

# The Mole Street Journal

Department of Chemistry and Biochemistry

Volume 12, Issue 3

March 2013

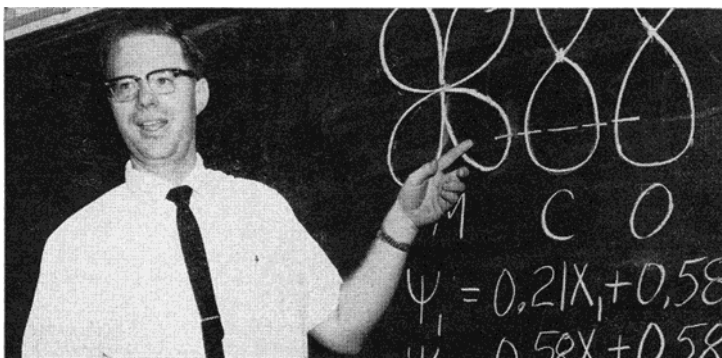
## Emeritus Professor George Blyholder



Once again the members of the department of chemistry and biochemistry were saddened by the loss of one of the faculty members that made the department what it is today. George Blyholder died February 27, 2013 after a lengthy battle with what he may have called entropy – old age to most others. Professor Blyholder was a member of the physical chemistry division for 37 years and retired in 1996 just about the time we moved into the new research wing. He was born in Elizabeth, New Jersey in 1931. He obtained a BA degree from Valparaiso University, a BS degree from Purdue University in chemical engineering and a Ph.D. from the University of Utah under the direction of Henry Eyring (a major contributor to modern kinetics) in 1956. Before coming to the University of Arkansas in 1959 he was a postdoctoral fellow at the University of Minnesota and a research chemist at the Johns Hopkins University.

Professor Blyholder's research was in the broad area of catalysis but his focus was on the interaction of CO on surfaces. He was a major contributor to this field and was internationally

recognized for some of the models he developed which still hold today. For example, in 1964 Professor Blyholder published an article in the Journal of Physical Chemistry (68, 2772) that has been cited 1351 times to date, including 25 citations in 2012 alone. Professor Blyholder used computer calculations to probe the theoretical aspects of problems and he was a talented experimentalist. He used IR

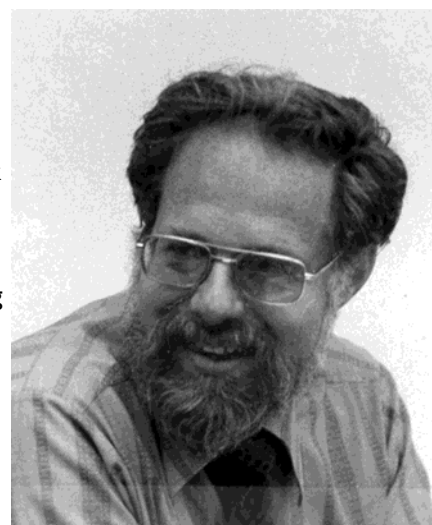


spectroscopy to probe the surfaces of metals and he was proficient in the application of the technically challenging technique called matrix isolation. The technique allows an investigator to capture atoms or small molecules in a matrix of frozen argon. IR spectroscopy then provides a means of analyzing the nature of these molecules captured in the matrix that essentially isolates them from interaction any other material. Exposure to light can be used to create highly reactive intermediates which cannot be produced in any other manner. Publications such as "Infrared Spectrum of Carbon Monoxide Chemisorbed on Nickel at 44 K by a Matrix Isolation Technique" and "Adsorbed Species on Dark and Illuminated Zinc Oxide" are representative of the work described by the nearly 100 papers produced through his research efforts.

Lunch with Professor Blyholder was always an interesting experience, a piece of fruit and a bagel was his typical meal taken at the student union. His insightful yet down to earth comments about local events made a lasting impression.

Professor Blyholder is survived by his wife of 57 years, Betty Sue Conrod. They have two daughters, Sylvia and Victoria, and one son, Andrew.

