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## Mole Street Journal, February 2010

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

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UNIVERSITY OF  
ARKANSAS  
J. WILLIAM FULBRIGHT  
COLLEGE OF ARTS & SCIENCES

# THE MOLE STREET JOURNAL

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

FEBRUARY 2010

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## Science Building Labs Renovated



Students enrolled in general chemistry lab classes now have crisp new spaces in which to conduct experiments.

What began in November is now nearly complete. Labs in the Science Building (SCIE) 316 and 317 were chosen as the prototypes for laboratory renovations on campus.

Both rooms were completely gutted. New cabinets and counter tops replace what was installed in 1968 when the building was constructed. Bins were added to the cabinetry for storage of backpacks. State-of-the-art hoods and benches were installed as well as energy efficient lighting. The only items that remain are the chalkboards. Even the stools were recycled with a fresh coat of paint. From the new dropped ceiling to the floors —

the modern labs will be a joy to work in.

In addition, there was a significant amount of behind the scenes work, actually above the ceiling. Efficient fan coil units are now above the ceiling tiles and out of sight. The hood replacements included new air handlers on the roof.

This summer, SCIE 318 will be renovated to provide for more lab sections. Over the next few years the entire air handling system will be replaced and other labs renovated.

During the fall and spring semesters, approximately 1100 undergraduates attend chemistry lab courses each week.

When you get a chance, visit the labs and see student fees in action.



Above: A renovated lab. At left: A crane lifts air handlers to the roof of the Science Building. Note the scale. A man stands atop the building to guide the equipment.

## Faculty News

### Research News

A book in the *Topics in Stereochemistry* series *Stereochemical Aspects of Organolithium Compounds* by **Bob Gawley** was published in February.

### On the Go

**Peter Pulay** was an invited speaker at the Molecular Theory for Real Systems meeting at Kyoto University, Jan. 7-9. Pulay and **Tomasz Janowski** presented a paper "Ultrafast QM/MM Simulation of Solvated Molecules."

**Julie Stenken** presented "Building a Network of Networks for Academic Career Success," at a local chapter meeting of Association of Women in Science, Feb. 3.

Graduate student **Sasa Miladinovic** presented a poster "Fragmentation of Polymers Using Quadrupole Collision-Induced Dissociation FTMS," at the Lab Automation 2010 conference in Palm Springs, Calif., Jan. 23-27. He received a travel award from the Lab Automation Society to attend.

### 54th Annual Biophysical Society Meeting, February 19-24, San Francisco

Attending but not presenting are **Dan Davis, Marilyn Davis, Roger Koeppe, Suresh Kumar, Frank Millett** and graduate students **Jeremy Durchman, Brandon Suttles, Chris Rupar** and **Nicole Webb**.

The following poster presentations will be made.

**Lois M. Geren** "Detection of A Proton-Dependent Electron Transfer from CUA to HEME A of Cytochrome C Oxidase Mutant S44E using Ruthenium Photoexcitation"

**Denise V. Greathouse** "Acylation of Lactoferrin Peptides Using Solid State NMR and All-Atom Molecular Dynamics Simulations"

Post-doc **Anna Daily** "Defining the Interaction between S100A13 and Annexin Ii Peptide: Insight into Non-Classical Secretion"

**Roger E. Koeppe** is a coauthor on the following presentations being made by colleagues at Cornell University.

"Antidepressants Modify Lipid Bilayer Properties"

"Nsaids Alter Bilayer Properties by a Common Mechanism"

"Sensitivity of Coarse Grain Models of Peptides to the Introduction of Charged Residues in Model Peptides and Bacterial Hemoreceptors"

"Thiazolidinediones Alter Lipid Bilayer Properties and Native Voltage-Gated Sodium Channel Function"

Posters by graduate students

**Johanna M. Froyd Rankenberg**

"Influence of WALP Peptides on Phase Behavior of Cholesterol Containing Ternary Lipid Mixtures"

**Nicholas J. Gleason** "Observation of Backbone  $\alpha$ -Deuteron Signals in Solid-State NMR Spectra of Labeled Alanines in Oriented Transmembrane Peptides"

**Jeff Havens** "Flash Initiated Redox Events within Cytochrome Bc1 Suggest Equilibration between Hemes B: Effects of Temperature, Viscosity, Inhibitors and Substrates"

**Rebecca Kerr** "Rational Design of Acidic Human Fibroblast Growth Factor (HFGF-1) With Increased Stability and Mitogenic Activity"

**Nicole Richardson** "Do Tyrosine Phenolic Groups Contribute to the Alkaline Transition in the Redox Potential of Cytochrome F?"

