

3-2008

Mole Street Journal, March 2008

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

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Citation

University of Arkansas, Fayetteville. Dept. of Chemistry and Biochemistry. (2008). Mole Street Journal, March 2008. *Mole Street Journal*, 7 (3) Retrieved from <https://scholarworks.uark.edu/mole-street-journal/11>

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The Mole Street Journal

Volume 7, Issue 3

Department Hires New Experimental Physical Chemist

After an international search the department hired **Colin Heyes** to fill the role in the physical division beginning fall 2008.

He holds a doctorate in physical chemistry from Georgia Institute of Technology, under the direction of Mostafa A. El-Sayed. He holds a B.Sc. in chemistry from Loughborough University. Heyes is currently a postdoctoral research fellow at McGill University, Montreal, Canada. He was previously a postdoctoral research associate in biophysics at University of Ulm, Germany.

Among the awards he has received are the House-Flashka-Ashby Award from Georgia Tech for outstanding graduate research, an Alexander von Humboldt (AvH) research fellowship at the University of Ulm and Human Frontiers Science Program (HFSP) long-term fellowship.

Heyes will bring to the department expertise in experimental single molecule spectroscopy and he will be combining this technique with quantum dots to address some fundamental biochemical questions.

Symposium to Honor Charles L. Wilkins



Charles L. Wilkins

A symposium to honor **Charles L. Wilkins** and his lifetime contributions to fields in analytical chemistry will take place Saturday, Sept. 13, 2008 on campus. The event will feature talks, tours and a banquet.

Speakers confirmed for the event include both internationally recognized researchers in analytical chemistry “mass spectrometry” and former students — Michael L. Gross, Washington University; Catherine Fenselau, University of Maryland; Catherine E. Costello, Boston University; J. L. (Jack) Beauchamp, California Institute of Technology; Richard M. Caprioli, Vanderbilt University School of Medicine; Robert S. Brown, Utah State University; Robert L. White, The

University of Oklahoma and Lydia Nuwaysir, Applied Biosystems.

For more information see <http://chemistry.uark.edu/2184.htm>

Nobel Laureate to Give 2009 Lecture

Organic chemist **Robert H. Grubbs**, Victor and Elizabeth Atkins Professor of Chemistry at the California Institute of Technology will be the Fry Lecturer in spring 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.

Save the date for next year — April 13, 2009. For more information see <http://chemistry.uark.edu/2163.htm>

RecycleMania 2008

Congratulations to lecturer and alumnus **Mya Norman** and graduate student **Anupama Aggarwal**, who each won a \$25 restaurant gift certificate for submitting the most sustainability ideas during last month's department contest.

According to Nick Brown, campus sustainability coordinator, the amount of recycling collected by the department was up between 50% and 70% over the baseline level.

Being earth-friendly is not a new idea to the department as some have been recycling, often on their own time, for years.

Many ideas received through the contest have been implemented such as: placing more recycle bins in the Chemistry Building; replacing plastic plates and cups with biodegradable options for department seminar; printing on both sides of the paper when possible; and adding forms and information to the department WebCT site.

Even small changes in your day-to-day activities can make a big difference in reducing the size of your carbon footprint.

Inside is a list of the waste prevention strategies submitted during the contest and provided by www.epa.gov.

Faculty News

Notables

Neil Allison was honored at the Faculty Appreciation Banquet, Feb. 21 at the Janelle Y. Hembree Alumni House. He was nominated for outstanding faculty. The event was hosted by the Student Alumni Board and Associated Student Government.

Research News

“Dynamics of Saxitoxin Binding to Saxiphilin C-lobe Reveals Conformational Change” by **P. Lewis**, A. Brown, **I. Fritsch**, **R. E. Gawley**, R. Henry, **J. O. Lay, Jr.**, **R. Liyanage**, J. McLachlin and D. Myszka, was published in *Toxicon*, 2008, 51, 208-217.

“1h, 15n, and 13c Assignments of the C-terminal Domain of the 43 Kda Subunit of the Chloroplast Signal Recognition Particle,” by **K. Ananthamurthy**, **K. M. Kathir**, A. Kight, R. Goforth, R. Henry, and **T. K. S. Kumar** was published in *Biomolecular NMR Assignments*. DOI: 10.1007/s12104-007-9078-0.

