

The Mole Street Journal

Department of Chemistry and Biochemistry

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Special points of interest:

- INBRE Conference wrap-up
- Faculty Travel and Publications
- Mathurin admitted to candidacy
- 2013 term dates announced

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INBRE Conference a Success

The Department of Chemistry and Biochemistry was proud to co-host with the departments of Physics and Biological Sciences, the annual INBRE conference October 5-6 at the NWA Holiday Inn and Convention Center in Springdale. The department was well represented with Kaila Pianalto placing 2nd in the oral competition for chemistry, and Kaitlyn Bryant placing 1st in the poster presentation for chemistry. Undergraduates presenting posters were Preston G. Scrape, Keaton Piper, Kaila Pianalto, Rebekah Langston, Gayatri Suresh Kumar, and Hans Wang. Graduate students presenting posters were Adam Kreidermacher, Christena Nash, Mengjia Hu, Vishal Sahore, and Roger Williams. Please see page 3 for titles and authors.

Opening Session began at 1:20 p.m. with Dr. Donald Bobbitt, President of the UA System, giving welcoming remarks. Three invited faculty presentations followed, which included Lori Hensley from Ouachita Baptist College, Woodrow Shew of the UofA, and Howard Hendrickson from UAMS. Student orals followed these, with 6 students from each division giving 12 minute presentations. After a quick buffet dinner, participants were bused to Barnhill Arena where Jane Goodall presented "Making a Difference: An Evening with Jane Goodall." Her lecture was cosponsored by the UofA Honors College and the Distinguished Lectures Committee. A book sale and signing followed her remarks. Saturday was filled with poster judging, workshops, and the presentation of awards at the closing ceremony. Next year's conference is already in the planning stages. Please mark your calendars for mid-October.



Top right: Kaila Pianalto and Kaitlyn Bryant.

Left and proceeding clockwise: Gaya Kumar presents her poster to a judge. Some of the many materials available to participants of the Career and Advice workshop.

Dr. Donald Bobbitt welcomes the participants.

Dr. Frank Millett judges a poster for the chemistry division.

Dr. Bob Gawley and Roger Koeppel anchor a table during poster judging.



Faculty News

On the Go

Feng Wang presented an invited talk "Predicting the melting temperature of ice-Ih with only electronic structure information" at Texas A&M University for the Southwest Theoretical Chemistry Conference, Oct. 26-28, 2012.

Colin Heyes presented a talk with coauthors **Feng Gao**, **Adam Kriedermacher** and **Ingrid Fritsch** "3-D Imaging of Redox Magnetohydrodynamic Flow in Microfluidic Devices by Fluorescence Correlation Spectroscopy and Particle Tracking" SciX/FACSS 2012 annual meeting in Kansas City, MO, Sept. 30-Oct. 4, 2012.

Feng Gao, **Adam Kriedermacher**, **Ingrid Fritsch** and **Colin Heyes** authored a poster "Fluorescence Correlation Spectroscopy (FCS) to Quantify Flow Patterns in Electrochemically-Driven Microfluidic Devices" at the SciX/FACSS 2012 annual meeting in Kansas City, MO, Sept. 30-Oct. 4, 2012.

Colin Heyes is organizing a symposium at the Southwest Regional Meeting of the American Chemical Society (SWRM ACS) in Baton Rouge, LA, Nov. 4-7, 2012 entitled "Fluorescence Spectroscopy in the 21st Century: Single Molecules, Super-Resolution and Nanomaterials." At the same meeting, **Benard Omogo** will present a talk "Roles of Surface-Ligand and Core-Shell Interfaces in Quantum Dot Fluorescence at the Ensemble and Single Nanoparticle Level," coauthored by **Jose F. Aldana**, **Mizuho Kaneko**, **Feng Gao** and **Colin Heyes**.

Colin Heyes presented an invited talk at Rice University October 17, 2012, "Tuning Organic-Inorganic and Inorganic-Inorganic Interfaces of Quantum Dots for Ensemble and Single Molecule Fluorescence Applications." The same talk will be presented as an invited talk at the University of Michigan on November 15, 2012.

Matthias Knust will attend the Fall Workshop: Mass Spectrometry-based Protein Phosphorylation Analysis and Phosphoproteomics" of the American Society of Mass Spectrometry (ASMS) on November 8-9, 2012. His travel is supported by a travel stipend from the ASMS.

James F. Hinton was invited to give a talk on "The Use of Virtual Reality to Study Protein Simulations and Dynamics" at the 6th Annual Conference on Peptides and Proteins (Pep-Con 2013) to be held in Sushou, China.

Publications

Cheah, L.T., **Fritsch, I.**, Haswell, S.J., Greenman, J. "Evaluation of Heart Tissue Viability under Redox-Magnetohydro-dynamics Conditions: Toward Fine-Tuning Flow in Biological Microfluidic Applications," *Biotechnology and Bioengineering* 2013, 109(7), 1827-34.

