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## Mole Street Journal, January 2011

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

JANUARY 2011

VOLUME 10, ISSUE 1

## Arthur Fry Lecture Series



Donna G. Blackmond

Professor Donna G. Blackmond, of The Scripps Research Institute, will give the 2010-2011 Fry Lecture. She will present "Models for the Origin of Biological Homochirality," Monday, Jan. 24 at 3:30 p.m. in CHEM 144.

Her research focuses on blending the quantitative aspects of her chemical engineering background with the synthesis of complex organic molecules by catalytic routes, particularly asymmetric catalysis with application in pharmaceutical processes. She has published over 150 papers in this field.

The Arthur Fry Lecture Series began in 1997 through a generous donation from university alumni, the late Ves Childs, M.S. '60, Ph.D. '63, and his wife Holly, B.S. '62, to honor University Professor Emeritus Art Fry's accomplishments and years of unselfish devotion to the department.

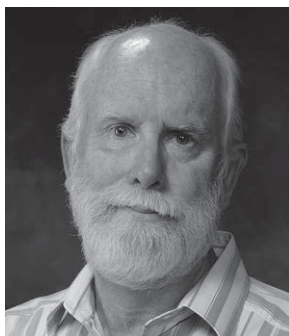
**100th  
Issue of  
The Mole Street  
Journal**

## Gawley Gets International Medal

**Bob Gawley** was awarded the Bene Merenti Medal of the University of Regensburg. The award recognizes people for their valuable contributions to the university. It is the University of Regensburg's highest award that can be given to an outsider.

The award recognizes Gawley's role in the development and success of the US-EU Atlantis transatlantic dual degree exchange program in chemistry, facilitated through the Office of Study Abroad and International Exchange. He received the award (via videoconference) at the Dies Academicus November 13, 2010.

He is a fellow in the American Association for the Advancement of Science (AAAS) and the Royal Society of Chemistry, and holds leadership positions in AAAS and the American Chemical Society.



Bob Gawley

## Millett Leads NIH Study Section

**Frank Millett** is serving a two-year term as chairperson of the National Institutes of Health (NIH) Macromolecular Structure and Function A (MSFA) study section, Center for Scientific Review.

MSFA is a congressionally chartered study section which reviews NIH grant proposals in areas important to human health. NIH is a unit of the U.S. Department of Health and Human Services.

His participation will contribute to the national biomedical research effort.

Millett has the longest record of continuous research funding from NIH at the university, spanning the last 38 years. He is also the founding and current director of the Center for Protein Structure and Function and is responsible for the COBRE grant, the largest research grant ever received by the university at the time.



Frank Millett

## Faculty News

### Adams in Research Spotlight

**Paul Adams** was the featured professor in the Research Spotlight on the American Society for Biochemistry and Molecular Biology's Web site.

In the article, Adams talks about his position at the university, his passion for research and his mentors and heroes in science.

He also gives advice to students who want to become scientists.

"It is cool to get good grades," he said. "Ask questions and get involved in research."

"Everyday when I get up, I think of the following words from hip-hop artist Mike Jones, 'If you don't work, you don't eat, if you don't grind, you don't shine... no ifs, ands or buts...bottom line....,' This

is all the motivation I need."

<http://www.asbmb.org/Page.aspx?id=11230>

### Hinton Goes Viral

An interview of **Jim Hinton** is live on YouTube. Melissa Blouin of University Relations discusses the benefits of the virtual reality program with Hinton.

The video "Virtualis VR for Pymol.mp4," was produced by University Relations for the benefit of Virtualis, the company who provided the software for the unique protein experience.

<http://www.youtube.com/watch?v=F36m3QRbPHs>

### Research News

A paper by graduate student **Timothy Beng**, first published in the *Journal of the American Chemical Society* (2010, 132, p. 12216), was recently featured in *Synfacts* (2010, p. 1328), a journal that publishes short highlights of recently published work that is judged to be newsworthy by its editorial board.