Bill Durham



### Special points of interest:

- Death of Emeritus Professor Blyholder
- Student defenses
- Biophysical Society Meeting presentations
- Fulbright IT has a word to say about Phishing scams

### Inside this issue:

Faculty News 2

Student News 2

Biophysical Meeting Presentations 3

News from Fulbright IT 3

CUME Schedule 4

Library Hours 4

**On the Go**

**Peter Pulay** had an invitation to give a Distinguished Lecture Seminar at City University, Hong Kong. Subsequently, he will visit and give seminars at Zhejiang University, Xi'an Jiaotong University, and Beijing Tsinghua University in China during the 2013 Spring Break.

**Julie Stenken** served on the NIH Biomaterials and Biointerfaces (BMBI) study section in San Francisco, Feb. 7-8.

**Feng Wang** delivered a talk "Determining Challenging Thermodynamic Properties of Water with Only Electronic Structure Information" at Missouri State University February 6, 2013. He also delivered a theory talk "Accurate simulations at micro-second time scale: Investigating challenging properties of water with electronic structure

accuracy," to the Department of Chemistry at NYU.

**Julie Stenken**, accompanied by two undergraduate Honors students **Kevin Kelly** and **Fang Weng**, presented their research at the annual undergraduate research symposium February 23 at the University of Memphis. The titles of their talks were: **Fang Q. Weng, Randy F. Espinal Cabrera, Julie A. Stenken**, "Utilization of Transmembrane Convection to Increase Microdialysis Sampling Recovery," and **Kevin P. Kelly, Cynthia R. Sides, Lynsey Carrier, Jennifer Gidden, Jackson O. Lay, Julie A. Stenken**, "Comparing MALDI-TOF Spectra for Egg Lipids vs. Quantitation via GC-FID."

**Publications**

A paper by Eric R. Pinnick, Camilo E. Calderon, Andrew J.

Rusnak, and **Feng Wang** was selected to be included in the book:

"Highlights in theoretical chemistry: From Quantum Mechanics to Force Fields" edited by Jean-Philip Piquemal and Kenneth D. Jordan. The paper's title is "Achieving fast convergence of ab initio free energy perturbation calculations with the adaptive force matching method."

**Benard Omogo, Jose F. Aldana, Colin D. Heyes**, "Radiative and Non-Radiative Lifetime Engineering of Quantum Dots in Multiple Solvents by Surface Atom Stoichiometry and Ligands." (2013) *J. Phys. Chem. C* 117, 2317-2327.

**Vasicek, Thaddeus; Jackson, Matthew, Poseno, Tina; Stenken, Julie**, "In Vivo Microdialysis Sampling of Cytokines from Rat Hippocampus: Comparison of Cannula Implantation Procedures" was accepted for publication in *ACS Chemical Neuroscience*.

**Students Defend Dissertations**

**Samrat Bar Thapa** defended his dissertation "Oxidation of Thrombomodulin Methionine 388 in Cigarette Smokers" February 13, 2013. A native of Nepal, Samrat received his B.S. in biology from Lyon College in Batesville, AR. His advisor is **Wesley Stites**.



**Maha Laxmi Shrestha** defended her dissertation "Further Studies in the Allylic Diazene Rearrangement" February 26, 2013. A native of Nepal, Maha received her B.Sc. and M.Sc. from Tribhuvan University, Kathmandu, Nepal and an M.S. from Pittsburg State University, Pittsburg, KS. Her advisor is **Matthias McIntosh**.

**Admitted to Candidacy**

**Randy Espinal Cabrera**, Dominican Republic, passed his 7th cume February 15, 2013 and is admitted to candidacy. Randy received his Bachelor degree in chemistry from the Universidad Autónoma de Santo Domingo in 2004. He earned the M.S. degree in chemistry from the UA in 2012. His advisor is **Julie Stenken**.

