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Mole Street Journal, November 2007

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

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The Mole Street Journal

Volume 6, Issue 10

Fry Lecture Series Presents Noted Organic Chemist

Noted organic chemist J. Fraser Stoddart will present "Chemistry and Molecular Nanotechnology for Tomorrow's World," Monday, November 19 as part of the Arthur Fry Lecture Series. Stoddart is the Fred Kavli Chair of NanoSystems Sciences and director of the California NanoSystems Institute at UCLA.

Stoddart is one of the few chemists of the past quarter of a century to have created a new field of organic chemistry – namely, one in which the mechanical bond is a pre-eminent feature of molecular compounds. He has pioneered the development of the use of molecular recognition and self-assembly processes in template-directed protocols for the syntheses of two-state mechanically interlocked compounds (bistable catenanes and rotaxanes) that have been employed as molecular switches and as motor-molecules in the fabrication of nanoelectronic devices and NanoElectroMechanical Systems (NEMS).

He received B.Sc. (1964), Ph.D. (1966) D.Sc. (1980) degrees from Edinburgh University and did postdoctoral work at Sheffield University in England and Queen's University in Canada.

His work has been recognized by numerous awards, including the Carbohydrate Chemistry Award of The Chemical Society (1978), the International Izatt-Christensen Award in Macrocyclic Chemistry (1993), the American Chemical

Society's Cope Scholar Award (1999), the Nagoya Gold Medal in Organic Chemistry (2004), the King Faisal International Prize in Science (2007), the Tetrahedron Prize for Creativity in Organic Chemistry (2007), and the American Chemical Society's Cope Award (2008).

In 2001, he was among 20 research scientists to be invited by the Royal Swedish Academy of Sciences to participate in the Nobel Jubilee Symposium on "Frontiers of Molecular Sciences" in Stockholm.

In 2007, he was appointed by Her Majesty Queen Elizabeth II as a Knight Bachelor in her 2007 New Year's Honours List for his services to chemistry and molecular nanotechnology. He is a Fellow of the Royal Society (1994), the German Academy (Leopoldina) of Natural Sciences (1999), the American Association for the Advancement of Science (2005), and the Science Division of the Royal Netherlands Academy of Arts and Sciences (2006). Currently, he is the editor of the Royal Society of Chemistry Series of Monographs on Supramolecular Chemistry and serves on the international advisory boards of numerous journals, including *Angewandte Chemie* and the *Journal of Organic Chemistry*.

He has been awarded named lectureships at many universities and has given nearly 700 invited lectures worldwide.

The impact of his work is evident



Fraser Stoddart

from his citation statistics. Four of his more than 790 publications have been cited over 500 times, 11 over 300, 54 over 100, and 155 over 50. He has an h-index of 78. For the period from January 1997 to February 28, 2007, he was ranked by the Institute for Scientific Information as the third most cited chemist with a total of 12,840 citations from 293 papers at a frequency of 43.8 citations per paper.

His creativity and imagination has inspired more than 280 students, who have passed through his laboratories during his career.

The Arthur Fry Lecture Series began in 1997 through a donation from alumni Ves and Holly Childs to honor University Professor Emeritus Art Fry's accomplishments in research, teaching and mentoring, and for his many years of unselfish devotion to the department.

Fry joined the department in 1951 and played a major role in the establishment of the doctoral program. He served two terms as chair and in 1984, he became one of the first University Professors at the University. Though he retired in 1991, he continues to be active in the department.

Chemistry Building Renovation Earns Preservation Award

The renovation of the historic Chemistry Building has been awarded an honorable mention for Excellence in Preservation Rehabilitation by the Historic Preservation Alliance of Arkansas. This award will be presented during the 2007 Arkansas Preservation Conference in North Little Rock Nov. 9.

