," said company President Gordon Whitbeck. "With the dramatic increase in food safety regulations and policies by federal regulators and food producers, we have seen a significant increase in the demand for the services our lab offers. Food safety is of the utmost concern for anyone in the food business. Our independent lab is a leading provider of on-time testing for many of the world's largest food producers."

An additional service of this new facility is the ability for Whitbeck Laboratories to host training seminars required by the National Poultry Improvement Program (NPIP). Three such training centers in the United States are heavily used now. A training center in Springdale provides an affordable and geographically convenient option for professionals that require certification and work in the central US.



Alumni Gordon Whitbeck (right), president and microbiologist of Whitbeck Labs in Springdale, leads a tour January 18 at the new office and laboratory for the longtime poultry testing company.

NWA Democrat-Gazette/Andy Shupe

Graduate Student Mahsa Lotfi-Marchoubeh Awarded Funding



The department received notification December 2, 2016 from Fulbright College Dean Todd Shields that the Faculty Development Committee of Fulbright College selected **Mahsa Lotfi-Marchoubeh's** proposal for a Graduate dissertation Research Award to be funded for \$5000.

Mahsa entered the program in the fall of 2014. Her undergraduate and master's degrees are from Isfahan University of Technology in Isfahan, Iran. Her research advisor is **Ingrid Fritsch**.

Mahsa has already distinguished herself as a researcher in the department. She shared second place in the campus-wide Three Minute Thesis Competition in November, and received first place for her poster in the area of electrochemistry at the 229th Electrochemical Society Meeting last spring.

Calendar of Events

February

- 3 CUME
- 17 Special Seminar: Dr. Leremy Colf, Director, Disaster Science at US Dept. of Health & Human Service (and alumni), "How Science can Save Lives: Preparedness and Response in Disasters" 3:30, Harrison Hale Lounge CHEM 220.
- 20 Seminar: Dr. Shane Ardo, UC Irvine, "Light-to-Ionic Energy Conversion using Photoacid-Modified Ion-Selective Polymers en Route to Direct Solar Desalination of Salt Water" 3:30, CHEM 144. No reception afterwards.
- 27 Seminar: Dr. Ming An, SUNY Binghamton University, "Prodrug Approaches to Target Tumor Acidosis and Counter Drug Resistance in Cancer Chemotherapy" 3:30 CHEM 144.

March

- 1 Application deadline for spring graduation
- 3 CUME
- 6 Seminar: Dr. Hui Wang, Univ. of South Carolina, "Merging Nanoplasmonics and Nanocatalysis on Noble Metal Nanoparticles" 3:30, CHEM 144.
- 13 Seminar: Dr. Hao Chen, Ohio University, 3:30 CHEM 144.
- 20-24 Spring Break (office closed only on Friday)
- 27 Seminar: Dr. Bryce Sadtler, Washington Univ. in St. Louis, 3:30, CHEM 144
- 31 CUME

The department of chemistry and biochemistry at the University of Arkansas strives for excellence in research, teaching and service in chemistry - the central science. We aspire to positions of leadership regarding the discovery of new scientific knowledge, the training of students, and the economic development of the State of Arkansas. We seek to recruit and retain a diverse group of the best faculty, students and staff to address the challenges of the future through interdisciplinary and multi-disciplinary research and education.

Library Hours

Spring Hours: January 3 - May 26

Saturday and Sunday	CLOSED
Monday - Thursday	8:00 am - 9:00 pm
Friday	8:00 am - 6:00 pm

Exceptions to Hours

Friday, March 17	8:00 am - 5:00 pm
Monday - Thursday, 3/20-3/23	8:00 am - 5:00 pm
Friday, March 24	CLOSED
Friday, May 12	8:00 am - 5:00 pm
Monday - Friday, 5/15-5/26	8:00 am - 5:00 pm

The chemistry and biochemistry library resources can be accessed in the following LibGuides: <http://uark.libguides.com/content.php?pid=110953>. Please bookmark for future use.

Theses and dissertation resources can be found on the following LibGuide: <http://uark.libguides.com/content.php?pid=123035&sid=1057466>.

For more information: Check the Libraries' web site (<http://libinfo.uark.edu>) for updated information on hours and services. Library hours are also available by dialing 479-575-2557.

Our departmental web page is located at chemistry.uark.edu. There you will find links to departmental information, news, and people. But best of all, alumni can stay in touch through the Alumni & Friends link. We want our alumni to stay in touch! Please take a few minutes to browse the page and submit any update you'd like published (or not). We welcome pictures, too!



Joke Time - with Julie

Q: What is the most important rule in chemistry?

A: Never lick the spoon!

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Safety Tip:

By Bill Durham

Know your chemistry!
Combinations of ordinary reagents can hold surprises. Acetone and hydrogen peroxide, sodium azide and a transition metal, perchloric acid and alcohols all make highly explosive materials.

Know your chemistry!!



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