

THE MOLE STREET JOURNAL

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

AUGUST 2011

VOLUME 10, ISSUE 8

Professors Depart after 73 Years of Combined Service



Lothar Schäfer

After decades of dedicated and productive service to the department and the university, Distinguished Professor **Lothar Schäfer** has retired and University Professor **Derek Sears** has resigned.

Schäfer joined the faculty in 1968, was promoted to associate professor in 1972, to professor in 1975 and to Edgar Wertheim Distinguished Professor in 1989. He obtained his Ph.D. from the University of Munich and was a NATO fellow at the University of Oslo and a postdoctoral fellow at Indiana University.

His book, *In Search for Divine Reality*, which deals with the conceptual consequences of quantum theory, was published in 1997 and led to more than 200 invited lectures in South America, Central America, the US, Canada, and Europe. The book has been translated into Russian, Spanish, and Portuguese and he rewrote it himself in German.

He created a popular honors colloquium on the concepts of quantum theory, a course taken by students in all disciplines.

During his 43 years on campus he received the University of Arkansas Alumni Award for Outstanding Research and Teaching in 1977, he was a Camille and Henry Dreyfus Foundation Fellow from 1971 to 1976, he received the IR-100 Award from Research and Development Magazine in 1985, the Halliburton Teaching Award in 1991, and the Fulbright College Master Teacher Award in 1999.

He has published some 270 papers in refereed journals, and more than 30 book chapters and reviews. He will maintain an office in the Chemistry Building.

Cosmochemist Sears and his wife **Hazel Sears** have headed west to San Francisco where he will join colleagues at NASA-Ames Research Center

**Alumnus
Bobbitt Named
University of
Arkansas System
President**

in Mountain View.

After a formal education in the United Kingdom and two-year postdoc at UCLA, Sears joined the faculty in 1981.

During his 30 years on campus he served as founding director of the Arkansas Center Space and Planetary Science, published 200 peer-reviewed articles and three books.

In 1996, he was awarded the Alumni Distinguished Faculty Award for research and service and in 2010 he received the Meteoritical Society's service award for his work as editor.

Over the last three decades, Hazel Sears has acted as laboratory manager, research administrator, managing editor, and space center manager.



Hazel and Derek Sears

Doctoral Students Defend



Above: Anu Aggarwal
At left: Silvana Dormi and
Aaron Beuterbaugh

Evans Wins REU Tony Jude Award



Edward Evans

Faculty News

Alumnus Named UA System President

Donald R. Bobbitt, B.S. '80, is returning to a natural state – the Natural State. Again. He has been named president of the University of Arkansas System.

Bobbitt earned his Ph.D. from Iowa State University in 1985. That same year he returned to campus and joined the faculty where he rose through the ranks from assistant professor to professor, vice-chair to department chair, associate dean to interim dean to dean.

His in-state administrative experience combined with his current position as provost and vice president for academic affairs at the University of Texas at Arlington will give him valuable insight as he fills the systems' highest office.

Stenken Named Graduate Director

Julie Stenken has been named the director of graduate studies for the department. She will serve as graduate advisor and will oversee graduate student recruitment.

Research News

Keisuke Tanaka has joined the lab of **Joshua Sakon**. Tanaka will research to develop an ear drum rupture repair kit.

Most recently, he worked for Nippi Inc., a supplier of collagen materials and producer of collagen containing products.

On the Go

Jingyi Chen presented a poster "Tailoring Polymer-Covered Gold Nanocages for Chemical Sampling in a Microdialysis Device," Sweta Shrestha, **Julie A Stenken**, Jingyi Chen, at a Gordon Research Conference (GRC) on Cancer Nanotechnology from Basic Concepts to Clinical Applications at Colby College, Waterville, Maine, July 17-22.

She also presented a poster "Seed-Mediated Growth of Palladium-Magnetite Nanoparticles," **Shutang Chen**, Jonathan Janzen, Jingyi Chen, at a GRC on Clusters, Nanocrystals, and Nanostructures at Mt. Holyoke College, South Hadley, Mass., July 24-29.