“A Method to Prevent Thrombin-induced Degradation of Recombinant Proteins,” by **D. Rajalingam**, **K. M. Kathir**, **K. Ananthamurthy**, **P. D. Adams** and **T. K. S. Kumar**, was published in *Analytical Biochemistry*. DOI doi:10.1016/j.ab.2008.01.014.

On the Go

Paul Adams gave invited lectures to the ACS local meeting Feb. 28 and the department of chemistry at Pittsburg State University, Feb. 29.

T.K.S. Kumar will give an invited talk at the 2008 Functional Genomics Consortium meeting at Kansas State University, March 4. He will present “Understanding the structural forces in FGF Signaling.”

Jack Lay will give a bioinformatics workshop “Applications of Mass Spectrometry to Protein Identification and Proteomics: Peptide Mass Fingerprinting and Peptide Sequencing,” at UAMS, March 7.

59th Pittsburgh Conference for Analytical Chemistry and Applied Spectroscopy (Pittcon)

New Orleans, March 1-6

Ingrid Fritsch will give an invited talk “Redox Magnetohydrodynamic Fluidics in Microelectrochemical Systems.”

Julie Stenken will preside over one of the neurochemistry sessions.

Charles Wilkins will make presentations. Graduate students **Coy Batoy** and **Sasa Miladinovic** will attend.

Graduate student **Melissa Weston**

will present a poster “Manipulating Fluid Flow on a Chip Through Controlled-Current Redox Magnetohydrodynamics.”

The following oral talks will be presented by Stenken’s graduate students from RPI.

“Heparin-Immobilized Microspheres for Enhanced Relative Recovery of Cytokines during Microdialysis Sampling.”

“*In vitro* and *in vivo* Detection of Matrix Metalloproteinase Activities with Microdialysis Sampling and Mass Spectrometry.”

“The Development of a Leu-Enkephalin Luminex Assay and its Application for Quantitative Analysis of Enhanced Microdialysis Sampling.”

2008 Sanibel Symposium

St. Simons Island, Ga., Feb. 21-26

Peter Pulay gave a lecture “An Efficient Parallel Implementation of the External Exchange Operator and Perturbative Triples Contributions to Coupled Cluster Energies.”

Tomasz Janowski presented a poster “An Efficient Parallel Implementation of CCSD External Exchange Operators and Triples Contribution to CCSD(T) Energies.”

From the Library by Luti Salisbury

You may have noticed when you search InfoLinks, the Libraries Online catalog, that we have purchased many electronic books, handbooks and encyclopedias. If you search by title of the book in Infolinks, you will see electronic resource next to the title as in the record below. You may then click on the URL to connect to this book:

Examples of books/encyclopedias/handbooks that may be of interest are: Chemical Properties, Lange’s Handbook of Chemistry, Handbook of Chemistry and Physics, Merck Index, Perry’s Chemical Engineer’s Handbook, and Pharmaceutical Manufacturing Encyclopedia

New Books received in CHBC Library

QD77 .W489 2007. Wenzel, T.J. *Discrimination of Chiral Compounds Using Spectroscopy*. Hoboken, NJ: Wiley-Interscience, 2007.

QD169.W3 O74 2007. Lindstrom, U.M. (ed.) *Organic Reactions in Water: Principles, Strategies and Applications*. Oxford: Blackwell Pub., 2007.

QD321 .L56 2007. Lindhorst, T.K. *Essentials of Carbohydrate Chemistry and Biochemistry*. Weinheim: Wiley-VCH, 2007.

QD421 .M62 2008. Fattorusso, E. (ed.) *Modern Alkaloids:*

Structure, Isolation, Synthesis and Biology. Weinheim: Wiley-VCH, 2008.

QD272.S6 T33 2007. Taber, D. F. *Organic Spectroscopic Structure Determination: A Problem-based Learning Approach*. New York: Oxford University Press, 2007.

QP552 .G16 G46 2005. George, S.R. (ed.) *G Protein-coupled Receptor-protein Interactions*. Hoboken, NJ: Wiley-Liss, 2005.

QP552 .P4 P52 2008. Soloviev, M. (ed.) *Peptidomics: Methods and Applications*. Hoboken, NJ: Wiley-Interscience, 2008.