Faculty News

Talk Dedicated to Cordes

Peter Müller, principal research scientist, MIT, dedicated a talk "Are Teaching Gadgets Obsolete in Times of Computer Animation?" to **Wally Cordes** at the 2007 meeting of the American Crystallographic Association (ACA) in Salt Lake City.

Müller referred to Cordes as the "Godfather of crystallographic teaching gadget," and included photos of Cordes with models and text by Cordes in an article published in the fall issue of *ACA Reflexions*.

Cordes, who is a known master in the classroom, was quoted with the following: "Those teaching structure-determination classes should feel the need to make at least one model for each class....there is little excuse not to do it....there is educational value even if the model is grubby...the cruder the model the better it gets the point across...I have had better luck in general chemistry class holding up a 6-foot piece of venetian blind cord to talk about DNA than showing a very intricate video of the molecule."

Although retired, Cordes can still be seen in the department almost daily and is still making models.

Research News

Paul Adam's manuscript, "NMR Assignment of Cdc42(T35A), and Active Switch I mutant of Cdc42," has been accepted for publication in the journal *Biomolecular NMR Assignments*. The co-author is Robert Oswald, Cornell University.

An article "Nano Ceramic Coating Boosts Titanium Implants," regarding **Ryan Tian's** recent research on ceramic coating enhancing the life of titanium implants, appeared in *Design News for Mechanical and Design Engineers*, Oct. 22.

Another article regarding Tian "Nanowire Bioscaffolds Developed for Implants," appeared in the bio materials section of the Web site *Ceramic Tech Today*, by the American Ceramic Society, Oct. 19.

On the Go

Conference on Current Trends in Computational Chemistry (CCTCC) Nov. 2-3, Jackson State University

The following poster presentations were made:

Graduate student **Estelle Huff** presented "Surface Interactions of Graphitic Sheets and Water: A Study of the Hydrophobic Effect."

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

Graduate student **Shuming Zhang** presented "Ionization Constant (pKa) Prediction for Drug-like Molecules."

ACS Regional Meeting, Nov. 7-10, Kansas City

The following poster presentations will be made:

Graduate student **Aaron Beuterbaugh** will present "A Study of the Approaches to Preparing Functionalized Transition Metal Complexed 5-Member Ring Quinone Methide Analogs."

Graduate student **Christian Loeschel** will present "Study of the Synthesis and Chemistry of Transition Metal Complexed 5-Membered Ring Analogs of Ortho-Quinone Methide."

Paul Adams participated as a faculty representative of the Graduate School and the Fulbright College at the annual meeting of SACNAS (Society for the Advancement of Chicanos and Native Americans in Science) in Kansas City Oct. 11-13.

Ingrid Fritsch was invited to participate on a review panel for the National Science Foundation, Molecular Biochemistry Cluster, in Arlington, Va. Oct. 29-31.

She gave an invited talk "Microelectrochemical Detection and Enhanced Sample Preparation for Dust Allergens," at the International Society of Electrochemistry, Banff, Canada, Sept. 9-14.

She gave another invited talk "Rapid Sample Preparation and Optimized Electrode Design for Dust Allergen Assays Integrated with

Microelectrochemical Detection," at the 34th Annual Meeting of the Federation of Analytical Chemistry and Applied Spectroscopies (FACSS), Memphis Oct. 14-18.

Jack Lay presented "Characterization of Bacteria by Whole Cell Maldi Coupled to High Performance Mass Spectrometry" in a session on Microbial Biotechnology at the annual meeting of the South Central Branch of the American Society for Microbiology to Little Rock Nov. 1-3.

Matt McIntosh gave invited research presentations in Taiwan as part of a Scholar Lecture Award of the Taiwan National Science Council, at National Tsing-Hua University in Hsin-chu and at the National Taiwan University in Taipei, Oct. 8-13.

Derek Sears presented "The Sublimation Rate of Solid CO₂ Under Simulated Mars Conditions and Possible Implications," at the American Astronomical Society's Division of Planetary Sciences (DPS) meeting in Orlando in October.