Bob Gawley presented "Catalytic Dynamic Resolution of Chiral Organolithium Compounds" at the

University of Bari, Italy, June 24 and at Ludwig Maximilian University, Munich, Germany, June 27.

He presented "Why did Alice say to Kitty: 'Perhaps Looking-Glass Milk isn't Good to Drink?'" (Implications for the Origins of Life)," at the University of Regensburg, June 29. While abroad he also visited with the Atlantis students in Regensburg and Dublin.

Roger Koepp was the invited speaker at the Snowmass Conference on Lipid Membranes and Membrane Proteins, June 27-July 1. He presented "Intrinsic Tilt and Dynamics of Membrane-Spanning Peptides".

Matt McIntosh presented "Studies in Complex Molecule Synthesis," at the University of Regensburg during a visit July 23-31.

Ryan Tian made a site visit to Duracell Technology Center in Bethel, Conn. August 2-3.

Nan Zheng presented a poster "The Use of Visible Light Photocatalysis for Amine Synthesis," **Soumitra Maity**, Mingzhao Zhu, **Spencer Shinabery** and Nan Zheng, at a GRC on Organic Reactions and Processes at Bryant University in Smithfield, R.I., July 17-22.

NSF-EPSCor P3 Conference

Heber Springs, July 27-28

Jack Lay and **Ryan Tian** attended. Tian made a poster presentation "Solution Grown, Low Cost, Nanostructured Solar Sensitizers".

Fall 2011 ACS National Meeting & Exposition Denver, August 28-Sept. 1

Colin Heyes will present "Connecting the Physical Chemistry of Biofunctional Quantum Dots at the Ensemble and Single Molecule Level," Colin D. Heyes, Nela I. Durisic, Antoine G. Godin, **Hiroko Takeuchi**, **Derrel Walters**, **Jose Aldana**, Peter Gruetter, Paul W. Wiseman.

Postdoc **Jose Aldana** will present a poster "Effects of Surface Atoms, Ligands and Solvent on the Radiative and Non-Radiative Relaxation Rates of CdTe Nanocrystals," Jose Aldana and Colin Heyes.

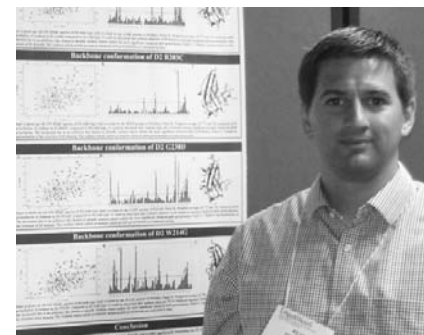
25th Meeting of the Protein Society Boston, July 23-27

Paul Adams presented "Expression, Purification, and Preliminary Characterization of a Minimal Ras-GTPase Binding Domain Peptide Derivative of Tuberous Sclerosis Complex-2 that Binds to the Ras Protein, Rheb".

Suresh Kumar served on the poster presentation steering committee.

Thurman Wins Poster Award

Kumar graduate student **Ryan Thurman** won one of eight awards for outstanding graduate student poster for his presentation "Characterization of the FGFR Mutations Involved in Disease". The award was sponsored by Eli Lilly.



Ryan Thurman with his poster

Two other graduate students from the Kumar lab made poster presentations.

Jacqueline Greer presented "Cloning, Overexpression and Characterization of the WAP Domain of Anosmin-1".

Rebecca Kerr presented "The Role of Heparin in Acidic Fibroblast Growth Factor Signaling".

Honors College students, also in the Kumar lab, made poster presentations.

Richard Rieseke presented a poster "Understanding the role of the sole disulfide bond in the structure and function of the D2 domain of FGFR".

HHMI Scholar **Jake Usery** presented a poster "Understanding of the Binding Interactions of the Chromo domains of cpSRP43".

Postdoc **Reena Chandreshekar** and undergraduate **Christian Hundshammer** also attended.

