

**Special points of interest:**

- Passing of Wally Cordes and Jon Baker
- Sakon paper recognized
- Fritsch Collaboration

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## Emeritus Professor Wally Cordes

If it were possible, the periodic tables in the chemistry building would be at half mast this week as a display of sadness for the passing of University Professor Wally Cordes. Professor Cordes started his career at the University of Arkansas in 1959 as an assistant professor. Through his 40 plus years of service he developed a reputation as one of the most outstanding teachers ever that called the U of A his home. University Chemistry II was his course of choice and he dedicated his life to the students in those classes, thousands of them through the years. He made the classes exciting with stunts that past students remember vividly. Sitting in the audience on the first day of class, pretending to be the janitor and discussing the potential attributes of the instructor who was obviously late is a story that is often quoted. His jeep with no top was also a topic of discussion since it was fully equipped with a shower drain in the floorboard and an umbrella in case of rain. He also had a knack for getting at the center of a difficult concept and developing ways that helped the students relate to the concepts. For example, early on in his career he was instrumental in building a giant periodic table with a complex panel of switches that allowed lights to shine behind each element as each was discussed. Not all of the help involved elaborate devices, in fact, most was simply putting the material in a comfortable context and getting the audience to relax. Bags of popcorn passed out during lecture sometimes did the trick. Halloween and Christmas were obvious times to take advantage of the holiday spirit with a chemistry slant.

His enthusiasm for teaching was infectious. Many colleagues learned by his example and ultimately his leadership in this area was recognized through the formation of the Wally Cordes Center for Teaching and Faculty Support, where successful faculty can go to share teaching practices with each other and with struggling new faculty. His skill as a teacher was not restricted to the U of A campus. He was a long-time member of the American Crystallography Association and often brought new and very novel ideas for educating the students in this area to the meetings.

System President Don Bobbitt had a description to which faculty should aspire while he was on this campus. He called these faculty teacher-scholars. They are faculty that are well recognized for their research but can also relate to the undergraduate population in the classroom. Professor Cordes was an outstanding teacher-scholar. His scholarly activities resulted in over 200 publications and a strong leadership role in the Crystallographic Society. He also served as chairman of the chemistry department in the mid 80's.

My personal memories (for those of you familiar with crystallography) go back to the days when I first arrived on campus and was struggling to get some molecular structures determined with the help of Professor Cordes. In those days we did the incomprehensible, we collected each reflection and background manually, one spot at a time and stored the data on magnetic tape. We kept notes on punch cards. Surprisingly, we did publish the structure and several others.

*Written by Professor Bill Durham*

Professor Cordes' online obituary may be viewed at: [http://nelsonberna.com/sitemaker/memsol.cgi?user\\_id=1224712](http://nelsonberna.com/sitemaker/memsol.cgi?user_id=1224712) A memorial service for Dr. Cordes will be held March 14. Time and place to be announced.



## Faculty News

### On the Go

**Ingrid Fritsch** presented a poster “Redox-Magnetohydrodynamic Microfluidics with Conducting Polymer-Modified Electrodes,” at the Gordon Research Conference on Electrochemistry, Ventura, CA, January 5-10, 2014. It was co-authored by **Christena K. Nash**, **Vishal Sahore**, and **Ingrid Fritsch**. She also presented a talk “Electrochemically-Activated, Natural Convection Microfluidics” at the Society of Western Analytical Professors (SWAP) Meeting, Arizona State University, Tempe, AZ, January 9-10, 2014. It was co-authored by **Adam Kreidermacher**, **Vishal Sahore**, and **Ingrid Fritsch**.

**Colin Heyes** gave a talk at Whitman College, Walla Walla, WA on Jan. 24, 2014 entitled “How Coordination Geometry, Lability and Photocatalytic Crosslinking of Ligands Affects the Properties of Aqueous Quantum Dots for Biophysical and Biomedical Imaging Applications. He will also present a talk at Missouri State University Feb. 26 entitled “Interfacial Chemistry in Quantum Dots: Implications for Biophysical and Biomedical Imaging Applications.”

