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Ice Storm 2009



The ice storm that hit Northwest Arkansas the last week in January will have an impact on the area for months and years to come. It was the 19th time the university cancelled classes in its history as a result of weather and the only time class has been cancelled for more than two consecutive days. Even though classes were cancelled the university never truly closed.

Spring will bring green leaves to cover the scars but the landscape will forever be changed. The scenery around the Chemistry Building was also altered, although not as bare as when the building was built. See page 2 for a 1930s photo.



At left: The Chemistry Building today and an undated photo of the building in the snow. Note the leaning historical marker in the top photo and the missing cedar tree. A stump is all that remains of a tree across from the building. Above shows the sidewalk and building during the storm.

Research Presented at Biophysical Meeting

Many of the biochemistry division faculty, researchers and students will attend the Biophysical Society's 53rd Annual Meeting, Feb. 28 to March 4 in Boston. This meeting represents the largest gathering of biophysicists from around the world. See inside for a list of research being presented.

Faculty News

Bob Smith has been named provost and senior vice president at Texas Tech University. Smith is former UA provost and professor of chemistry. His appointment in Lubbock was official Feb. 2.

Research News

The laboratory of **Paul Adams** successfully deposited the 3-D solution NMR structure of Cdc42(T35A), and Active Switch I mutant of the Ras Regulatory Protein Cdc42 into the RCSB Protein Data Bank (<http://www.rcsb.org>). The PDB ID for the ensemble of structures is 2kb0.pdb.

On the Go

Matt McIntosh will go to Southeast Louisiana University for graduate recruiting Feb. 6.



Chemistry Building in the 1930s

The above photo shows the building in snow in the 1930s. Note the bare landscape. Although there is snow on the ground, many of the windows were open because there were no fume hoods in the labs.

February Safety Tip

Lab Safety Rules - Zero Tolerance, No Exceptions

The following is a reminder from lab coordinator David Hayes.

Students and instructors are required to wear proper departmentally approved safety goggles in the lab when any work involving chemicals is in progress anywhere in that lab.

Anyone entering prep room SCIE 203 is required to wear proper departmentally approved safety goggles when any work involving chemicals is in progress anywhere in the prep room.

TA's should:

- Stress and enforce safety precautions that apply to each experiment.
- Watch for and stop potentially hazardous practices and improper chemical handling, including utilization of the hoods.
- Ensure community areas are clean, especially the balance area.

Students will be prohibited from the lab for any of the following:

- Not having proper eye protection.
- Wearing shorts, halter, tank, or mid-riff tops, etc. not covered by an apron or lab coat that covers the knees when sitting on a lab stool.
- Wearing backless shoes or sandals.
- Leaving the lab wearing Nitrile gloves.

Alumni News

Allen F. Bennett, Ph.D. '99, is a registered patent attorney with Santucci, Priore & Long, LLP. in Fort Lauderdale, Fla.

John W. Hill, Ph.D. '61, delivered the Twelfth Annual Kolb Chemistry Lecture at Bradley University in Peoria, Ill., Oct. 9. He is currently checking page proofs for the 12th edition of his chemistry text for non-science students, *Chemistry for Changing Times*, with coauthor Terry McCreary of Murray State University. The book is to be published in early 2009.

John Hutchison, Ph.D. '07, is teaching a section of General Chemistry II on campus this spring. He is also a post doc in the McIntosh lab.

Penny Lewis, Ph.D. '08, gave birth to son Issac Paul Jan. 21. Baby Issac weighed 8 pounds and 7 ounces.

Patrick van der Wel, Ph.D. '03, is an assistant professor at the University of Pittsburg in the department of structural biology.

In Memory

Deward W. Efurud, Ph.D. '75, died Nov. 9. His research advisor was Paul Kuroda. His career included employment with the EPA and Los Alamos National Laboratory in New Mexico.

Presentations at the Biophysical Society Meeting

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

“Cation- π Interactions Contribute Significantly To The Stability Of The D2 Domain Of Fibroblast Growth Factor Receptor,” Ryan Thurman*, Rajalingam Dakshinamurthy, T.K.S. Kumar.

“Characterization of Transmembrane Peptide-Anchored Lactoferrin in Mixed Lipids,” Rachel E. Ellis*, Denise Greathouse.

“Comparison of Mechanical and Magnetic Alignment of WALP-like Peptides for Solid-State NMR,” Nicholas J. Gleason*, Vitaly V. Vostrikov, Roger E. Koeppe II.

“Conformation of the Transmembrane Domain of the Anthrax Toxin Receptor,” Christopher L. Mazzanti*, Denise V. Greathouse, James F. Hinton, Jennifer D. Lemmons, Roger E. Koeppe II.

“Effect of Osmolytes on Protein Stability and Folding,” Andrew Avery*, Rajalingam Dakshinamurthy, T.K.S. Kumar.

“Expression of, and Preliminary Biophysical Characterization of a Minimal Binding Domain peptide of TSC2 that binds to the small GTPase Rheb,” Huimin Liu and Paul D. Adams*.

“Half-Anchored WALP Peptides: Effect Of Anchor Position On Peptide Orientation,” Johanna M. Froyd-Rankenbergs*, Denise V. Greathouse, Roger E. Koeppe II.

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

“Investigation of Antimicrobial and Lipid Perturbing Properties of Lactoferrin Peptides,” Laura A. Bradney*, Vitaly V. Vostrikov, Denise V. Greathouse.

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

“Orientation of Single-Span Transmembrane Peptides Investigated by Independent Solid-State NMR Methods: GALA and PISEMA,” Vitaly V. Vostrikov*, Christopher V. Grant², Stanley J. Opella², Roger E. Koeppe II.² University of California, San Diego.