Weston, M.C., **Fritsch, I.** "Manipulating Fluid Flow on a Chip through Controlled-Current Redox Magnetohydrodynamics," *Sens. Actuata. B* 2012, 173, 935-944.

Timothy K. Beng, **William S. Tyree**, Trent Parker, Chicheung Su, Paul G. Williard, **Robert E. Gawley**, "Dynamics of Catalytic Resolution of 2-Lithio-N-Boc-piperidine by Ligand Exchange," *J. Am. Chem. Soc.* 2013, 134, 16845-16855.

Beth Emerson, **J. Gidden**, **J.O. Lay, Jr.**, **Bill Durham**. "Laser desorption/ionization time-of-flight mass spectrometry of triacylglycerols and other components in fingerprint samples." *J. Forensic Science* 2012, 56 381-9.

Jonathan E. Smith, Burth H. Blum, **J.O. Lay, Jr.** "Metabolic fingerprinting reveals a new genetic linkage between ambient pH and metabolites associated with desiccation tolerance in *Fusarium verticillioides*." *Metabolomics*, in press and online).

Cynthia R. Sides, **Rohana Liyanage**, **Jackson O. Lay, Jr.**, **Sagaya Theresa Leena**

Philominathan, Osamu Matsushita, **Joshua Sakon**. "Probing the 3-D Structure, Dynamics, and Stability of Bacterial Collagenase Collagen Binding Domain (apo-versus holo-) by Limited Proteolysis MALDI-TOF MS." *J. American Soc. of Mass Spectrometry* 2012, 23, 505-19.

Jackson O. Lay, Jr., **Jennifer Gidden**, **Rohana Liyanage**, **Beth Emerson**, **Bill Durham**. "Rapid Characterization of Lipids by MALDI MS: Bacterial Taxonomy and Analysis of Food Oils." *Lipid Technology* 2012, 24, 11-14.

Jackson O. Lay, Jr., **Jennifer Gidden**, **Rohana Liyanage**, **Beth Emerson**, **Bill Durham**. "Rapid Characterization of Lipids by MALDI MS: Artifacts, Ion Suppression, and TLC MALDI Imaging." *Lipid Technology* 2012, 24, 36-40.

Utkarsh Shah, **J.O. Lay, Jr.**, **Andrew Proctor**, **Kwangyul Moon**. "Determination of CLA trans,trans positional isomerism in CLA-rich soy oil by GC-MS and Silver ion HPLC." *J. Am. Oil Chem., Soc.*, in press (2012).

Luke R. Howard, Ronald L. Prior, **Rohana Liyanage**, **J.O. Lay, Jr.** "Processing and storage effects on berry polyphenols: Challenges and implications on bioactive properties," *J. Agric. Food Chem.*, in press (2012).

K.S. Rasaputra, **R. Liyanage**, **J.O. Lay, Jr.**, G. F. Erf, R. Okimoto, N.C. Rath. "Changes in serum protein profiles of chickens with Tibial Dyschondroplasia." *The Open Proteomics Journal* 2012, 5, 1-7.

J. O. Lay, Jr., J. Phomakay, K. Srinivas, M. Rowe, K.L. Steelman, J.W. King. "Application of supercritical carbon dioxide-co-solvent mixtures for removal of organic material from archeological artifacts for radiocarbon dating." Proceedings of the 10th International Symposium on Supercritical Fluids. ISSF (2012) accepted.

J.O. Lay, Jr., **Jennifer Gidden**, **Rohana Liyanage**. "Characterization of Lipids by MALDI MS." The AOCS Lipid Library, ed., William Christie, AOCS, Urbana, IL.

INBRE Authors and Titles (cont. from page 1)

Kaila Pianalto, Jessica Hartan, Gunnar Boysen, Grover P. Miller. No Difference in Butadiene Metabolite Inhibition of CYP2E1 Activity between Rats and Mice.

Kaitlyn Bryant, Paul D. Adams. Optimization of Growth and Characterization of Phosphodiesterase 4D N-Terminal Catalytic Domain and its Interactions with Rheb.

Gayatri Suresh Kumar, Yazan Akkam, **T.K.S. Kumar**, David S. McNabb. Relationship of Ergosterol Composition to Fluconazole Sensitivity in Candida Species.

Rebekah Langston, Susanne Striegler. Exploring the Inhibition of β -galactosidase.

Keaton Piper, Ryan Tian. First Direct Electrochemical Biosensing on a Nanofiber-based Bioscaffold.

Preston Scrape, Ingrid Fritsch. Redox-Magnetohydrodynamic Pumping, Spatially Separated from Redox Processes at Active Electrodes.

Hans Wang, Reena Chandreshekar, Paul D. Adams. Characterization of an N-terminal Catalytic Domain Derivative Protein of Phosphodiesterase 4D.

Adam Kreidermacher, Vishal Sahore, Ingrid Fritsch. Using Bead Video Microscopy to Observe Electrochemically Generated Density Gradient Based Fluid Flow in a Microfluidic Setting.