**Charles Wilkins** gave a talk entitled “Matrix-Assisted Ionization in Vacuum for High Performance FT Mass Spectrometry” at the Society for Western Analytical Professors (SWAP) meeting January 10, 2014, Arizona State Univ. in Tempe, AZ.

### Publications

“Stable Salt-water Cluster Structures Reflect the Delicate Competition Between Ion-water and Water-water Interactions,” Cheng-Wen Liu, **Feng Wang**, Lijiang Yang, Xin-Zheng Li, Wei-Jun Zheng, and Yi Qin Gao, *J. Phys. Chem. B*, 118, 743 (2014).

**Sahore, V.; Fritsch, I.** “Flat Flow Profiles Achieved with Microfluidics Generated by Redox-Magnetohydrodynamics (MHD)” *Anal. Chem.*, 2013, 11809-11816. (doi:10.1021/ac402476v).

### Achievements

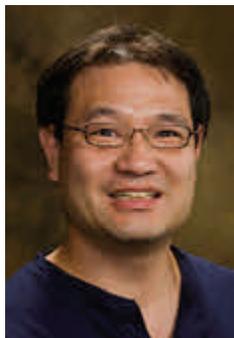
**Ingrid Fritsch** was recognized as an ACS Chemistry Ambassador for promoting the value of chemists and chemistry to the community—2013.

## Sakon Paper Recognized

*Drug Discovery Today*, January 2014, reports that “Treating Osteoporosis by Targeting Parathyroid Hormone to Bone,” by T. Ponnappakkam, R. Katikaneni, **Joshua Sakon**, R. Stratford, and R.C. Gensure, published in August 2013, was selected as one of the three best papers published on treatment of skeletal disorders in *Drug Discovery Journal* in 2013.

DRUG DISCOVERY  
TODAY

*Drug Discovery Today* delivers informed and highly current reviews for the discovery community. The magazine addresses not only the rapid scientific developments in



drug discovery associated technologies, but also the management, commercial and regulatory issues that increasingly play a part in how R&D is planned, structured and executed. Features include comment by international experts, news and analysis of important developments, reviews of key scientific and strategic issues, overviews of recent progress in specific therapeutic areas and conference reports.

## Fritsch Collaboration

**Ingrid Fritsch** is collaborating with Vaden Spurlock, the middle school science teacher at The New School in Fayetteville, AR, and KM Isaac (Prof. in the Dept. of Mechanical Engineering at Missouri Univ. of Science and Technology). Their project is part of a recently received collaborative NSF grant to the groups of Fritsch and Isaac, as part of their “broader impacts” effort. They were able to secure funds that go directly to The New School from the American Chemical Society to financially support their part of the collaboration. This new funding is through the Science Coaches Program of the American Chemical Society.

**Project Title:** Viral Learning in Science (a Middle School and University Collaboration)

**Funding Agency:** ACS Science Coaches Program

**Role:** PI-Vaden Spurlock (The New School), Co-PI-Fritsch

**Run Date:** 01/2014—12/2014

**Total Funds:** \$500

An outreach collaboration between science, math, and language arts teachers at The New School and the Fritsch research group at the U of A and a collaborator (KM Isaac) at Missouri S&T are using Magnetohydrodynamics (MHD), which is a research emphasis of the Fritsch group, as a starting point to stimulate viral learning for middle school students on topics of forces and energy. 7th-grade students are performing self-directed projects in collaboration with teachers and mentors, communicate results with videos using their own vocabulary and perspective, which they have scripted, edited, produced, and post them on the internet for public viewing and commentary. This approach is expected to bridge the gap between university research and middle school education, while simultaneously enhancing STEM education and educator development and increasing public scientific literacy and public engagement with science and technology.

