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Proteins in 3D Now Showing on Campus

University Professor **Jim Hinton** has been searching for an immersive virtual reality system to visualize proteins for many years. He found what he was looking for with **Virtualis**, an advanced visualization company and a leader in the development and use of immersive virtual reality for the automotive industry, the aircraft industry and geology. Because of the successful installation of their system in the department **Virtualis** is now looking into the academic market biochemistry and biophysics.

The only immersive 3D virtual reality in the U.S. for the study of proteins resides here in the department of chemistry and biochemistry as part of the Center for Protein Structure and Function at the University of Arkansas. The only other similar system is in England.

Hinton and doctoral candidate **Vitaly Vostrikov**, who has been instrumental in the installation and demonstrations of the system, have shown it to a number of research groups since the system was installed in April. Together with University Relations, they are creating a movie on DVD with narration, music and sound effects for the Arkansas INBRE Research Conference and other demonstrations.

Interacting with proteins in virtual reality is a stunning experience since one shares the same space as the protein. Walking through or around a protein makes one feel a part of the structure. This new research tool for the study of protein structure and function will also enhance the teaching of small biochemistry classes.

T.K.S Kumar and Ralph Henry, biological sciences, are using the system in their collaborative research on the structure and function of a very important protein-peptide complex.

The big screen and special eye wear can only accommodate 10 viewers at a time.

NIH Public Information Officer Dr. Bell Wearing viewed an

hour-long preview in July and plans to incorporate the DVD in some of here demonstrations. Summer REU students and sixty rising high school seniors, participating in the ACT Academy Program at the university, are among the younger crowds to take in the novel system. A team from Walmart used system to analyze virtual stores prior to construction and a local radiology group watched a preview to determine if there might be a future use for virtual reality in diagnostic imaging.



Viewers reach inside a virtual protein

The on-screen experience has also drawn the interest of the science community with articles in *Drug Discovery and Development*, *Scientific Computing*, *ScienceDaily* and *Future Medicinal Chemistry*. Hinton has been invited to chair and be the keynote speaker at the session on Visualization of Proteins at the 4th Annual Protein and Peptide Conference in Beijing in March.

Funding for the **Virtualis** system was provided by the Arkansas Biosciences Institute.

Those interesting in a demonstration should contact Jim Hinton, jhinton@uark.edu.

Wilkins Selected as ACS Fellow

Distinguished Professor **Charles L. Wilkins** was selected as a member of the 2010 class of Fellows of the American Chemical Society (ACS).

Wilkins is the only person in Arkansas to be included in the 2010 class of 192 distinguished scientists who have demonstrated outstanding accomplishments in chemistry and made important contributions to ACS.

He will be recognized on Aug. 23 during the ACS national meeting in Boston.

Crowell Wins Jude Award

Vernon D. Crowell, Jr. (D.J.), of Wynne received the Tony Jude Award for outstanding research at the conclusion of the Research Experience for Undergraduates (REU) program. Crowell is a chemistry and mathematics major at Lyon College.

His research "Computer Modeling of the Thermal Rearrangement of 2-aryl-2H-azirines to Indoles," was carried out under the direction of Distinguished Professor **Peter Pulay**.



From left: Peter Pulay, D.J. Crowell and REU coordinator David Paul

Faculty News

Research News

A paper "Magnetic Fields for Fluid Motion," **Melissa C. Weston, Matthew D. Gerner** and **Ingrid Fritsch**, was the feature article in *Analytical Chemistry*, *Anal. Chem.*, 2010, 82, 3411-3418.

Fritsch spoke about the topic on a podcast that was aired on the journal's Web site <http://pubs.acs.org/subscribe/journals/ancham/audio/ancham050110.mp3>.

A paper by researchers in the Stenken lab "Long-Term Subcutaneous Microdialysis Sampling and Qrt-PCR Of MCP-1, IL-6 And IL-10 in Freely-Moving Rats," **Erika von Grote, Venkat Venkatakrisnan, Jia Duo** and **Julie A Stenken**, is in print in *Molecular BioSystems* DOI:10.1039/C0MB00059K

On the Go

The 24th Annual Symposium of the Protein Society "Looking at Proteins: Expanding Perspectives and New Technologies" San Diego - August 1-5.

T.K.S. Kumar and **Anna Daily** are attending.