**Lindsay Rutherford**

"Characterization of the Minimalistic FGF-D2 Domain Interface"

**Ryan Thurman** "Cation-Pi Interactions Contribute Significantly to the Stability of FGF and the FGFR"

**Vitaly V. Vostrikov** "Charged and Aromatic Anchoring Amino Acids Affect the Orientation of Transmembrane Peptides: A Deuterium NMR Study"

Posters by undergraduates

**Andrew Avery** "Effect of Osmolytes on Proteins"

**Joshua D. Brown** "Development of Bicyclic Containing Anionic Lipids to Characterize Cationic Membrane Active Peptides by NMR Spectroscopy"

**Geri E. Burkett** "Binding of Antimicrobial Lactoferricin Peptides to Targets in the Angiogenesis Pathway"

**Cory Garren** "Understanding the Role of Ankyrin Domain of the 43-KDA Subunit of the Chloroplast Signal Recognition Particle in Protein Targeting"

**Emily Erstine** "The Monomerization of a Dimeric, Calcium-Binding Protein Involved in the Non-Classical Export of Fibroblast Growth Factor 1"

**Katie Hamblin** "A Biophysical Investigation of the Non-Classical Release Complex of Fibroblast Growth Factor-1"

**Amen Ismail** "Understanding the Effectiveness of Synthetic Crowding Agents"

**Natalie White** "Overexpression and Biophysical Characterization of Human Interleukin-1 Alpha"

## Safety Tip



**This is the aftermath of a fire that could have easily escalated out of control. Please keep the number of containers that hold flammable liquids in your hood to a minimum.**

## Second Class of HHMI Scholars Announced



**Arshan Dehbozorgi**  
Joplin, Mo.



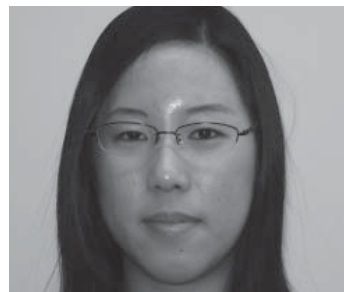
**Gayatri Suresh Kumar**  
Fayetteville



**Alex Jones**  
Fayetteville



**Rebekah Langston**  
Harrison



**Yui Okuyama**  
Kagawa-ken, Japan



**Andrew Price**  
Redfield



**Derek Pyland**  
Fort Smith



**Daniel Tchakhalian**  
Fayetteville

This spring 18 freshmen were selected as HHMI Scholars to take part in the HHMI undergraduate research studio funded by the Howard Hughes Medical Institute (HHMI).

The two-year program offers an alternate educational experience for freshmen with continued funding through spring 2011. Participants receive a stipend, three hours of paid tuition, and housing for 10 weeks during the summer.

The mission of the Howard Hughes Medical Institute is to promote medical research by encouraging the best students to enter the field of medical research.

Above are the chemistry majors selected with hometowns listed. No photo for **Brittany Touchstone**, Pea Ridge or **Nancy Vo**, Fort Smith.

**David Paul** is the codirector of the HHMI Undergraduate Research Studio. **Leslie Johnson** provides staff support for the program.

The students with a variety of majors, will take part in one of three projects.