Christena Nash, Ingrid Fritsch. Microfluidics with Magnetohydrodynamic Pumping and Stirring using PEDOT-modified Electrodes.

Mengjia Hu, Ingrid Fritsch. Redox Cycling Behavior of Catecholamines on Gold Microelectrode Arrays.

Vishal Sahore, Ingrid Fritsch. Microfluidics involving Flat Flow Profile and Fluid Stirring Guided by Redox-magnetohydrodynamics (MHD): toward Lab on a Chip (LOC) Immunoassays.

Roger Williams, Ryan Tian. Utilizing Nanobelts for Direct Sensing of Acetone in Exhaled Breath.

Student News

Leanne Mathurin passed her 7th cume and is now admitted to candidacy. Leanne entered the Ph.D. program in the fall of 2010. Her advisor is Dr. Jingyi Chen and she is in the inorganic chemistry division. She received her Bachelor's degree from Hendrix College and is from Baton Rouge, LA.



Milestones



Professor Colin Heyes and Julie McQuade announce their upcoming nuptials. The wedding will take place December 29, 2012. Julie is from Fort Smith, Arkansas.

Be a Flu Fighter

The Pat Walker Health Center is again making flu shots conveniently available and affordable this year for students, spouses of students, faculty, staff, and their spouses. Walk-in Flu Clinics are Monday-Thursday from 8 to 9 am and Monday-Friday from 4 to 5 pm at the Pat Walker Health Center Immunization Clinic. No appointment is necessary, just walk in and get your flu shot.

Cost for students who have paid the health fee is \$10 for a flu shot and \$25 for the Flu Mist (needleless, nasal spray immunization). The cost for all other eligible individuals is \$20 for a flu shot and the

\$35 for Flu Mist. Students, spouses of students, faculty, staff and their spouses are eligible. QualChoice Insurance is accepted.

Invest in yourself and be immunized against the flu. To learn more about the Pat Walker Health Center, visit <http://health.uark.edu> To learn more about influenza and flu activity across the United States, visit the Centers for Disease Control website at http://www.cdc.gov/flu/other_flu.htm

Location Information:
Main Campus - Pat Walker Health Center

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Department of Chemistry and
Biochemistry University of Arkansas



Safety Tip: by Bill Durham

Setting aside a specific time each week for laboratory clean up is a good practice.


**Department of Chemistry
and Biochemistry**

Excellence in the Central Science

2013 Term Dates Released

The Office of the Registrar has released the 2013 term dates, which will begin scheduling for in the next few weeks. Also, the new class times will reflect the new 15-minute class intervals for the fall and spring semesters, beginning with the fall 2013 term.

May Intersession 2013 (10 Class Days)

May 13 Classes Begin
May 23 Last Day of Classes
May 24 Final Exams

Summer 10W Session 2013 (48 Class Days)

May 28 Classes Begin
Aug. 2 Last Day of Classes

Summer 5W1 Session 2013 (24 Class Days)

May 28 Classes Begin
June 28 Last Day of Classes

Summer 5W2 Session 2013 (24 Class Days)

July 1 Classes Begin
Aug. 2 Last Day of Classes

Summer 8W Session 2013 (37 Class Days)

May 28 Classes Begin
July 18 Last Day of Classes

August Intersession 2013 (10 Class Days)

Aug. 5 Classes Begin
Aug. 15 Last Day of Classes
Aug. 16 Final Exams

Fall 2013 (73 Class Days/43 MWF/30 TT)

Aug. 26 Classes Begin
Sep. 2 Labor Day
Oct. 21-22 Fall Break
Nov. 27-29 Thanksgiving Break
Dec. 12 Last Day of Classes
Dec. 13 Dead Day
Dec. 14-19 Final Exams
Dec. 21 Commencement

2012-2013 CUME Schedule

| | |
|--------------|-------------|
| September 14 | January 25 |
| September 28 | February 15 |
| October 19 | March 8 |
| November 9 | March 29 |
| November 30 | April 19 |

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

Calendar of Events

November

3 Daylight Saving Time ends-set clocks back!
6 Election Day
9 CUME
12 Department Seminar-Dr. Ken Jordan, Univ. of Pittsburgh
21 Thanksgiving Break (Univ. offices open)
22-23 Thanksgiving Holiday (Univ. closed)
30 CUME

December

1 Deadline for new grad students to choose their major professors. Committees must be formed immediately afterwards. Turn in forms to Leslie.
7 Dead Day
7 Departmental Pot Luck Luncheon
10-14 Final Exams
15 Commencement
17-Jan 11 Winter Break (Classes begin Jan 14)

Library Hours

CHBC Library (CHEM 225)
<http://libinfo.uark.edu/chemistry>
575-2557

Fall Hours

Monday -Thursday 8 a.m.-9 p.m.
Friday- 8 a.m.-6 p.m.
Closed Saturdays and Sundays
Closed Labor Day (September 3)

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>.