### On the Go

Additions to Pacificchem attendance and participation from the December issue of *The Mole*.

**Ingrid Fritsch** co-organized a two-day symposium and presented a talk.

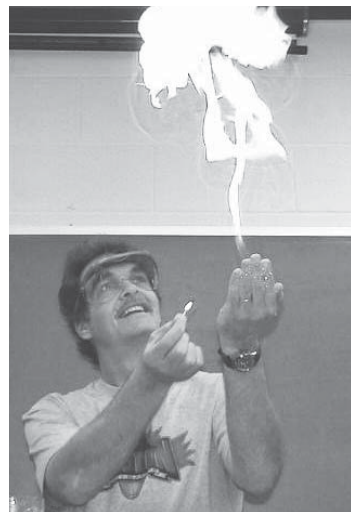
Graduate student **Zheng Li** presented a poster "Investigation of CdSe nanoplate Synthesis."

## Alumni News

### Alumnus Awarded ACS Outreach Award

**Bill Deese**, Ph.D. '82, was awarded the American Chemical Society (ACS) Helen Free Outreach Award at the fall meeting.

Deese is the T.W. Ray Johnson Professor of Chemistry at Louisiana Tech University. He is known for his outreach programs which include demonstrations that incorporate the history of science, juggling and unique methods of performance art, music and multimedia.



Bill Deese in action

His work has been featured in the *Journal of Chemical Education*, the *Journal of Organometallic Chemistry*, the *Journal of College Science Teaching*, *The Science Teacher*, *CHEM 13 News*, and numerous publications.

His work on evaporation and vapor pressure were even used in the electronic encyclopedia *Microsoft Encarta* in 2000.

The Helen M. Free Award for Public Outreach recognizes outstanding achievements in the field of public outreach by a member of the ACS who improves public recognition and appreciation for the contributions of chemistry.

Deese completed his doctorate under the direction of Professor Emeritus **Dale Johnson**.

### Alumnus Joins Department

**Chris Mazzanti**, Ph.D. '10, has joined the department as an instructor. He will teach Chemistry in the Modern World and Chemistry for Majors II.

He completed his doctorate under the direction of **Roger Koeppe**.

Mazzanti's office is in SCIE 206.



Chris Mazzanti

## 100th Issue of *The Mole*

The January 2011 issue of *The Mole Street Journal* (*The Mole*) marks the 100th issue of the internal department newsletter.

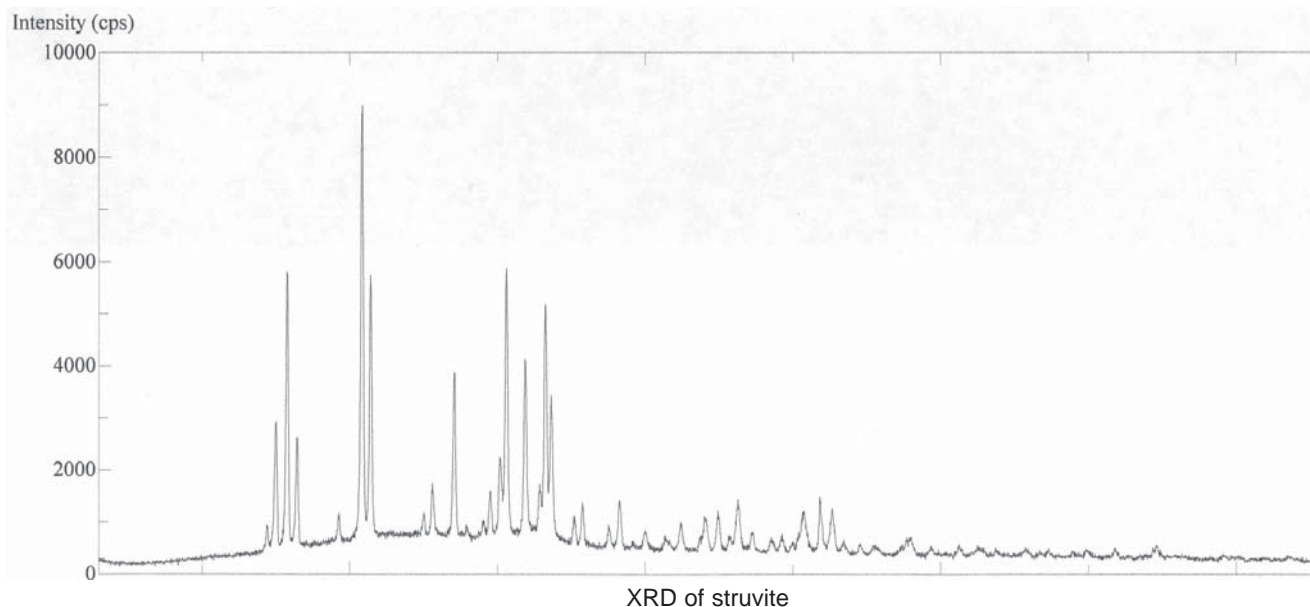
*The Mole* was first published in September 2002 and has been consecutively published each month (with the exception of April 2007).