QP752 .M45 P76 2006. Mateo, C.R. (ed.) *Protein-lipid Interactions: New Approaches and Emerging Concepts*. New York: Springer, 2006.

RA648 .C546 2008. Romano, J.A. (ed.) *Chemical Warfare Agents: Chemistry, Pharmacology, Toxicology, and Therapeutics*. Boca Raton: CRC Press, 2008.

RC270.8 .N36 2006. Kumar, C.S.S.R. (ed.) *Nanomaterials for Cancer Therapy*. Weinheim: Wiley-VCH, 2006.

TA418.9 .N35 N257 2007. Rao, C.N.R. (ed.) *Nanomaterials Chemistry: Recent Developments and New Direction*. Weinheim: Wiley-VCH, 2007.

For a complete listing of new books received see <http://library.uark.edu/ftlists>

Student News

Ellison Secretary of Service

In addition to her duties as graduate student, **Tiffany Ellison** also donates her time for service. Ellison serves as the secretary for MANRRS, Minorities in Agriculture, Natural Resources, and Related Services and as secretary of Zeta Phi Beta Sorority, Inc.

Alpha Chi Sigma Brings Science to Life

Members of Alpha Chi Sigma put on science demonstrations at Leverett Elementary School in February to promote the study and interest in all science fields.

March Safety Tip

Wearing chemical safety gloves in the hallways is a violation of department safety protocol. If you must transport something that you do not wish to touch — place it in another container.

Reduce, Reuse and Recycle

In the classroom...

- Put your course syllabus and other materials on Web CT.
- Educate about the importance of reducing, reusing and recycling and related opportunities on campus.
- Use the video titled *The Story of Stuff*, <http://www.storyofstuff.com/index.html> to educate.
- Use PowerPoint presentations, overheads, or wipe boards instead of handouts.

In the office...

- The toilets in the Chemistry Building are designed to use less water, but are ineffective, if they are flushed 2 or 3 times. Push the handle straight down and not forward or back to flush the toilet fully. If this is not effective, then report the problem to the main office.
- Stress the difference between white and mixed paper — white is paper that has been bleached white and mixed is for other paper such as colored paper, newspaper, brown paper bags, etc.
- Put recycle containers in each lecture hall, meeting

space and on each floor in CHBC.

- Move the regular trash bins to recycle locations to make it more difficult to throw away items and easier to recycle.
- Print and copy only what you need and print on both sides. Change the default settings on copiers to double-sided (2x2).
- Encourage people to turn off lights and power down computers when not in the office, even for short periods.
- Support houseplants in the building to clean the air of the occasional solvent and other smells. Report serious noxious odors to the main office. See plant list on WebCT.
- Host a competition for the most “green” lab — the lab that reduces, reuses, and recycles the most can be given some kind of incentive.
- Donate or surplus equipment. Note that according to policy all UA property must be disposed through the Surplus Warehouse.
- Decrease the size of your e-mail signature to take up less

The hands-on experiments ranged from topics of weather to motion and magnetism. Every demonstration concluded by making ice cream with liquid nitrogen.

Soon Alpha Chi Sigma will start an after school science club that will meet once a week to talk about and run an experiment of interest.

If you are interested in joining the Alpha Sigma chapter, the spring 2008 rush process begins this month. Contact Nathan Green nsgreen@uark.edu.

For more information about the national fraternity see www.alphachisigma.org



Vincent Audo and Chris Sichmeller prepare liquid nitrogen ice cream for Ms. Simpson's kindergarten class.

space when printing.

- Recycle glass bottles.
- Purchase refillable pens and pencils.
- Post or route internal memos.
- Use e-mail or voice mail.
- Utilize online calendars.
- Use scrap paper.
- Recycle batteries or use rechargeable ones.
- Proof documents on screen — use the tracking option.
- Replace cover sheets with fax-it notes.
- Store information on flash drives.
- Reuse file folders — fold them in reverse or put on new adhesive labels.
- Reuse envelopes, boxes and packaging materials.
- Donate and share newspapers and magazines.
- Shred old newspapers and use for packaging.
- Print addresses directly on envelopes instead of using labels.
- Mail items in the smallest envelopes or boxes they will fit in.
- Remove your name from

unwanted mailing lists — call

- distributor directly or see <http://www.directmail.com> and click the ‘DirectMail.com National Do Not Mail List.’
- Reuse paper clips, rubber bands and clamps.
- Return unneeded supplies to the supply room.

