

The Mole Street Journal

Department of Chemistry and Biochemistry

Volume 11, Issue 3

March 2012

Special points of interest:

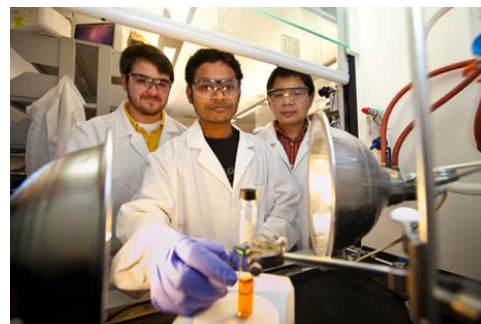
- “Green” Method for Developing Medicines
- Paula Castro Abbott highlight
- Graduate Students pass cumulative exams

Inside this issue:

| | |
|------------------------|---|
| Faculty News | 2 |
| Alumna Highlight | 2 |
| Student News | 3 |
| News from Fulbright IT | 3 |
| Calendar of Events | 4 |
| Library Hours | 4 |
| CUME Dates | 4 |

New Method for Developing Medicines

A team of University of Arkansas researchers has created a new, “green” method for developing medicines. The researchers used energy from an ordinary 13-watt compact fluorescent light bulb to create an organic molecule that may be useful in the treatment of Alzheimer’s and other brain diseases. The finding, coauthored by **Soumitry Maity, Mingzhao Zhu, Ryan Spencer Shinabery** and **Nan Zheng**, is published in the current issue of *Angewandte Chemie International Edition*, one of the top journals in the field of chemistry



Ryan Spencer Shinabery, Soumitra Maity and Nan Zheng

“Our chemical reaction provides a new structure, a new building block for pharmaceutical companies that has not been available before,” said Zheng, an assistant professor of chemistry in the J. William Fulbright College of Arts and Sciences who leads the team. “It’s a very unusual scaffold, very lipophilic and non-polar, which is what you need to cross the blood brain barrier.”

Visible-light photocatalysis, or chemical reactions sparked by visible light, are rare in organic chemistry, because most organic compounds can’t readily absorb visible light. Instead, organic chemists typically rely on ultraviolet, or UV light, which has disadvantages.

“UV lights heat up very fast and waste a lot of energy. You’ll also get a sunburn if your skin is exposed,” said Shinabery, a senior honors chemistry student.

Postdoctoral associate Mingzhao Zhu initiated the research with his effort to use light from a cheap, readily available light source—a supermarket light bulb, in this case, although sunlight would work just as well—to make an organic molecule useful to chemists. Using ruthenium, a metal that is active in the presence of visible light, as a catalyst, Zhu produced an unexpected and unstable organic molecule. Shinabery subsequently worked to identify the structure of the molecule.

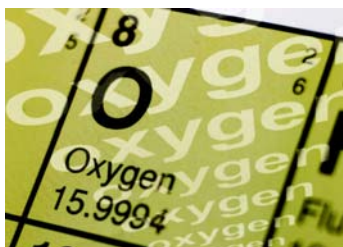
“Spencer was able to reproduce the result and help us understand how the molecule was formed, which we needed to design a new reaction,” Zheng said. Maity, also a postdoctoral student, led the way in developing the new reaction, which is green thanks to efficiency as well as use of visible light. Zheng and Maity are currently working on a new, even more powerful result: the use of a catalyst with visible light to create a carbon-nitrogen bond, one of the most common and important bonds used in pharmaceuticals and materials. As for Shinabery, he is writing up his contribution to the finding as his senior honors thesis and weighing multiple offers from top graduate schools.

Information for this article was taken from Arkansas Newswire Headlines

Faculty News

On the Go

Department Chair **Bob Gawley** attended the annual meeting of the American Association for the Advancement of Science, February 16-20, 2012, in Vancouver, BC, Canada. He is a member of the chemistry section steering committee.



Grad Education Week

The University of Arkansas celebrated 10 years of growth and progress in its Graduate School programs with the first Graduate Education Week, Feb. 6-10.

Activities were held throughout the week, beginning with a Graduate School Town Hall Meeting on Monday, followed by workshops on Tuesday through Thursday. On Thursday evening a reception for current distinguished doctoral fellows (DDF), doctoral academy fellows (DAF)



and their faculty mentors was hosted by the university. The department of chemistry and biochemistry has eight students with these fellowships.

Jeremy Durchman, advisor **Frank Millett**, holds the DDF. **David Clay**, advisor **Matt McIntosh**, **Christena Hooten**, advisor **Ingrid Fritsch**, **Rebecca Kerr**, advisor **TKS Kumar**, **Nick Gleason**, advisor **Roger Koeppe**, Elizabeth **Strader**, advisor **Bob Gawley**, **Derrel Walters**, advisor **Colin Heyes**, and **Ryan Bauer**, advisor **Joshua Sakon** (pictured), all hold the DAF.

Alumna Highlight



Paula Castro Abbott only played one season for the UAFS volleyball team, but in that short span, Abbott changed the course of not only Lady Lions volleyball but also the entire UAFS athletics program.

When Abbott transferred from Northeastern Oklahoma A&M College to UAFS for the 2001 season, the native of Rio de Janeiro, Brazil, became not only the first international player to play volleyball at UAFS but the first international player to ever play for any UAFS team.

Through her effort and hard

work on the court, where she led the team in kills, digs and service reception and earned All-Region and Honorable-Mention All-American honors, and in the classroom, where she earned Academic All-American honors, Abbott was nothing short of the model student-athlete, convincing UAFS to open its recruitment to even more international players.