It was created by Chairman **Bill Durham**, who also chose the name among solicited options, to communicate interesting and important information to the variety of internal audiences in the department – faculty, researchers, graduate students, lecturers, administrative staff and technical staff.

It is printed for all department members, posted on the Web site, e-mailed to chemistry majors and various campus administrators and is mailed to constituents upon request.

The content is determined by the news each month and ranges from professional accomplishments to personal milestones. Timely items are posted on the back page as a handy reference.

## New Year Brings New Instruments by Bill Durham



You may have noticed the activity on the ground floor of the research wing, near room G12. The old Rigaku small molecule X-ray diffractometer was moved out in pieces, thanks to the efforts of **Marv Leister**. The instrument was moved to the physics department. Two new instruments will reside in that room in the near future. One has already arrived and is operational. It is an X-ray diffraction instrument for powdered samples, XRD for people that use it frequently.

As the description implies, the instrument contains an X-ray source that is directed at a powdered sample on a glass slide. The instrument records the reflected X-ray intensity as a function of angle. The data is typically reduced to a set of d-spacings using the Bragg equation. Alternatively, it can be used in a fingerprinting mode whereby the scans are simply compared to known samples in a database.

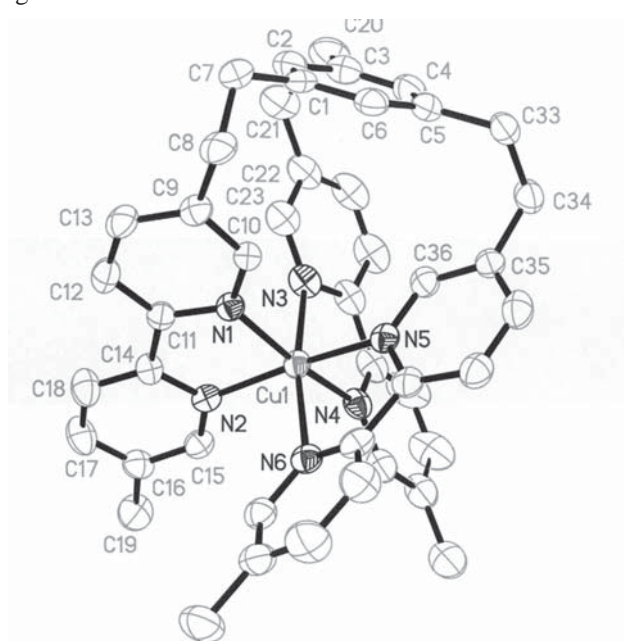
An example of an application is shown above. It is a scan of a kidney stone recently recovered from a dog. A comparison of the data with literature indicates that the stone is composed of the mineral struvite,  $(\text{NH}_4)\text{MgPO}_4 \cdot 6\text{H}_2\text{O}$ .