“Specificity of the Helical Conformation Induced By 2, 2, 2, Trifluoroethanol,” Nicole Webb*, Rajalingam Dakshinamurthy, Denise Greathouse, T.K.S. Kumar.

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

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

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

“Use of Transmembrane Peptides to Investigate Arginine Interactions with Lipid Bilayers,” Vitaly V. Vostrikov, Denise V. Greathouse, Roger E. Koeppe*.

Presentations with department participation.

“Designing Fibroblast Growth Factor with Higher Heparin Binding Affinity,” Ivy Fitzgerald*, Rajalingam Dakshinamurthy, T.K.S. Kumar. (Fitzgerald was an REU student)

“Development of a Drude Polarizable Force Field for Ion-water and Ion-NMA Interactions and Application to Selectivity in Ion Channels,” Haibo Yu*¹, Troy W. Whitfield², Sergei Yu. Noskov³, Christopher L. Mazzanti, Roger E. Koeppe II, Olaf S. Andersen⁵, Benoit Roux^{1,2}. ¹Department of Chemistry, and Molecular Biology, University of Chicago, ²Biosciences, Division, Argonne National Laboratory, Argonne, ³Institute for Biocomplexity, and Informatics, Department of Biological Sciences, University of Calgary, ⁵Department of Physiology and Biophysics, Weill Medical, College of Cornell University.

“Evaluating Gramicidin A Channel Backbone Dynamics by Molecular Dynamics and Nuclear Magnetic

Resonance,” Helgi I. Ingolfsson^{1,2}, Vitaly V. Vostrikov, Hong Gu, Roger E. Koeppe, II, James F. Hinton, Benoit Roux⁴, Toby W. Allen⁵, Olaf S. Andersen¹. ¹Weill Medical College of Cornell University, ²Tri-Institutional Training Program in Computational Biology and Medicine, New York, ⁴University of Chicago, ⁵University of California, Davis.

“Investigating the Effects of Acylated Lactoferrin Peptides on the Properties of Lipid Bilayers Using Gramicidin A Channels as Probes,” Shemille A. Collingwood*¹, Olaf S. Andersen¹, Faith Hurd, Denise V. Greathouse. ¹Weill Medical College of Cornell University.

“Ion Permeation through Ala --> Ser Substituted Gramicidin A Channels,” Tashalee R. Brown*, Jung H. Kim, Yuhui Li, Anna E. Daily, Roger E. Koeppe II, Benoit Roux, Olaf S. Andersen, Weill Cornell Medical College, University of Chicago.

“The Insulin-sensitizers Troglitazone and Rosiglitazone Alter Lipid Bilayer Properties,” Radda Rusinova*¹, Roger E. Koeppe II, Olaf S. Andersen¹. ¹Weill Medical College of Cornell University.

“Poster NSAIDs Alter Lipid Bilayer Mechanical Properties,” Subhi J. Al'Aref^{1,2}, Olaf S. Andersen¹, Roger E. Koeppe II. ¹Weill Cornell Medical College, ²New York Presbyterian Hospital – Weill Cornell Medical Center.

* = presenting author

Happy Birthday



The department turned out for a surprise 60th birthday party for **Bill Durham** Jan. 26.

Calendar of Events

February

- 02..... Department seminar - John Stanton, Univ. of Texas
 06..... CUME
 09..... Department seminar - Ken Balkus, Univ. of Texas at Dallas
 16..... Department seminar - Paul Hanson, Univ. of Kansas
 20..... CUME
 20..... Graduation application deadline for spring 2009 graduation
 23..... Department seminar - Kenneth Klabunde, Kansas State Univ.
 25..... Early progress reports e-mailed for 1000 and 2000 level classes
 26..... Organic seminar - Wenhao Hu, East China Normal Univ.
 28-March 4..... Biophysical Society Meeting, Boston

March

- 01..... Deadline for grad students to submit written research proposals
 to their committee
 02..... No department seminar
 06..... CUME
 06..... Analytical seminar - Nelson Torto, Rhodes Univ., South Africa
 09..... Department seminar - Krishnan Raghavachari, Univ. of Indiana
 16..... No department seminar
 16-20 Spring Break, no classes
 20..... University CLOSED
 22-26 ACS Meeting, Salt Lake City
 23..... No department seminar
 27..... Last day to drop a full semester course with a "W"
 30..... Department seminar - Carl Koval, Univ. of Colorado at Boulder

April

- 03..... CUME
 06..... Department seminar - Squire Booker, Penn State Univ.
 13..... Fry Lecture - Nobelaureate Robert Grubbs, Cal Tech.
 15..... Deadline for grad students to orally defend proposals to committee
 17..... CUME
 20..... Department seminar - Cynthia Larive, UC Riverside
 23..... Department Honors Night
 27..... Department seminar - Xiao Cheng Zeng, Univ. of Nebraska-
 Lincoln (seminar series concludes)
 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

February Birthdays

- 02.....TKS Kumar
 03.....Melissa Weston
 06.....Ranjani Viswanatha
 07.....Dmitry Mikhaylov
 08.....Xiaogang Peng
 12.....Markeeta LeRay
 15.....Stephen Gann
 19.....Mya Norman
 25.....Sasirekha Muruganatham
 27.....Christian Loeschel

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

Monday-Thursday8 a.m. to 9 p.m.
 Friday8 a.m. to 6 p.m.
 SaturdayCLOSED
 Sunday2 p.m. to 6 p.m.

<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

Feb. 6, Feb. 20, March 6, April 3, April 17

NOTE: Because of the ice storm the February dates have changed. The Jan. 30 date moved to Feb. 6 and the Feb. 13 date moved to Feb. 20.

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.