**Undergrad Biochem Major Saves the Day**

*The following is a correspondence between Marr-Lynn Flory (Nurse Practitioner), Monika Fischer-Massie (Exec. Dir., NWA Free Health Center) and forwarded to Jeanne McLachlin, Assoc. Dir. Premedical Program.*

Recently, I was busy seeing patients with 3 of the 4 exam rooms full with patients for me. **Emily Crossfield** (4 year Honors Scholar in Dr. Kumar's lab) was checking in the next customer. The gentleman's blood oxygen level (pulse oximetry) was 70%. This is well below the listed threshold for notifying a licensed health care provider. Emily recognized this, ensured the patient was safely seated in the vital sign area, and beelined to interrupt me. To summarize, Jill (RN) and I took over and sent the patient rapidly to the emergency department. The patient is so grateful he called once while still in the hospital and once since his discharge to thank the person who saved his life. He truly was an emergency, and Emily's quick action was the impetus for getting him out to definitive care. Please share this congratulations with Emily and the other premed volunteers. Good work, Emily, and I'm so glad you're on our team!

Thanks,  
Marr-Lynn

## Biophysical Society Meeting Presentations

The 57th Annual Meeting of the Biophysical Society took place February 2-6, 2013 in Philadelphia, Pennsylvania. The following presentations were made.

**Venkatesan Rajagopalan, Denise V. Greathouse, Roger E. Koeppe II.** "Influence of Ph and Side-Chain Negative Charge on the Behavior of Designed Transmembrane Peptides in Lipid Bilayers."

**Kelsey Sparks, Nick Gleason, Renetra Gist, Denise V. Greathouse, Roger E. Koeppe II.** "Comparison of Interfacial Tyrosine, Tryptophan and Phenylalanine Residues as Determinants of Orientation and Dynamics of Transmembrane Peptides."

**Colton T. Kordsmeier, Denise V. Greathouse.** "Characterization of Antimicrobial Methylated Tryptophan Retro Lactoferricin Peptides by Solid State NMR and Fluorescence Spectroscopy."

**Derek Pyland, Wesley Stites.** Characterization of Protein Folding and Protein Solvent Accessible Areas of Staphylococcal Nuclease Mutant V66W by PEPS-HDX-ESI-MS."

**Arshan Dehbozorgi, Rebecca Kerr, T.K.S. Kumar.** "Characterization of a Thermostable Quadruple Mutant of Human Fibroblast Growth Factor-1."

**R. Lea Sanford, Subhi J. Al'Aref, Roger E. Koeppe II, Olaf S. Anderson.** "Statins Alter Lipid Bilayer Properties."

**Emily Crossfield, Srinivas Jayanthi, T.K.S. Kumar.** "Characterization of a Novel Fusion Affinity Tag for Purification of Recombinant Proteins."

**Kaila Pianalto, Martha Scharlau, Francis Millett.** "Characterization of Specific Electron Transfer Interactions between Cytochrome C and Cytochrome C Oxidase."

**Ashley A. Howard, Nicole Webb, T.K.S. Kumar, Colin D. Heyes.** "Using Homo-Polypeptides to Study Charge-Charge Interactions in Biomolecules."

**Christopher P. Moutos, T.K.S. Kumar, David S. McNabb.** "Membrane Permeability Induced by Stereo and Retro Analogs of Histatin S."

**Colby Smith, Denise V. Greathouse.** Solid-State NMR and Fluorescence Spectroscopy of Antimicrobial Methylated-Tryptophan Lactoferricin Peptides with GLN, GLY or PRO as the Central Residue."

**Densie A. Greathouse, Tod D. Romo, Joshua N. Horn, Alan Grossfield.** "Comparison of Membrane Interactions of Acylated and Non-Acylated Lactoferricins by Solid-State NMR Spectroscopy and Molecular Dynamics Simulations."

**Rebecca Simpson, Srinivas Jayanthi, Alicia Kight, Robyn Goforth, Ralph Henry, T.K.S. Kumar.** "Investigation of the Structural Stability of cpSRP43 Chromodomain by Hydrogen-Deuterium Exchange."

**Rory Henderson, Jake Usery, Srinivas Jayanthi, Alicia Kight, Robyn Goforth, Ralph Henry, T.K.S. Kumar.** "C-Terminal M4 Peptide Fragment of Albino 3 Interaction with CPSRP-43."

**Kyla Morris, Paul D. Adams.** "Characterization of the Interaction between Rheb and Truncated Construct of Tuberous Sclerosis Complex 2 (TSC2) and the Potential Effect of Heparin on TSC2-Stimulated GTP Hydrolysis."