Student News

Graduate Students Defend

Anupama Aggarwal defended her doctoral dissertation "Studies Toward the Development of a Microelectrode Array for Detection of Dopamine through Redox Cycling," July 25 under the direction of **Ingrid Fritsch**.

Aggarwal is from Delhi, India and has a degree from Delhi University.

Aaron Beuterbaugh defended his doctoral dissertation "Approaches Towards the Synthesis of Transition Metal 5 and 6-Member Quinone Methide Analogs," July 20, under the direction of **Neil Allison**.

Beuterbaugh has a job in product enhancement with Halliburton in Duncan, Okla., where he will research cost effective methods for removing gas and oil out of wells. He is an Arkansas native, born and raised in Harrison and has an undergraduate degree from Arkansas Tech University.

Silvana Dormi defended her dissertation "I. Studies Directed Toward the Synthesis of Sclerophytin A II. Novel N-Based Rearrangements," July 19 under the direction of **Matt McIntosh**. She will stay on campus and be a lecturer this fall.

Dormi is from Buenos Aires, Argentina and has a degree from National University of Mar Del Plata.

Doctoral Defense Reminder

Attention doctoral candidates and associated faculty

The Graduate School requires that announcements of Ph.D. defenses be made by **Leslie Johnson** at least two weeks in advance, so that there will be enough time to send the Record of Progress forms for the defense.

Any time less than the two weeks may result in Record of Progress forms not being ready. Remember the form requires signatures of all committee members after the defense on the scheduled day.

Students Tour Protein Lab

The last week in July, 20 rising sophomore students from KIPP Collegiate High School in Helena were given a virtual protein presentation by **Jim Hinton**.

The students were on campus for a week through the College Access Initiative touring various departments and facilities.

New Staff in IT

Catherine Thomas has been hired as a clerical assistant to perform the critical task for scanning archive documents for the Fulbright development office as well as aid Fulbright IT with day-to-day routing of calls and cases.

At right: Catherine Thomas



Home Notes



Graduate student and alumnus **Latisha Puckett**, B.S. '10, and Mark Center welcome the birth of their daughter Kadence Alyse Center April 14. Baby Kadence weighed 8 pounds and 9 ounces.

At left: Kadence Center

Where Our Undergrads Go

Career plans of the class of 2011, unless otherwise noted.

Dental School at the University of Tennessee Health Science Center

- **Amir Francis**
- **Rhys Moore**

Graduate School

- **Joseph Courtney** - University of Illinois
- **Christopher DuVall** - University of Tulsa for an MBA
- **Ezekiel Lancaster** - Georgia Tech for mechanical engineering

Industry

- **Joe Bruton** is an intern with SFC Fluidics, LLC

Medical School

- **Lukas Hockman** - B.S. '10, University of Missouri

- **Sigrid Johannesen** - University of Oklahoma
- **Shannon Mumma** - University of Oklahoma
- **Jacob Wooldridge** - University of Texas at Galveston

Medical School at UAMS

- **Kristi Anderson**
- **Lauren Hall**
- **Ali Haydar**
- **Hannah Henson**
- **Sarenthia McClelland**
- **Mark Pickhardt**
- **Nicholas Tingquist**
- **Daniel Vo**
- **David Williams**

Pharmacy School

- **Jonathan Schmidt** - University of Tennessee Health Science Center
- **Molly Steen** - University of California at San Francisco

Safety Tip by Bill Durham

Most of the summer undergraduate researchers have left so this is a good time to dispose of the waste generated

Calendar of Events

August

- 01..... Last day to drop a SSII course with a "W"
 12..... Last day of classes SSII
 12..... Open registration begins for fall 2011
 15..... New graduate students arrive on campus
 19..... Meet the new graduate students luncheon
 21..... Last day to receive 100% cancellation of fees for an official
 withdrawal for fall 2011
 22..... First day of the fall 2011 semester, classes begin at 7:30 a.m.
 26..... Last day to register for a fall 2011 class or change from audit to credit
 29..... Fall seminar series begins