The following posters will be presented.

Paul Adams "A Method for the Prevention of Thrombin-Induced Degradation of Recombinant Proteins"
Graduate students

Rebecca Kerr "The Role of Heparin in Fibroblast Signaling"

Lindsay Rutherford
"Characterization of the Minimalistic FGF-D2 domain Interface"

Ryan Thurman "Characterization of the FGF Receptor Mutations Involved in Disease"

Undergraduates

Lauren Hall "The Conformational and Functional Role of Proline in Human Fibroblast Growth Factor-1"

Rory Henderson "Determination of Backbone Dynamics of the C2A Domain of Synaptotagmin-1"

Ashley Martfeld "Defining the Interaction between S100A13 and Annexin II Peptide: Insight into Non-classical Secretion"

Daniel Vo "Understanding the Structure and Stability of FGF-1 in a Cellular Environment using NMR Spectroscopy"

Matt McIntosh presented a talk "Studies in Complex Molecule Synthesis," and a poster "Toward a Scalable Asymmetric Synthesis of (4R,5S,6R)-Trihydroxycyclohexen-2-one," at the Gordon Research Conference on Organic Reactions and Processes, July 18-23, at Bryant University in Smithfield, RI.

Derek Sears attended the Lunar Science Forum meeting at NASA Ames Research Center, Moffett Field, Calif., in July.

He also attended the Meteoritical Society's 73rd Annual Meeting in New

York, where two papers with Sears as author were presented — "The Case for Many or Most Unequilibrated Ordinary Chondrites Not Coming from the Same Parent Bodies as Equilibrated Ordinary Chondrites," and "The Fine-Scale Cosmogenic History of the Semarkona Unequilibrated Ordinary Chondrite."

Wes Stites took part in a study panel on Soldier Resilience and Performance Sustainment at the Army Science Board Summer Study meeting July 12-22.

Graduate student **Tim Beng** will present a poster "Highly Enantioselective Synthesis of 2-Substituted Piperidines by Catalytic Dynamic Resolution of *N*-Boc-2-lithiopiperidine," at the Gordon Research Conference on stereochemistry in Rhode Island, August 1-6.

Clean Air Act Now Being Enforced



Smoking on campus is illegal

Violators are subject to a fine between \$100 and \$500. All tobacco use including smokeless tobacco is prohibited

Instructor Awarded for Community Service



Lorraine Brewer

Lorraine Brewer continues to receive accolades for her devotion to community service. This summer she was named Altrusan of the Year by the local chapter of Altrusa International, where she currently serves as vice president.

The American Association of University Women (AAUW) honored her service with a contribution in her name to the International Educational Opportunities fund. The fund has sponsored notable artists, writers and scientists including Madame Curie. Brewer is past president and educational foundation chair of AAUW.

Safety Tip

Accidents often happen when working with the mundane. Proper attire and safety glasses will protect you from these surprises.

Alumni News

New Alumni Plans

Graduate School

Maher Abulibdeh, Ryan Bauer, Latisha Puckett and Elizabeth Srader - Chemistry and Biochemistry, University of Arkansas.

Kaitlin Castleberry will pursue the Masters in Teaching (MAT) program at the university.

Jacob Burns will pursue a master's degree in epidemiology at LMU Munich

Andreas Eiberweiser is in the doctoral program at the University of Regensburg

Brian St. Clair will pursue a doctoral degree in Environmental Sciences at Arizona State University

Medical School

Rodney LaGrone, John Sherrill and Jessica Sutton - UAMS.

Iryna Polyakova will attend the Oklahoma College of Osteopathic Medicine.

Christina Ragland will attend the Texas College of Osteopathic Medicine.

Natalie White will attend the Kansas City University of Medicine and Biosciences.

Andrew Avery and Olena Pickett will attend medical school.

Peter Tran will attend optometry school.

Pharmacy School

Joshua Brown, Geri Burkett, Khanh Do and Katie Hamblin (2011) - UAMS.

Cory Garren and Jaime Nelson will take a year off.

Kellie Ong is engaged to marry and is working in Malaysia.

Courtney Peterson is working in industry.

Alumni Updates

Mike Condren, B.S. '65, has relocated to Tahlequah, Okla., where his wife Jan is the new pastor of the First Presbyterian Church.