## Research Associate Professor Jon Baker (1956—2014)



The Department of Chemistry and Biochemistry of the University of Arkansas, Fayetteville announces with deep regret the passing of its long-time member, Dr. Jon Baker, former Research Associate Professor, on January 16, 2014, just short of his 58th birthday. Jon was an unselfish friend and an excellent scientist. A native of England, he had a scientific career spanning three continents. He has contributed significantly to several branches of theoretical chemistry, for instance the calculation of ionization energies. However, his main area of expertise was the calculation of molecular geometries and related quantities where he became a worldwide renowned expert and the author of several basic review papers and encyclopedia articles. His ideas and programs were incorporated in a number of leading computational chemistry software products, such as Gaussian, Turbomole, Spartan, DMol, Q-Chem and PQS.

Jon was very fond of chemistry and very knowledgeable about it. In high school, it was his ambition to get compounds of all chemical elements which are not highly radioactive. He almost succeeded but some of the rare earth metals defeated him. He received a B.Sc. degree (with first class honors) at the University of Durham, UK, and a PhD in theoretical chemistry at the University of Sheffield, UK in 1981, under the direction of Professor B. T. Pickup. In his career, he collaborated with many outstanding scientists in the field of theoretical and computational chemistry. He worked in Uppsala, Sweden, as an independent research worker sponsored by NATO (1981-83). He continued his work at the Australian National University where, in the group of Dr. Leo Radom, he developed his Eigenvector Following algorithm for locating transition states (1984-86). This paper (J. Baker, *J. Comp. Chem.* 7 (1986) 385) has been cited almost 1200 times. From 1986-89 he was an independent post-doctoral researcher and Assistant Editor of *Chemical Physics Letters* at Cambridge University, England, working with David Buckingham and developing collaboration with Patrick Fowler and other European researchers. Between 1989 and 1992, he has written much of the computational chemistry part of the SPARTAN molecular modeling code, first at the University of California, Irvine, and then at Wavefunction, Inc. He was a senior scientist with Biosym in San Diego as developing and adapting quantum chemistry codes (Turbomole, DMol and ZINDO) (1992-1995). He was also a visiting scientist at the Paul Scherrer Institute of ETH (Swiss Federal Institute of Technology) in Zürich for part of 1995, working with Dr. B. Delley. In 1996 he joined University of Arkansas where he was soon appointed Research Associate Professor. Although his main focus was research, he also contributed to teaching when the need arose, for instance when John Ewbank had to withdraw from teaching for health reasons. He was always willing to help by teaching classes if a faculty member was not able to hold them, and to give advice on theoretical or computational chemistry.

Jon had about 100 research publications, many of them in leading international journals. In addition to the eigenvector following paper, he has 9 more papers with citation counts of 100 or more, and 30 papers which were cited 30 times or more, resulting in a Hirsch index of 30. His international visibility reinforced the reputation of the Department and the University.

Jon became one of the founding members of Parallel Quantum Solutions, LLC in 1997 and from that time on he split his energy and time between the University and PQS. He had to withdraw from his university position for health reasons in 2006. However, as his health improved, he returned to do research, the last time between September 2011 and March 2012. His untimely departure is a sad loss for the Chemistry Department and the University of Arkansas. We also express our condolences to Jon's family.

### Milestones

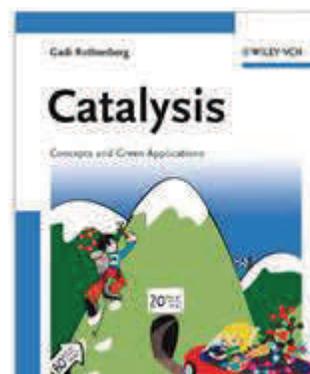
Isaac Jeffrey Rutherford was born to Drs. Mike and Lindsay Rutherford January 23, 2014. He joins big brother Noah. Mike ('10) was an advisee of Xiaogang Peng, and Lindsay ('11) was an advisee of T.K.S. Kumar.