September

- 02..... Last day to drop a full semester class without a "W"
 05..... Labor Day holiday, university closed

October

- 01..... Application deadline to graduate at the end of fall 2011
 05..... Early Progress grade reports for 1000 and 2000 level classes will be
 e-mailed to student's university e-mail account
 06..... Annual department picnic at the Gardens
 17-18 Fall break - no classes, university will be open
 21-22 Arkansas INBRE Research Conference
 31..... Priority registration begins for spring 2012

November

- 18..... Last day to drop a full semester class with a "W"
 23..... Thanksgiving break, no classes, university will be open
 24-25 Thanksgiving holiday, the university is closed

December

- 08..... Last day of the fall 2011 semester and last day to officially withdraw
 from all full semester classes
 09..... Dead Day - no classes
 09..... Annual department potluck
 12-16 Final exams
 17..... Fall commencement
 23-31 December holiday, university closed

The above dates and events are listed on the department's Blackboard site
<https://learn.uark.edu/>

Web site for academic dates <http://registrar.uark.edu/1101.php>

Meet the New Grad Students

Meet the incoming graduate students at the annual luncheon, Friday, August 19 from noon to 1:30 p.m. in CHEM 105 and the administrative suite.

August Birthdays

- 02.....Frank Millett
 03.....Eric Taylor
 11.....John Hutchison
 14.....Charles Wilkins
 16.....Samir Jenkins
 19.....Neil Allison
 21.....Maha Shrestha
 22.....Paul Adams
 23.....Jerry Homesley
 27.....Jennifer Sims

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

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

Summer hours (end August 12)

Monday - Thursday....8 a.m. to 6 p.m.
 Friday8 a.m. to 5 p.m.
 Saturday - Sunday.....CLOSED

Interim hours (August 13 to 21)

Monday - Friday8 a.m. to 5 p.m.
 Saturday - Sunday.....CLOSED

Fall hours (begin August 22)

Monday - Thursday....8 a.m. to 9 p.m.
 Friday8 a.m. to 6 p.m.
 Saturday - Sunday.....CLOSED

Note: the CHBC library will be closed Saturdays and Sundays this fall.

Fall 2011 Seminar Series

Seminars take place most Mondays during the fall and spring semesters in CHEM 144 at 3:30 p.m. A reception will follow in CHEM 105.

All department graduate students are expected to attend all seminars.

For more information see
<http://chemistry.uark.edu/5166.php>

Agendas for seminar speakers will be posted on the department Blackboard site.

The fall seminar series begins August 29 with Sunney Chan of Cal Tech.

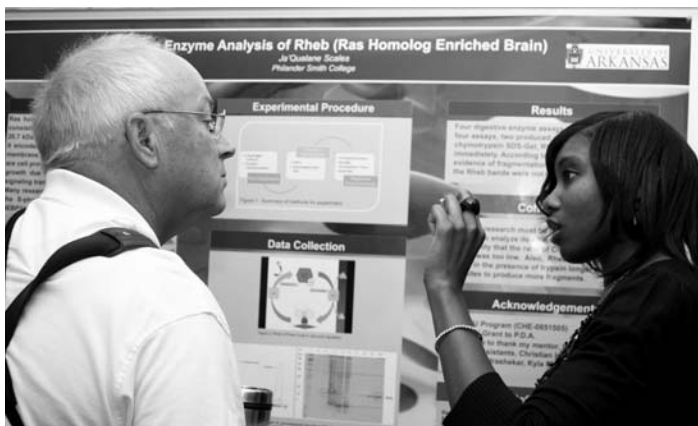
Summer Student Poster Session



Sweta Shrestha, Elaine Haas and Patience Wright



Terry Anderson explains his research to Tim Beng



Doug Rhoads asks Ja'Qualene Scales about a her poster



Gaya Kumar, Aswini Rajan and Nancy Vo

Undergraduate students participating in summer programs in chemistry, biology and physics presented the results of their research at a combined poster session, Thursday, July 28 on the second floor of the Chemistry Building.

