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## Mole Street Journal, January 2009

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

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## The Mole Street Journal

Volume 8, Issue 1

### Doctoral Students Defend Dissertations

**Daniel Eddings** defended his dissertation “I. Diastereoselectivity of Polar and Radical Couplings in Electrophilic Substitutions of Rigid 2-lithio-N-methylpyrrolidines II. Synthesis of New C2-symmetric Nitrogen Heterocyclic Carbenes (NHC5) for use in Asymmetric Synthesis,” Dec. 4. His doctoral advisor was **Bob Gawley**.

Eddings is from Springfield, Mo. and holds a degree from SW Missouri State University. He joined the department in fall 2003.



Above left: Dan Eddings in 2003. Right: in 2008.

**Fei Guo** defended his dissertation “X-Ray Crystallographic Studies of Synaptotagmini-C2A, hFGFR2-D2 and the Complex of hFGFR2-D2:FGF1:SOS,” Dec. 2. His doctoral advisor was **Joshua Sakon**.

Guo is from Tianjin, China and holds a degree from Yokohama National University. He joined the department in fall 2003 and is now a post doc at Purdue University.



Above left: Fei Guo in 2003. Right: in 2008.

**Wei Qi** defended his dissertation “Synthetic Studies toward Antascomicin-B,” Dec. 5. His doctoral advisor was **Matt McIntosh**.

Qi joined the department in spring 2003. He holds a bachelor’s degree in chemistry from Jilin Institute of Technology and a master’s degree in organic chemistry from Northeast Normal University. He was an assistant professor at Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, a research assistant at Northeast Normal University, China and worked as a chemical engineer.



Above left: Wei Qi in 2003. Right: in 2008.

## Faculty News

### On the Go

**Paul Adams** presented “Biophysical Characterization of Ras Proteins with Unique Signal Transduction Activities,” to Sigma Xi on campus Dec. 12.

**Joshua Sakon** will give talks Jan 4-11 at Okayama University in Japan.

The following presentations will be made at the Statewide Conference on Nanotechnology for Healthcare, Jan. 8 to 10 at the University of Arkansas Winthrop Rockefeller Institute on Petit Jean Mountain. The conference will involve researchers in science and engineering at the nanoscale level with emphasis on the medical sciences.

“Light Scattering Study of the

Interaction of Fibroblast Growth Factor (FGF) and its Receptor,” Pallavi Sharma,\* **Dakshinamurthy Rajalingam**†, **T. K. S. Kumar**† and Surendra Singh\*; \*Physics Department, and †Department of Chemistry and Biochemistry.

“Arginine Interactions with Lipid Bilayers,” **Roger E. Koeppe II**\*, **Denise V. Greathouse** and **Vitaly V. Vostrikov**.

“Use of Nanomaterials in the Study of Protein Interactions in Targeting to Membrane-localized Transporters,” **Robyn Goforth**<sup>1</sup>, Nathaniel Lewis<sup>1</sup>, Naomi Marty<sup>1</sup>, Alicia Kight<sup>1</sup>, **Dakshinamurthy Rajalingam**<sup>2</sup>, **Thallapuranam Krishnaswamy Suresh Kumar**<sup>2</sup>, Ralph Henry<sup>1</sup>. <sup>1</sup>Department of Biological Sciences and <sup>2</sup>Department of Chemistry and Biochemistry.

“Neuron Regeneration and Multiplexed Biochemical Sensing on Nanowire-Membrane,” **F. Chen**<sup>1</sup>, S. Ali<sup>2</sup>, **Z. R. Tian**<sup>1\*</sup> <sup>1</sup>Chemistry/Biochemistry, University of Arkansas, <sup>2</sup>Neurochemistry Laboratory, National Center for Toxicological Research, Food and Drug Administration.

“Design of Liposome-encased Quantum Dots for drug delivery and release applications,” Daniel Fologea<sup>2</sup>, Azemat Jamshidi-Parsian<sup>1</sup>, Michael J. Borrelli<sup>1</sup>, **Xiaogang Peng**<sup>2</sup>, Ralph Henry<sup>2</sup>, Greg Salamo<sup>2</sup>, Robert J. Griffin, PhD<sup>1</sup>; <sup>1</sup>University of Arkansas for Medical Sciences, Little Rock, <sup>2</sup>University of Arkansas.

## Graduate Student Evaluations Memo

by Dan Davis

A note to all faculty and graduate students being advised by department faculty from **Dan Davis**, graduate advisor.

As announced at the beginning of the fall 2008 semester, we will be enforcing the rules regarding graduate student evaluations more rigorously beginning with the spring 2009 semester.

This is especially true of the timing of proposal preparation and submission and scheduling of the annual committee meeting. The rules regarding these issues are found on pages 15-17 of “Graduate Student Guide.” This document can be found on the department’s Blackboard site. The essence of the rules is summarized below.