Knowing the composition will aid in the treatment. The instrument fills a gap in our current instrumentation that will greatly benefit those working in the materials field.

The second instrument, a bench top small molecule diffractometer, is expected in the next few weeks. The instrument is highly automated and capable of performing an X-ray structure determination on a suitable crystal with almost no human

intervention. The operative word here is almost. Training will be available in the early part of February.

During the selection process, a crystal of a new bipyridine derivative of copper was provided by Dirk Herrmann. The final structure is shown in the figure below. Of particular interest in the structure that is not very obvious in the figure is the difference in the copper nitrogen bond distances. Four of the 6 are near 2.0 Å while 2 are greater than 2.3. This is consistent with the expected Jahn-Teller distortion but it is rarely seen in X-ray structures because the elongation of the bonds is dynamic. In structures done at low temperature, as in the present case, the elongation can be observed.



ORTEP of copper complex containing 3 bipyridines capped with a benzene ring (top)

### Safety Tip

**Careful in the elevators — there is a hole at the entry where items can fall and disappear.**



## Calendar of Events

### January

- 12-24 ..... Open registration and drop/add for new students  
 17..... Martin Luther King Holiday, university closed  
 17..... Last day to receive 100% cancellation of fees for an official withdrawal for spring 2011  
 18..... First day of spring 2011 classes  
 21..... CUME  
 24..... Last day to add a full semester class or to register for spring 2011  
 24..... The Arthur Fry Lecture Series featuring Donna G. Blackmond  
 31..... Last day to drop a full semester class without having the mark of "W"  
 31..... Spring seminar series begins

### February

- 07..... Department seminar  
 11..... CUME  
 14..... No seminar (seminar will be Tuesday)  
 15..... Department seminar (date changed from Monday)  
 21..... Department seminar  
 28..... Department seminar

### March

- 01..... Application deadline for students who plan to graduate spring 2011  
 01..... Deadline for all graduate students to submit a written research proposal to their committee  
 03..... Early progress grades e-mailed to students in 1000 and 2000 level courses  
 07..... No department seminar, Biophysical Society meeting  
 11..... CUME  
 14..... Department seminar  
 21..... No department seminar - Spring Break  
 21-24 ..... Spring Break, no classes, university is open  
 25..... University closed  
 28..... No department seminar - ACS meeting

### April

- 01..... CUME  
 01..... Last day to drop a full semester class or classes with a mark of "W"  
 04..... Department seminar  
 04-15 ..... Priority registration for summer and fall  
 11..... Department seminar  
 15..... CUME  
 15..... Deadline for graduate students to orally defend proposal to committee  
 15..... Last day to make up incomplete marks from previous semester  
 18..... Department seminar  
 21..... Department Honors Night  
 25..... Department seminar

### May

- 02..... Spring seminar series concludes  
 05..... Last day of spring classes  
 06..... Dead day, no classes  
 07-13 ..... Final exams  
 14..... University commencement  
 22..... REU/INBRE summer programs begin

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

## January Birthdays

- 01.....Sefat Alwarsh  
 01.....Benard Omogo  
 10.....George Blyholder  
 12.....Lindsay Rutherford  
 13.....Jacqueline Greer  
 15.....Julie Stenken  
 15.....Amir Aliyan  
 20.....Matthias Knust  
 20.....Jon Baker  
 26.....Bill Durham  
 26.....Kola Ayinuola  
 30.....Brandon Suttles

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

## Library Hours

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

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

## CUMES

Cumulative exams for graduate students will be given on the following Fridays in CHEM 144 at 5 p.m. to 6 p.m.

- Jan. 21
- Feb. 11
- March 11
- April 1
- April 15

## SAVE THE DATE

**The 2011 Arkansas INBRE  
 Research Conference is  
 October 21 to 22, 2011 in  
 Fayetteville**

**<http://chemistry.uark.edu/>  
 INBRE**