Four other presentations were made for which Sears is an author: "Impact and Thermal Treatment of Clays: Implications for the Surface Properties of Mars;" "Experimental Study of the Effect of Wind on the Stability of Water Ice on Mars;" "An Experimental Study of the Behavior of Ice Under a Basalt Regolith: Implications for the Stability of Water on Mars;" and "Abundant Clinopyroxene on the S Asteroids and Implications for Meteorites and Asteroid History and the Asteroid-meteorite Relationship."

Julie Stenken traveled to Missouri Western State University for recruiting and to present to a Scientific Communication class Oct. 22.

Wes Stites presented "Thrombomodulin is Significantly More Oxidized in Smokers," at the 6th Annual Conference of the International Society for the Prevention of Tobacco Induced Diseases, Nov. 2-4 in Little Rock.

Student News

Staiger Defends



Jay Staiger

Graduate student **Jay Staiger** defended his doctoral dissertation "An Analysis of Cation-pi Interactions in Cytochrome f," Oct. 18. His doctoral advisor is Dan Davis. Staiger will work for Monsanto in St. Louis.

ACS Student Affiliate

President: **Michael Van Ingen**
 Vice President: **Whitney Gammill**
 Secretary: **Heba Naseem**
 Treasurer: **Tyler Rogers**
 Faculty Advisor: **Jack Lay**

The ACS SA will host a presentation "What Can I Do With a Chemistry Degree?" Wednesday, Nov. 15 from 5 p.m. to 6:30 p.m. in CHEM 132. Free food will be served following the lecture. Students of all majors who are interested in a scientific career are welcome to attend.

November Safety Tip

**Keep doors to hallway closed.
 The HVAC in CHBC and CHEM are
 designed to work with the doors to
 the laboratories closed.**

From the Library

by Luti Salisbury

Info Links, The Online Catalog

The latest updates to InfoLinks should help you achieve the status of clean, green, researching machine as we've added functions to save both the planet and your time:

First, use our new Text Message function to send the title, location, and call number of a book to your cell phone. It's much more convenient than carrying a computer with you into the stacks. Note that, depending on your cell phone plan, charges may apply.

Second, you'll now notice that InfoLinks pages "print friendly" without most images, buttons, and extraneous text.

New Books

QD40. A28 2007. *Active Learning: Models from the Analytical Sciences*; Mabrouk P. A., Ed.; Washington, D.C.: American Chemical Society, 2007.

QD281. R35 C53 2007. *The Claisen Rearrangement: Methods and Applications*; Hiersemann M. and Udo Nubbemeyer., Eds. Weinheim: Wiley-VCH, 2007.

QD341. A8 C52 2007. *The Chemistry of Anilines*; Rappoport, Z. Ed., Chichester: Wiley, 2007.

QC762. M63 2007. Rovnyak, D. et. al. *Modern NMR Spectroscopy in Education*. Washington D.C.: American Chemical Society, 2007.

Department to Host 20th REU

The department will host a NSF funded Research Experience for Undergraduates (REU) summer research program for the 20th consecutive year in 2008. The program dates are May 18, 2008 to July 25, 2008. The deadline for applications is March 3, 2008. <http://chemistry.uark.edu/1197.htm>

UA undergraduates are welcome to apply but should consider programs outside Arkansas for a new research experience <http://www.nsf.gov>.

The Arkansas Center for Space and Planetary Sciences also hosts an REU. For more information see <http://spacecenter.uark.edu/97.htm>

Premed Advisor Wins Award

Assistant director of the Liebolt Premedical Program **Jeanne McLachlin** was awarded a 2007 Outstanding Advisor Certificate of Merit by the National Academic Advising Association during its annual meeting in Baltimore in October. She was one of 29 recognized as outstanding advisors.

McLachlin advises the freshman and sophomore pre-med students, including chemistry majors.