Beginning with their second year committee meeting, ALL graduate students whose advisor is a member of the Chemistry and Biochemistry faculty must prepare a written proposal which must be submitted to their committee no later than March 1. The proposal must be defended orally before the student’s committee no later than April 15. (Note that this also applies to students who may be pursuing Ph.D. degrees in fields other than chemistry – the operative definition is whether one’s advisor is a member of the chemistry and biochemistry faculty.)

Some general points to remember:

1. The contents of a proposal for annual committee meetings can be found on page 16 of the “Graduate Student Guide.” A proposal is more than a progress report on what you have done in the past year. It should also include a detailed plan for what you intend to accomplish during the coming year and how you intend to do it. A statement saying that you plan to “synthesize and characterize molecule X” or “characterize the properties of protein Y” is not an experimental plan unless you describe how you intend to do so. Students nearing the end of their degree programs should also present a time line for completion of their research, dissertation preparation, and defense thereof.

2. The proposal must be submitted to the committee by March 1 – not just to your advisor by March 1. Your advisor should have time to review and approve the proposal and its con-

tents BEFORE it goes to your committee. This means that you should start thinking about this process well in advance – today is not too soon. Discuss with your advisor how far in advance they wish to see the proposal in order to have time to review it before it goes to your committee.

3. Proposal defenses are graded – pass, intermediate, or fail. A score of intermediate on either the written proposal or the oral defense thereof requires that portion be repeated and re-evaluated within six weeks. A score of fail in either area results in loss of financial support for the coming year.

4. Exceptions to these policies cannot be made by the student’s committee or their advisor. Exceptions can only be made by the department’s graduate advisor. Prior approval is necessary for extensions to the dates listed above. If such an extension is granted, it will not be open-ended but a new deadline will be assigned by the graduate advisor.

5. Students failing to meet these requirements will have a hold placed on their summer registration. Note that no registration also means no pay!

### 75th Issue of the Mole

The 75th issue of *Mole Street Journal* was published in December 2008.

The first issue appeared in print in September 2002 and has been published at the beginning of each month ever since, with the exception of April 2007.

The *Mole* was created and named by chairman Bill Durham as an internal publication to communicate news within the department. Today its reach extends beyond the department and is sent to donors, friends and alumni as well as others on campus. It is posted on the department Web site and continues to be available in print.

## Arkansas INBRE Research Conference



Top left: Karuppanan Kathir, Chris Mazzanti and Jennifer Lemmons. Top middle: Leena Philominathan and Anna Daily. Top right: undergraduate Laura Bradney

The following is a list of poster and oral presentations made by department researchers and student at the Arkansas INBRE Research Conference in Fayetteville, Nov. 7-8.

**Save the Date** – the 2009 Arkansas INBRE Research Conference will be in Fayetteville Oct. 23-24.

### Poster Presentations

“Effect of Osmolytes on Protein Stability and Folding,”

**Andrew Avery\***, **D. Rajalingam** and **T.K.S. Kumar**.

“Biophysical analyses of S2 and S3 domains of the bacterial collagenase to study their activation mechanism,” **Ryan Bauer\***, **Sagaya Theresa Leena Philominathan**, and **Joshua Sakon**.

“Investigation of the Antimicrobial and Lipid Perturbing Capabilities of Acylated Lactoferrin Peptides,” **Laura Bradney\***, **Denise Greathouse**.

“Interactions Defined between S100A13 and Annexin Peptides: Insight into Non-Classical Secretion,” **Anna E. Daily**, **D. Rajalingam**, **T.K.S. Kumar**.

“Biophysical Characterization of FGF Signaling Complex,”

**R. Dakshinamurthy** and **T.K.S. Kumar**.

“NMR Studies of the Structure and Dynamics of Gramicidin A in SDS Micelles,” **Jennifer Diaz Lemmons**.

“Investigation of “Half-WALP” Peptides in Presence of Model Membrane Lipids using 2H and 31P NMR Spectroscopy,” **Johanna M. Froyd-Rankenbergh**, **Natalie J. Anderson**, **Denise V. Greathouse** and **Roger E. Koeppe II**.

“Structural and Functional Role of Proline Residues in Fibroblast Growth Factor-1,” **Isabelle Huber\***, **D. Rajalingam** and **T.K.S. Kumar**.

“Understanding the Mechanism of the Anti-angiogenic Activity of Suramin,” **Karuppanan M. Kathir**, **Khalil Ibrahim** and **T. K. S. Kumar\***.

“3D Solution Structure of the C-terminal Chromodomain of the Chloroplast Signal Recognition Particle and Its Interaction with cpSRP 54 Peptide,” **Ananthamurthy Koteswara**, **Karuppanan M. Kathir**, **Robyn Goforth**, **Ralph Henry** and **Thallapuram K. Suresh Kumar**.

“Experimental Solvation of KCl and NaCl in N-methylacetamide,” **Christopher L. Mazzanti** and **Roger E. Koeppe II**.