Mary Good, M.S. '53, Ph.D. '55, dean of the Donaghey College of Engineering and Information Technology at the UALR, plans to retire in June 2011.

Yun Ho Kim, Ph.D. '03, was here as a lecturer again this summer and was promoted to associate professor the University of Western Alabama.

Hiroko Takeuchi, B.S. '10, was one of 80 students recognized for their leadership roles in campus activities during their time on campus.

She attended the annual Graduating Student Leaders breakfast, presented by the Division of Student Affairs, and received a medallion to wear during commencement.

Takeuchi plans to return to Japan for a year before pursuing graduate school.

Home Notes



Yuki and Jordan Massey Freeman

It has been a summer of milestone events for **Markeeta LeRay**.

She welcomed her first great-grandchild born to granddaughter **Yuki** and her husband **Matt Freeman** May 28. Baby **Jordan Massey Freeman** weighed 5 pounds and 12 ounces and was 19 inches long.

Her first grandson **Aaron Todd Hopwood**, married **Masie Elizabeth Cochran** July 16, at Thorncrown Chapel in Eureka Springs. The bride is the daughter of Vice Provost for Enrollment **Suzanne McCray** and Professor of English **Bob Cochran**.



Keslynn Grace Millett



Mr. and Mrs. Aaron Hopwood

Frank and Eunice Millett welcomed their first grandchild **Keslynn Grace Millett** who was born July 15. **Jason Millett** and his wife **Amy** are the parents of baby Keslynn, who weighed 7 pounds and 4 ounces and was 19.5 inches long.

Jennifer and Jim Sims are also grandparents for the first time with the birth of **Addison Nicole Morris** born May 26. **Andrew and Dana Sims Morris** are the parents of baby Addy, who weighed 7 pounds and 7 ounces and was 19.5 inches long.



Addison Nicole Morris

Calendar of Events

August

- 06..... Last day SSII
 20..... Meet the new graduate students luncheon
 22..... Last date to receive 100% cancellation of fees for an official withdrawal for fall 2010
 23..... First day fall semester
 27..... Last day to register or add a full semester class
 30..... Fall seminar series begins

September

- 03..... last day to drop a full semester class without a "W"
 06..... Labor Day - university closed
 13..... Department seminar
 17..... INBRE conference registration deadline
 20..... Department seminar
 23..... Department picnic
 27..... Department seminar

October

- 01..... Application deadline to graduate at the end of Fall 2010
 04..... Department seminar
 06..... Early Progress grade reports e-mailed for 1000 and 2000 level classes
 11..... Department seminar
 15-16 Arkansas INBRE Research Conference
 18..... Department seminar
 25..... Department seminar
 29..... Last day to drop a full semester class or classes with a mark of "W"

November

- 01..... Department seminar
 01-12 Priority registration for spring 2011
 08..... Department seminar
 12..... Incomplete marks from the previous semester changed to failing
 15..... Department seminar
 22..... Department seminar
 24..... Fall break, no class, university is open
 25-26 Thanksgiving holiday - university closed
 29..... Department seminar

December

- 06..... Department seminar
 07..... Last day of fall classes
 07..... Last day to officially withdraw from all courses
 08..... Dead day, no classes
 08..... Department holiday potluck
 09-15 Final exams
 24-31 Holiday, university closed

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

August Birthdays

- 02.....Frank Millett
 04.....Susan Grisham
 11.....John Hutchison
 14.....Grace Ong
 14.....Charles Wilkins
 17.....Joseph Smeal
 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>

Summer hours (May 17 - August 6)

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

Interim hours (August 7-22)

Saturday-SundayCLOSED
 Monday-Friday8 a.m. to 5 p.m.

Fall hours (August 23 - December 15)

Sunday2 p.m. to 6 p.m.
 Monday-Thursday.....8 a.m. to 9 p.m.
 Friday8 a.m. to 6 p.m.
 SaturdayCLOSED

Exceptions to regular hours

Sunday, Sept. 5CLOSED
 Monday, Sept. 6CLOSED

Meet the New Grads Luncheon

The largest incoming class of graduate students in a decade will arrive on campus the week of Aug.16 to being orientation.

Meet the 19 new graduate students at the annual welcome lunch Friday, Aug. 20 from noon to 1:30 p.m. in CHEM 105 and the administrative area. All are welcome.