Neil Allison, who is the Liebolt Chair of Premedical Sciences and department vice chair, is the premedical advisor for juniors, seniors and post graduates.

Chemistry and Biochemistry Advisors

David Paul, freshman advisor

Denise Greathouse, sophomore advisor

Lorraine Brewer, junior advisor and pre-pharmacy advisor

Dan Davis, senior advisor

QD261 .W54 2007. Williamson, Kenneth L. *Macroscale and Microscale Organic Experiments*. Boston: Houghton Mifflin, c2007.

QC173.3 .H3513 2004. Haken, H. *Molekülphysik und Quantenchemie*. English. *Molecular Physics and Elements of Quantum Chemistry: Introduction To Experiments and Theory*. Berlin: Springer, c2004.

Need help finding information, contact the Chemistry and Biochemistry Librarian, **Luti Salisbury** at lsalisbu@uark.edu, 5-8418. She is also available for individual research consultations and classroom instruction.

Semester Calendar

November

05.....	Department seminar
09.....	CUME
09-10	Fall INBRE conference
12.....	Department seminar
19.....	Fry Lecture, Fraser Stoddart, UCLA
21.....	Fall Break, NO CLASSES, U of A is open
22-23	Thanksgiving Holiday, U of A CLOSED
26.....	Department seminar
30.....	CUME

December

03.....	Fall seminar series concludes
04.....	Last date to officially withdraw from all full semester classes for the fall 2007 and last day of classes
05.....	Department Holiday Potluck
05.....	Dead day, NO CLASSES
05.....	Final copies of master's thesis/doctoral dissertations must be submitted to the Graduate School for December 2007 graduation
06-12	Final exams
24-January 1.....	U of A CLOSED

- Dates above are also on the Web CT calendar <http://WebCT.uark.edu/>
- For more academic dates see <http://www.uark.edu/registrar/classes/calcover.html>
- To see what is going on in the Fulbright College see <http://fulbright.uark.edu>

Fall Seminar Series

November

05.....	William Heineman, University of Cincinnati, "Sensors Based on Spectroelectrochemistry: Strategies for Improved Selectivity"
12.....	Kun-Liang Guan, University of Michigan Medical School, "Regulation and Function of the TSC-mTOR Pathway"
19.....	Fraser Stoddart, UCLA, Fry Lecture, "Chemistry and Molecular Nanotechnology for Tomorrow's World"
26.....	Sarah Trimpin, Indiana University, "Solvent-free Ionization and Separation Methods Combined with Mass Spectrometry for the Characterization of Biological and Synthetic Materials"

Seminars take place most Mondays during the fall semester at 3:30 p.m. in CHEM 144. A reception takes place before each seminar in CHEM 105 at 3 p.m.

See <http://chemistry.uark.edu/1690.htm> for a complete list of seminar speakers

Poster Printing

If you need to print a poster — please be considerate of staff time and arrange a time to print in advance. Poster instructions are listed on the department Web CT site. Please do not wait until the last minute. While every effort is made to print posters — walk-in requests are not guaranteed.

November Birthdays

01.....	Wei Qi
07.....	Bob Gawley
08.....	Kwangyul Moon
08.....	Laurie Winters
09.....	Marilyn Davis
12.....	Ingrid Fritsch
15.....	Nicole Richardson
18.....	Dale Johnson
22.....	Daniel Eddings
23.....	David Paul

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

Fall Hours

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

Closed Saturdays

Exceptions to regular hours in November

Nov. 20-21	8:00 a.m. to 5 p.m.
Nov. 22-25	CLOSED

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

Fall Cume Dates

Cumulative exam dates for graduate students are below. Exams take place in CHEM 144 from 5 p.m. to 6 p.m.

- Nov. 9
- Nov. 30

2007 Arkansas INBRE Research Conference

Nov. 9-10

<http://chemistry.uark.edu/1733.htm>