“Understanding the Mechanism of Autoregulation of FGF Signaling,” **Lindsay N. Rutherford**, **D. Rajalingam**, **Britton Blough**, and **T.K.S. Kumar**.

“Phosphorylated Proteins in Normal and Platelet GP Ib-IX-V Deficient Mice,” **Maria Super\***<sup>1,2</sup>, **Judith Dent**<sup>2</sup>, **Susan Russell**<sup>2</sup>, and **Jerry Ware Ph.D.**<sup>2</sup>. <sup>1</sup>University of Arkansas, Fayetteville, <sup>2</sup>Department of Physiology and Biophysics, University of Arkansas for Medical Sciences.

“A Study of an Alternate  $\alpha$ -Elimination Reaction to Form Carbene Compounds,” **Maria Super\***, **Christian Loeschel**, **Neil Allison Ph.D.**

“Influence of Proline upon the Folding and Geometry of the WALP19 Transmembrane Peptide,” **Rachel E. Thomas\***, **Vitaly V. Vostrikov** and **Roger E. Koeppe II**.

“Cooperative Effect of Anchoring Residues in Moel Transmembrane Peptides Investigated by Solid-State NMR,” **Vitaly V. Vostrikov**, **Anna E. Daily**, **Denise V. Greathouse**, **Roger E. Koeppe II**.

### Student Oral Presentations

“An Innovative Method for the Purification of Recombinant Proteins,” **Lauren Edwards\***, **Dr. Paul Adams**.

“HPLC Analysis of Paralytic Shellfish Toxins,” **Sean Stevens\***, Prof. **Bob Gawley**.

“Studies toward the Oxidation and Alkylation of Sulfides using Sulfonyl Chlorides and Alkyl Sulfonates,” **Ashley Fredrick\***<sup>1</sup>, **Chris Saunders**<sup>2</sup>, **Wesley E. Stites**<sup>2</sup>, **Matthias C. McIntosh**<sup>2</sup>. Arkansas Tech University<sup>1</sup>, University of Arkansas<sup>2</sup>.

*Fredrick - UA INBRE 08 student*

*\* Denotes main presenter*

*Titles printed as submitted*

## January Safety Tip

**Clean up your mess!**

## Calendar of Events

### January

- 11..... Last day to receive 100% cancellation of fees for spring 2009  
 12..... Spring classes begin  
 16..... Last day to add a full semester course  
 19..... University CLOSED, Martin Luther King Day  
 26..... Spring seminar series begins  
 26..... Last day to drop a full semester course without a "W"  
 30..... CUME

### Spring at a Glance

#### February

- 13..... CUME  
 20..... Graduation application deadline for spring 2009 graduation  
 25..... Early progress reports e-mailed for 1000 and 2000 level classes  
 28-March 4..... Biophysical Society Meeting, Boston

#### March

- 06..... CUME  
 16-20 ..... Spring Break, no classes  
 20..... University CLOSED  
 22-26 ..... ACS Meeting, Salt Lake City  
 27..... Last day to drop a full semester course with a "W"

#### April

- 03..... CUME  
 13..... Fry Lecture  
 17..... CUME  
 30..... Last day of spring classes  
 30..... Last day to officially withdraw from all courses

#### May

- 1..... Dead Day, no classes  
 2-8 ..... Finals  
 9..... Commencement

## Spring 2009 Seminar Series

The Spring 2009 Seminar Series begins Monday, Jan. 26. Spring seminars will be in CHEM 144 from 3:30 p.m. to 4:20 p.m. The time for the reception will be announced. For the schedule see <http://chemistry.uark.edu/2163.htm>

## Nobelaureate to Give Fry Lecture

Organic chemist Professor **Robert H. Grubbs**, California Institute of Technology, will give the Fry Lecture April 13, 2009. Grubbs won the 2005 Nobel Prize in chemistry for his work on catalysis, which has led to a wide variety of applications in medicine and industry.

## January Birthdays

- 01.....Sefat Alwarsh  
 01.....Benard Omogo  
 06.....S. Mariccor Batoy  
 06.....Marissa Geels  
 10.....George Blyholder  
 10.....Vitaly Vostrikov  
 11.....Jason Martin  
 12.....Lindsay Rutherford  
 19.....Tamilselvi Marutharaj  
 22.....Leena Philominathan  
 24.....Shuming Zhang  
 26.....Bill Durham  
 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

### Chemistry and Biochemistry

Spring hours begin Jan. 12

- 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.

#### Exceptions

- Jan. 5-9.....8 a.m. to 5 p.m.  
 Jan. 11 .....CLOSED

<http://libinfo.uark.edu/chemistry/>

## 2009 CUME Dates

Cumulative exams for graduate students will take place on the following Fridays from 5 p.m. to 6 p.m. in CHEM 144

Jan. 30, Feb. 13, March 6, April 3,  
 April 17

## Martin Luther King Day Holiday

The university will be CLOSED in recognition of the Martin Luther King holiday, Monday Jan. 19.