*Mike with Noah and Isaac*

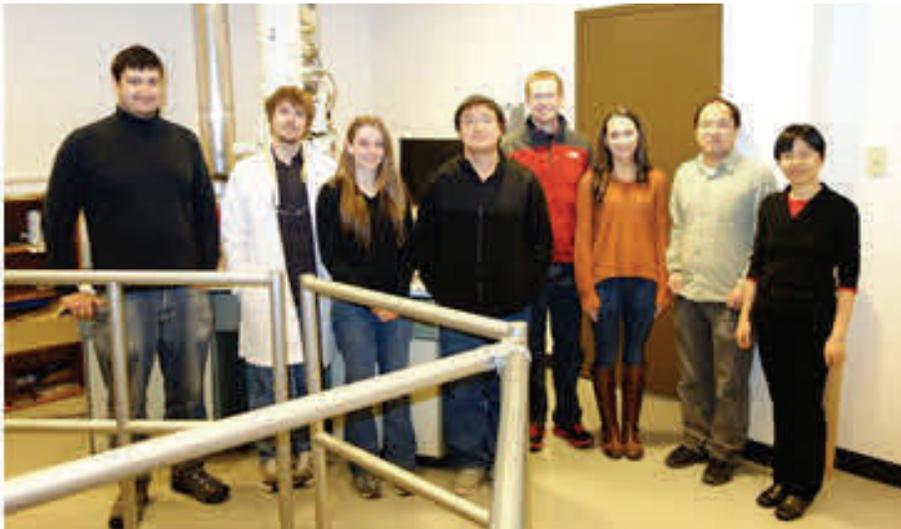


### Student Donates Textbooks

John Winkelman, a first-year micro-EP graduate student in the Tian lab has donated 5 copies of the textbook, *Catalysis* (Wiley-VCH) to Tian's course that he is taking, "Catalysis," CHEM 619v, Spring 2014.



## The Chen Lab



Pictured above are the members of the Chen lab. From left to right they are: Samir Jenkins, Cameron Crane, Leanne Mathurin, Haibin Wu, Taylor Gohman, Emily Miller, Shutang Chen (Alumni), and Dr. Jingyi Chen.

*The department of chemistry and biochemistry at the University of Arkansas strives for excellence in research, teaching and service in chemistry - the central science. We aspire to positions of leadership regarding the discovery of new scientific knowledge, the training of students, and the economic development of the State of Arkansas. We seek to recruit and retain a diverse group of the best faculty, students and staff to address the challenges of the future through interdisciplinary and multidisciplinary research and education.*

## Calendar of Events

### February

- 03 Seminar, Hong Yang, Univ. of IL at Urbana-Champaign
- 10 Seminar, Mukund Sibi, NDSU
- 14 CUME, Chem 201, 5-6 pm
- 24 Seminar, Krzysztof Szalewica, Univ. of Delaware, Newark



### Save the Date!

The 2014 INBRE conference will be held November 7-8 in Fayetteville, AR.

## Library Hours

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

### Fall Semester Hours: August 26—December 19

Monday—Thursday	8 a.m.-9 p.m.
Friday	8 a.m.-6 p.m.
Saturday—Sunday	Closed

The chemistry and biochemistry library resources can be accessed in the following LibGuides: <http://uark.libguides.com/content.php?pid=110953>. Please bookmark for future use. Theses and dissertation resources can be found on the following LibGuide: <http://uark.libguides.com/content.php?pid=123035&sid=1057466>.



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## Safety Tip: by Bill Durham

Secondary containers should be standard practice when carrying hazardous materials through the halls, especially glass gallon containers of acids or solvents. Next time the occasion arises, just imagine what would happen if that bottle broke as you round the hall corner.



Department of Chemistry  
and Biochemistry