Since then, UAFS has recruited and signed international players in men's and women's basketball, baseball, men's and women's cross country and men's and women's tennis. Abbott, who was a two-time All-Region outside hitter, led the Lady Lions to a 37-5 record and a runner-up finish in the Bi-State Conference and the NJCAA Region II Tournament. She was the first Lady Lion to earn Academic All-American and All-American honors.

Abbott went on to play libero two seasons at NCAA Division I University of Arkansas, where she helped lead the LadyBacks to a 54-13 overall record and a 29-3 record in the Southeastern Conference and a berth in the NCAA National Tournament. She was second on the team in digs as a junior and led the team in digs as a senior. While at Arkansas, Abbott earned a bachelor's degree in chemistry. She entered the M.S. program in chemistry under Dr. **Matthias McIntosh**, but left the program to move to California. She went on to earn a master's degree in chemistry from the University of California-San Diego.

She returned to UAFS in the fall of 2010 as a chemistry instructor in the College of Science, Technology, Engineering and Mathematics and volunteer assistant coach for the volleyball team.

Student News



Latisha Puckett has passed the appropriate number of cumulative exams to be admitted to candidacy. Latisha is from Pottsville, AR and received her B.S. from the University of Arkansas. Z. Ryan Tian is her Ph.D. advisor.



Cody Wright has passed the appropriate number of cumulative exams to be admitted to candidacy. Cody is from Paris, AR and received his B.S. from Arkansas Tech University. David Paul is his Ph.D. advisor.



Save the Date!

The department is again co-hosting the INBRE conference October 5-6, 2012 with the departments of biological sciences and physics. Events include faculty talks, student oral presentations, workshops, and a poster session. More information to come soon!

Milestones

Dylan Joshua Swann was born February 1, 2012 to Jesse and Teresa Swann of Greenwood Springs, Colorado. He weighed 7 lb 4 oz, and was 19.5 inches long. Jesse is the son of Denise Greathouse and Dylan is her ninth grandchild.

Mr. and Mrs. Theodore Beeler of Fayetteville celebrated their 60th wedding anniversary January 31, 2012. Ted was a Research Assistant with the department in the 1980's.

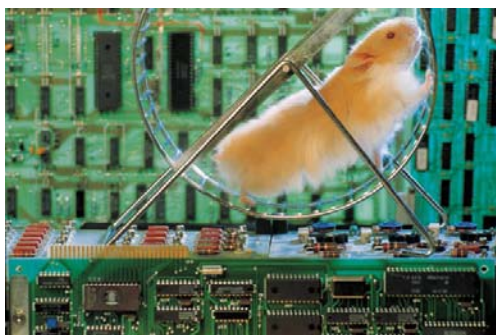


News from Fulbright IT

Current listing of IT Staff available to assist you, located in CHEM 142.

Full-time Staff:

- ◆ Teresa Waddell—Computer Support Manager
- ◆ Chris Clanton—Smart Classroom Coordinator
- ◆ Roy Swaty—Smart Classroom Professional
- ◆ Sean O'Bryan—Computer Support Professional



Hourly Staff


- ◆ Margie Hoskins—Technical Service Assistant
- ◆ Catherine Thomas—Clerical Assistant
- ◆ Arif Islam—Technical Service Assistant
- ◆ Ronesha Sharma—Technical Service Assistant
- ◆ Josh McFarland—Technical Service Assistant

THE MOLE STREET JOURNAL IS AN
INTERNAL PUBLICATION OF THE
CHAIR, BOB GAWLEY.
LESLIE JOHNSON, EDITOR

Mailing Address
CHEM 119
1 University of Arkansas
Fayetteville, AR 72701


Phone: 479-575-4601
Fax: 479-575-4049
E-mail: cheminfo@uark.edu

We're on the web!
Chemistry.uark.edu/4842.php

 Department of Chemistry and
Biochemistry University of Arkansas

Safety Tip: by Bill Durham

Use a secondary container when carrying large bottles of solvents, acids or other reagents outside of the laboratory. Large rubber buckets designed for this application are available.


Department of Chemistry
and Biochemistry

Excellence in the Central Science

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 multidisciplinary research and education.

Calendar of Events

March

- 1 Deadline to apply for Spring graduation through ISIS
- 2 CUME
- 5 Dept. Seminar—Byron Gates, Simon Fraser University
- 19-23 SPRING BREAK
- 25-29 ACS meeting, San Diego



April

- 2 Fry Lecture—Michael Krische, University of Texas at Austin
- 5 Dept. Seminar—Byron Gates, Simon Fraser Univ.
- 6 CUME
- 9 Dept. Seminar—Annaliese Franz, University of California, Davis
- 16 Dept. Seminar—Christine Keating, Penn State University
- 20 Last day to drop a full semester class or classes with a mark of “W”
- 23 Dept. Seminar—Thomas E. Prisinzano, University of Kansas
- 26 Honors Night-UARK Bowl
- 27 Final copies of master's thesis/doctoral dissertations must be submitted
- 30 Dept. Seminar—Shouheng Sun, Brown University

Library Hours

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

| | |
|---------------------------|---------------------|
| January 17—May 13 | 8:00 a.m.—9:00 p.m. |
| Monday-Thursday | 8:00 a.m.—6:00 p.m. |
| Friday | CLOSED |
| Saturday and Sunday | CLOSED |
| Spring Break | |
| Monday-Thursday (3/19-22) | 8:00 a.m.—5:00 p.m. |
| Friday (3/23) | CLOSED |

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>.

CUME Dates 2011-2012

Fall

September 9
September 30
October 14
November 4
December 2

Spring

January 27
February 17
March 2
April 6
April 27