In the kitchen...

- Use fewer products for seminar and events, consider biodegradable and/or post-consumer recycled content items.
- Compost food items.
- Share extra plastic silverware from fast food restaurants.
- Bring your lunch in reusable containers or bags.
- Be sure not to throw away any reusable items (e.g., silverware, trays).
- Take only as many napkins and plastic utensils as you need and reuse several times before discarding.
- Recycle pizza boxes.
- Recycle all #1 and #2 plastics regardless of size.
- Use durable coffee mugs.
- Turn empty jars into containers for leftover food.

Calendar of Events

March

- 03..... No seminar
 07..... Special seminar - Terry Borman
 09..... Daylight-saving time begins
 10..... Department seminar - Lawrence A. Quilliam, Indiana University
 17-21 Spring Break, NO CLASSES
 21..... U of A CLOSED
 24..... Department seminar - Henry Schaefer, University of Georgia
 25..... Hartman Hotz Lecture - Henry Schaefer, University of Georgia
 28..... CUME
 28..... Last day to drop a full semester course with a "W"
 31..... Priority registration begins for summer and fall
 31..... Department seminar - Om Prakash, Kansas State University

April

- 06-10 ACS Meeting, New Orleans
 07..... No seminar
 14..... No seminar
 18..... CUME
 21..... Department seminar - Steven Suib, University of Connecticut
 24..... Honors Night - UARK Ballroom on Dickson Street
 28..... Department seminar - Jon Sessler, University of Texas

May

- 01..... Last day of classes for spring 2008
 01..... Last day to officially withdraw from all courses
 02..... Dead day, NO CLASSES
 03-09 Final exams
 10..... Commencement

Spring Break The U of A will be CLOSED Friday, March 21

March Seminars

- 07.....**Special Seminar - Terry Borman**, "Innovation in a Timeless Art - Science ofthe Stradivarius," 2:30 p.m. in CHEM 132, reception to follow in CHEM 105.
 10.....**Lawrence A. Quilliam, Indiana University School of Medicine**, "A Tale ofTwo Ras Proteins: Role of Rap1 and Rheb in Cell Signaling and Cancer,"3:30 p.m. in CHEM 144. Reception at 3 p.m. in CHEM 105.
 24.....**Henry Schaefer, University of Georgia**, "Lesions in DNA Subunits:Foundational Studies of Molecular Structures and Energetics," 3:30 p.m. inCHEM 144. Reception at 3 p.m. in CHEM 105.
 25.....**Hartman Hotz Lecture - Henry Schaefer, University of Georgia**, "The BigBang, Stephen Hawking, and God," 4:30 p.m. in the E. J. Ball Courtroom atthe Leflar Law Center. Reception to follow in the Six Pioneers Room.
 31.....**Om Prakash, Kansas State University**, "Structural Studies of NovelCathelicidins from Chicken and a Clip Domain from an Insect SerineProteases," 3:30 p.m. in CHEM 144. Reception at 3 p.m. in CHEM 105.

March Birthdays

- 10.....Art Fry
 14.....Ryan Farris
 17.....Shatara Porchia-White
 18.....Lois Geren
 21.....Teresa Waddell
 24.....Matt McIntosh
 25.....David Stefferud
 25.....Mike Rutherford
 31.....Juliette Rivero Castro
 31.....Sasa Miladinovic

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

Hours during Spring Break

- March 16CLOSED
 March 17-20.....8 a.m. to 5 p.m.
 March 21-23.....CLOSED
 Regular hours resume on March 24

Spring Regular Hours

- Monday - Thursday....8 a.m. to 9 p.m.
 Friday8 a.m. to 6 p.m.
 Sunday.....2 p.m. to 6 p.m.
 SaturdayCLOSED

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

CUME Dates

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

March 28 April 18

Honors Night

Department honors students will make poster presentations at the UARK Ballroom on Dickson Street, Thursday, April 24 from 3:30 p.m. to 5 p.m.

Spring Forward
Daylight-saving time
begins at 2 a.m.
Sunday, March 9