The REU is a 10-week summer program funded by the National Science Foundation, which provides students an opportunity to gain hands-on experience in a chosen research area while introducing them to careers in scientific research.

Photos by **Denise Greathouse**.

CHEM REU *David Paul and Julie Stenken, co-directors*

“Phospholipid Analyses by Utilizing GC-MS,” **Terry Anderson**

“Fluorescence Labeling of cpSRP43 to Monitor the Protein Standard Dynamics by Single Molecule FRET,” **Jasmine Brown, Feng Gao and Colin D. Heyes**

“Synthesis and Characterization of a Ru-Pd Bimetallic Complex,” **Ryan Christman and Nan Zheng**

“Redox-Magneto-hydrodynamic Microfluidics Using Multiple Electrode Pairs and Sweep-Step Potential Waveforms,” **Elaine M. Haas, Christena Nash and Ingrid Fritsch**

“Chemical Synthesis of PdxFey-Pt Core-Shell Electrocatalysts,” **Jonathan Janzen, Shutang Chen and Jingyi Chen**

“Digestive Enzyme Analysis of Rheb (Ras Homolog Enriched Brain),” **Ja'Qualane Scales and Paul Adams**

“Tailoring Polymer-Coated Gold Nanocages for Chemical Sampling in a Microdialysis Device,” **Sweta Shrestha, Julie A. Stenken and Jingyi Chen**

“Expanding the Scope of the Catalytic Dynamic Resolution of N-Boc-2-Lithiopiperidine,” **Jin Sun Woo, Timothy K. Beng and Robert E. Gawley**

“Synthesis of JWH-018 Metabolite,” **Patience Wright, Beth Emerson, Carrie Snyder, Jennifer Gidden, Jackson O. Lay, Jr., and Bill Durham**

Tony Jude Award

Edward Evans Jr., of Gulfport, Miss., received the Tony Jude Award for outstanding research at the conclusion of the REU program in chemistry and biochemistry, for his research “Expression and Purification of Cdc42 and PBD46, an Important Ras-Protein Complex,” under the direction of **Paul Adams**.

Evans is a chemistry and mathematics major pursuing a minor in French at Wabash College in Indiana. One of the few remaining liberal arts colleges for men.

The Tony Jude Award was created in 2002 in honor of alumnus and former REU student Anthony Jude, Ph.D. '98, who passed away in 2001 at the young age of 30. He participated in the department REU in 1992. At the time of his death, he was an assistant professor of chemistry at UALR.



Jin Sun Woo gets quizzed by Charles Wilkins

Arkansas INBRE

David Paul and Roger Koeppel, co-directors

“Method Optimization for MALDI TOF-MS Characterization of Polystyrene-co-Pentafluorostyrene,” **Andrea Meyers, Evgenia Akhmetova, Charles L. Wilkins**

“Expression of Influenza Viral Hemagglutinin in *Pichia pastoris*,” **Jonathan A. Radin**, Lu Zhang and Kaiming Ye

“Toward the Synthesis of N-Boc-Pipecolic Acid,” **Xi Wu, Juliette Rivero and Matt McIntosh**

HHMI David Paul, director

“Biomedical Applications of Liposomes,” **Mathias Bellaiche, Rebecca Jeffers, Phillip Kerr, Chris Moutos, Dilawer Singh**, Eric Krueger, Ralph Henry, Greg Salamo and Daniel Fologea

“Bilayer Lipid Membranes: Interaction with Lysenin,” **Amir Mortazavi, Yui Okuyama and Christine Stith**, Eric Krueger, Greg Salamo, Ralph Henry, and Daniel Fologea

“Overexpression and Optimization of Methods to Purify Recombinant Fibroblast Growth Factor Receptor and Interleukin-1 α ,” **Qusay Alfaori, Mark Bush, Ibett Olaechea, Srinivas Jayanthi and T.K.S. Kumar**