## News from Fulbright IT

**Quick Security Tip** from IT: When something "phishy" arrives, pay close attention to examples below of some typical characteristics of a scam.

**Requests for personal information in an e-mail message.** Never reply with personal information or any passwords via email.

**Urgent wording** examples: "Respond promptly or risk blocked access to your account." "Please follow the link below to confirm your data."

**Fake links.** For example, [www.microsoft.com](http://www.microsoft.com) could appear instead as: [www.micosoft.com](http://www.micosoft.com); [www.verify-microsoft.com](http://www.verify-microsoft.com); [www.mircosoft.com](http://www.mircosoft.com).

**Misspellings.** Looking closely and carefully for spelling errors can many times be a good indicator of a scam.

### What you can do:

1. Always be vigilant by studying the message for unknown senders, suspicious requests, urgency and types of infor-

2. Immediately forward suspicious mail addressed to your UARK account, as an attachment to [security@uark.edu](mailto:security@uark.edu) for analyzing.
3. If you share your password or log into a suspicious site, immediately change your password at <http://password.uark.edu>.
4. Ask your tech support if the message is trustworthy. [arscup@uark.edu](mailto:arscup@uark.edu) or 575-7512.
5. Always keep your password(s) safe-guarded!

Teresa Waddell, Director of Technology for Fulbright College





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

Mailing Address  
CHEM 119  
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

There is a new  
policy regarding the  
shipping of  
hazardous material  
from this campus.  
The policy can be  
found at:  
[http://vcfa.uark.edu/  
Docu-  
ments/2090.pdf](http://vcfa.uark.edu/Documents/2090.pdf)

  
Department of Chemistry  
and Biochemistry

## Excellence in the Central Science

### Student Helping Others

Graduate student and member of the Rotaract Club of Fayetteville, **Matthias Knust**, along with other club members, collected, wrapped, and distributed Christmas boxes to 100 Head Start pre-school children in Fayetteville. The boxes contained a scarf, hat, gloves, socks, books, puzzles, toothbrush, and extra toys. Generous donations were provided by Ocean Dental, TJ Maxx, the Northside Fayetteville Rotary Club and the downtown Rotary Club of Fayetteville.



Save the Date!  
The 2013 INBRE conference will be held  
October 18-19 in Fayetteville, AR.

### 2012-2013 CUME Schedule

All cumes are in CHEM 144, 5-6 p.m.

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 address the challenges of the future through interdisciplinary and multidisciplinary research and education.

### Calendar of Events

#### March

- 01 Graduate student proposals due to committees
- 04 Seminar, Dr. Alexei Demchenko, Univ. of MO-St. Louis
- 8 CUME
- 10 Daylight Saving Time begins, 2:00 a.m.
- 11 Seminar, Dr. Adrian Michael, Univ. of Pittsburgh
- 16-24 SPRING BREAK
- 25 Seminar, Dr. Guozhong Cao, Univ. of Washington
- 29 CUME

#### April

- 1 Fry Lecture Seminar, Dr. Ronald Breslow, Columbia University
- 7-11 245th ACS Natl. Meeting, New Orleans
- 15 Seminar, Dr. Lingjun Li, University of Wisconsin-Madison
- 15 Deadline for Committee Meetings
- 19 CUME
- 22 Seminar, Dr. Younan Xia, Boston University
- 26 Grad School deadline for submitting dissertation for May 2013 diploma
- 29 Seminar, Dr. Raymond Schaak, Penn State University

### Library Hours

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

#### Spring Semester Hours, Jan. 14, 2013—May 12, 2013

Monday—Thursday	8 a.m.-5 p.m.
Friday	8 a.m.-6 p.m.
Saturday—Sunday	Closed

#### Exceptions to Regular Hours

Friday, March 15	8 a.m.-5 p.m.
Monday-Thurs., Mar. 18-21 (Sp. Bk.)	8 a.m.-5 p.m.
Friday, March 22	Closed
Friday, May 10	8 a.m.-5 p.m.

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>.

