

## The Mole Street Journal

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### Nobel Laureate to Give Fry Lecture

**Art Fry** earned worldwide recognition in the 1950s as the “father of heavy atom isotope effects in elucidating the mechanisms of organic reactions,” for his pioneering research in the use of C-13, C-14, N-15, Cl-37, and O-18 to study the mechanisms of ketone rearrangements and numerous other organic reactions. In 1985, he was awarded the American Chemical Society Southwest Region Chemist Award.



Art Fry with 2008 Fry Scholarship recipients Hiroko Takeuchi and Kellie Ong

His accomplishments helped to bring research at the university to a new level. In 1984, Fry became one of the first University Professors. Though he retired in 1991, his legacy continues through student scholarships and awards in his name. He often appears at department events and regularly attends weekly faculty lunches.

UA alumni Ves and Holly Childs approached Wally Cordes, who was chair at the time, about honoring Fry for his research, teaching, mentoring

and his many years of unselfish devotion to the department. Through a generous donation from the Childs, the Arthur Fry Lecture Series was created.

Organic chemist **Robert H. Grubbs**, California Institute of Technology, is the 12<sup>th</sup> speaker in the Arthur Fry Lecture Series. He 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. The joint award was shared with Yves Chauvin, Institut Français du Pétrole, Rueil-Malmaison, France, and Richard R. Schrock Massachusetts Institute of Technology (MIT), for the development of the metathesis method in organic synthesis.

According to the Nobel citation, metathesis can be compared to a dance in which the couples change partners. Metathesis is used daily in the chemical industry, mainly in the development of pharmaceuticals and of advanced plastic materials. Thanks to the Laureates' contributions, synthesis methods have been developed that are more efficient, simpler to use and environmentally friendlier. This represents a great step forward for “green chemistry”, reducing potentially hazardous waste through smarter production. Metathesis is an example of how important basic science has been applied for the benefit of man, society and the environment.

Grubbs is the Victor and Elizabeth Atkins Professor of Chemistry in the division of chemistry and chemical engineering at Cal Tech, where he has been since 1978. He has published extensively and has received numerous honors. A Kentucky native, he obtained his doctorate in chemistry from Columbia University and holds undergraduate and graduate degrees from the University of Florida. He was an NIH Postdoctoral Fellow at Stanford University and was on the faculty at Michigan State University.

The 2009 Fry Lecture “The Synthesis of Large and Small Molecules Using Olefin Metathesis Catalysts,” is at a special time and location Monday, April 13 at 4 p.m. in CHEM 132. A reception will be after the lecture in CHEM 105. The event is open to the public.

### Arthur Fry Lecturers

1997-1998	Ves Childs
1998-1999	Mary L. Good
1999-2000	Tayyaba Hasan
2000-2001	Brian Fry
2001-2002	Dan Singleton
2002-2003	John Wood
2003-2004	T. Don Tilley
2004-2005	Ernest Eliel
2005-2006	Nate Lewis
2006-2007	Eric Anslyn
2007-2008	Fraser Stoddart

### The Nobel Prize in Chemistry

In 1901 the very first Nobel Prize in Chemistry was awarded to Jacobus H. van 't Hoff for his work on rates of reaction, chemical equilibrium, and osmotic pressure. In more recent years, the Chemistry Nobel Laureates have increased our understanding of chemical processes and their molecular basis, and have also contributed to many of the technological advancements we enjoy today.

[http://nobelprize.org/nobel\\_prizes/chemistry/](http://nobelprize.org/nobel_prizes/chemistry/)

## Faculty News

### Research News

The research article "Membrane-activated Structural Switch Mechanism in Signal Recognition Particle Receptor Function," was published in the *Journal of Biological Chemistry*. Authors N. Marty, D. Rajalingam, A. Kight, D. Fologea, T. K. S. Kumar, R. Henry and R. L. Goforth. (2009) *J. Biol. Chem.* (<http://www.jbc.org/cgi/doi/10.1074/jbc.M900775200>)

The Arkansas Statewide Mass Spectrometry Facility has had several peer reviewed publications published this year.

"Comparison of Two ESI MS Based H/D Exchange Methods for Extracting Protein Folding Energies," and "Lipid Compositions in *Escherichia Coli* and *Bacillus Subtilis* During Growth as Determined by MALDI-TOF Mass Spectrometry," were published in the *International Journal of Mass Spectrometry*.