“Viscosities of Varying Concentrations of Guanidine Hydrochloride in Buffer as a Function of Temperature,” **Wesley Clawson, Russell Salamo**, James Cooper and Lynn Oliver

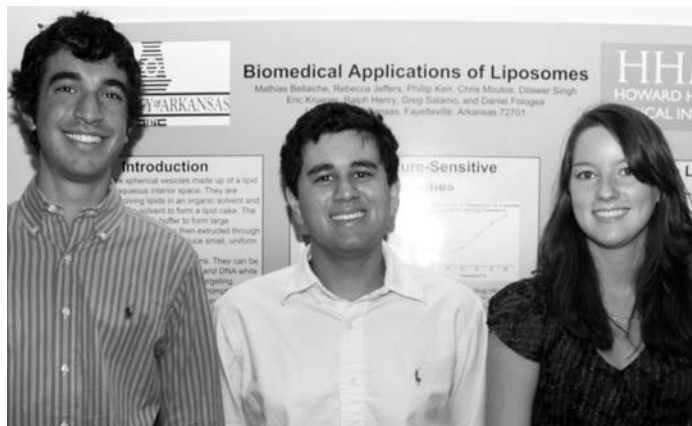
“Purification and Characterization of a Novel Heparin Affinity Tag,” **Emily Crossfield, Srinivas Jayanthi and T.K.S. Kumar**

“Assessment of In Vitro Toxicity and Anti-Mitogenic Activity of Suramin and its Derivatives,” **Aswini Rajan**, Carmen S. Padilla, **T.K.S. Kumar** and David S. McNabb

“Monitoring the Cell Proliferation Activity of Human Fibroblast Growth Factor,” **Gayatri Suresh Kumar**, Carmen S. Padilla, **T.K.S. Kumar** and David S. McNabb

“Understanding of the Binding Interactions of the Chromo domains of cpSRP43,” **Jake Usery, Srinivas Jayanthi and T.K.S. Kumar**

“Expression of Staphylococcal Nuclease via pBAD Expression System,” **Nancy Vo and Wesley Stites**



Chris Moutos, Mathias Bellaiche and Rebecca Jeffers

CEMB REU

Douglas Rhoads (BIOS) and Julie Stenken, co-directors

“Identification of *Listeria* Genomic Island 1 in *Listeria* Species,” **Felicia Atkinson**, Fort Valley State

“Plasmon-Enhanced Pervaporation from Polydimethylsiloxane Decorated With Gold Nanoparticles,” **Cara Carter**, Philander Smith College

“Genetic Analysis of the ACE Gene Contributing to Ascites in the Chicken,” **Malaysia Christian**, UAPB

“Investigation of Phenylalanine as an Anchor in GWALP Peptides” **Renetra Gist**, Tennessee State University, mentor **Roger Koeppel**

“Monitoring Gene Expression in the Wound Healing Process via qRT-PCR” **Annaclaire Hall**, Mississippi College, mentor **Julie Stenken**

“Extraction and Quantification of MCP-1 and IL-6 from the Mammary Fat Pad of Young Female Rats,” **Destiny McNeal**, Bethune-Cookman University, mentor **Julie Stenken**

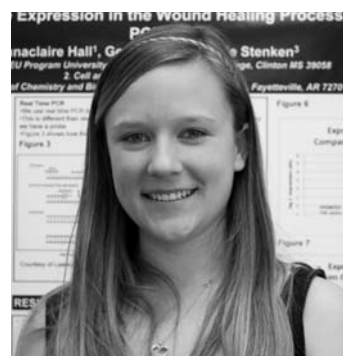
“DNA Logic Gate Construction by Two Fluorescence Dye in a Single Unit,” **Darius Jones**, Alcorn State University

“The Effects of EUK 134 and Aging on CD4 and CD8 T Cell Production,” **Brennon Luster**, UAPB

“Suppressor Analysis of a Mutation in Histone H2A,” **Oberziner White**, Fort Valley State



Renetra Gist



Annaclaire Hall



Destiny McNeal