### Cell Signaling

- Faculty – **Suresh Kumar** and David McNabb (BIOS)
- Researcher – **Anna Daily**
- Graduate student – Carmen Padilla (BIOS)
- Scholars – **Arshan Dehbozorgi, Alex Jones, Gayatri Suresh Kumar, Rebekah Langston, Aswini Rajan and Daniel Tchakhalian**

### Membrane Transport

- Faculty – Ralph Henry (BIOS) and Greg Salamo (PHYS)
- Researcher – Daniel Folegea
- Graduate student – **Roger Williams**
- Scholars – Victoria Haines, Amir Mortazavi, **Yui Okuyama, Andrew Price, Christine Stith and Brittany Touchstone**

### Protein Dynamics

- Faculty – **Wes Stites** and Lin Oliver (PHYS)
- Researchers – **Jack Lay** and **Rohana Liyanage**
- Graduate students – **Chris Saunders** and Titus Morris (PHYS)
- Scholars – Wesley Clawson, Sierra Haury, Rebecca Jeffers, **Derek Pyland, Nancy Vo** and Yeonhee You

## Home Notes



**Paul and Stephanie Adams** welcomed their third child Havyn Denice Adams, born Friday, Jan. 8, 2010. She weighed 8 pounds and 8.5 ounces, and was 20 inches long.

## Attention Graduate Students

Don't forget — March 1 is the deadline for all graduate students to submit a written research proposal to their committee.

Remember to schedule a committee meeting. The last day for graduate students to orally defend their research proposal is April 15. No exceptions.

## Calendar of Events

### February

- 05..... CUME  
 08..... Faculty candidate presentation  
 11..... Faculty candidate presentation  
 15..... Seminar - documentary film *Naturally Obsessed: The Making of a Scientist*  
 22..... No seminar - Biophysical Society Meeting  
 24..... Progress reports e-mailed for 1000 and 2000 level courses

### March

- 01..... Last day for graduate students to submit a research proposal  
 01..... Department seminar  
 01..... Faculty ARU's are due to Leslie Johnson  
 05..... CUME  
 08..... Department seminar  
 15..... Department seminar  
 19..... Last day to drop a full semester course with a "W"  
 22-26..... Spring Break  
 29..... Department seminar

### April

- 02..... Special department seminar  
 05..... Department seminar  
 5-16..... Priority registration for summer and fall courses  
 09..... CUME  
 12..... Department seminar  
 15..... Last day for graduate students to defend research proposal  
 19..... Department seminar  
 22..... Honors Night  
 23..... CUME  
 26..... Fry Lecture  
 29..... Last day of classes  
 29..... Last day to officially withdraw from all courses  
 30..... Dead Day, no classes

### May

- 1-7..... Final exams  
 08..... Commencement  
 17..... First day summer I  
 31..... Memorial Day holiday, university closed

The above dates and campus and area events are listed on the department's Blackboard site <https://courses.uark.edu/>

## Naturally Obsessed

A special screening of the one-hour documentary film *Naturally Obsessed: The Making of a Scientist* will take place Monday, Feb. 15. It is a true story about the struggle to become a scientist and the satisfactions of discovery. Monday, Feb. 15 at 7 p.m. (CHEM 132). Reception prior to the screening at 6:30 p.m. CHEM 105. Time subject to change.

## February Birthdays

- 02..... Suresh-Kumar  
 03..... Melissa Weston  
 06..... Ranjani Viswanatha  
 12..... Markeeta LeRay  
 15..... Barry Sharp  
 15..... Stephen Gann  
 19..... Mya Norman  
 25..... Sasirekha Muruganatham  
 27..... Christian Loeschel

*The publishing of birthdays is not intended to invade the privacy of anyone. If you prefer not to be included, please let us know.*

## Spring CUMES

The cumulative exams for graduate students will be the following Fridays from 5 p.m. to 6 p.m. in CHEM 144.

- February 5
- March 5
- April 9
- April 23

## Library Hours

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

### Spring hours

Sunday.....2 p.m. to 6 p.m.  
 Monday-Thursday.....8 a.m. to 9 p.m.  
 Friday.....8 a.m. to 6 p.m.  
 Saturday.....CLOSED

### Exceptions to regular hours

March 21.....CLOSED  
 March 22-25.....8 a.m. to 5 p.m.  
 March 26-28.....CLOSED  
 May 9.....CLOSED

## Save the Date Fry Lecture

The 2010 Fry Lecture Series presents Dieter Seebach, Swiss Federal Institute of Technology, Zürich, Monday, April 26.

He will present "β-Peptides - from Organic Synthesis to Biomedical Aspects."