"Conjugated Linoleic Acid-Rich Oil Triacylglycerol Identification" and "Policosanols,  $\alpha$ -tocopherol and Moisture Content as a Function of Timing of Harvest of Switchgrass (*Panicum virgatum* L.)," were published in *Journal of Agricultural and Food Chemistry*.

### On the Go

**60th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (PITTCON)**  
Chicago, March 8-13

**Charles Wilkins** presented "Comparative Analysis of Phospholipid Profiles of *Saccharomyces Cerevisiae* Mutants that Forms a Complex with Met4 Transcription Factor by MALDI FTMS." Graduate student **Sasa Miladinovic** presented "LDI-FTMS Analysis of Polyacetylene Thin Films Deposited on Silicon by Unipolar Discharge Plasma Polymerization."

**Paul Adams** is the invited highlighted speaker for the Biotechnology and Biochemistry Applications Session of the 36th Annual Meeting of the National Organization of Black Chemists and Chemical Engineers, April 14 in St. Louis. He will present "Biophysical, Biochemical, and Bioanalytical Approaches to Characterize Diverse Molecular Details of Ras-Related Proteins."

**Roger Koepp** presented a seminar at the University of Kansas March 31 entitled "Perspectives on Arginine and Proline in Membrane-spanning Peptides."

**Suresh Kumar** presented the following invited talks.

"A Rational Design of Drugs Against Tumors Induced by Fibroblast Growth Factors," to the local ACS section in Pittsburg, Kan., March 12.

"Understanding the Nuts and Bolts of FGF Signaling Mechanism," at the department of chemistry and biochemistry, Pittsburg State University, March 13.

"Application of Multidimensional NMR Spectroscopy in Biology," at a structural biology workshop at UAMS, March 24-25.

**Joshua Sakon**, postdoc **Leena Philominathan** and undergraduate **Ryan Bauer** spent spring break collecting single crystal high-resolution diffraction data and small angle X-ray scattering data in solution at the Advanced Photon Source at Argonne National Laboratory in Chicago.

**Derek Sears** was the co-author of three presentations made at the Lunar and Planetary Science conference in League City, Texas March 10-14.

## Department Nominated

The department has been nominated for the Secretary of Defense Employer Support Freedom Award for the exceptional leadership, support and personal devotion to the National Guard and Reserve.

The Freedom Award is the U.S. Government's highest recognition given to American employers of the National Guard or Reserve members for their exceptional support above the requirements of federal law.

## Family Addition



River Rains

**Denise Greathouse** is the grandmother of her 5th grandchild. River Dean Rains was born March 6 to Greathouse's daughter Melissa and her husband Roger Rains. Baby River weighed 7 pounds and 14 ounces and was 21 inches long.

## April Safety Tip

**Gloves should only be worn when handling hazardous or sensitive materials — then REMOVED**

## Student News

### Kumar Students Win Presentation Awards

Several students in the Kumar lab received awards for their research presentations.



Koteshwara Anathamurthy

Graduate student **Koteshwara Anathamurthy** won the award for best poster "Understanding the System that Feeds the World: My Tryst with Protein and NMR," at the The Second Annual Graduate Student Research Symposium & Career Networking Event sponsored by the Career Development Center and the Graduate School Feb. 20.

Undergraduate **Natalie White** won the best research presentation award at the 29th Annual Undergraduate Research Conference at the University of Memphis Feb. 28. She presented "Overexpression and Biophysical Characterization of Human Interleukin 1."

Undergraduate biology major **Amen Ismail** presented "Understanding the Effectiveness of Synthetic Crowding Agents in Simulating the Intercellular Environment."



Natalie White



Amen Ismail

## REU Alumna Presents

Former 2008 REU student **Ivey Fitzgerald**, Agnes Scott College, presented a poster of her REU research "Designing Fibroblast Growth Factor with Higher Binding Affinity," at the 53rd National Biophysical Society meeting in Boston. She was a finalist in the poster competition awards. Fitzgerald, who researched in the Kumar lab, shared the Tony Jude Award for her research during the summer program.

For more REU alumni news see <http://chemistry.uark.edu/2463>.

### Graduate Students Pass Cumes

Congratulations to graduate students **Beth Emerson**, **Steve Gann** and **Nick Gleason** who passed the appropriate number of cumulative exams to be doctoral candidates. Emerson is in the Durham lab, Gann is in the Paul lab and Gleason is the Koeppe lab.



Beth Emerson

### Conference Presentations

Graduate student **Randy Espinal** will present a poster "Comparison of Heparin-Immobilized vs. Antibody-Immobilized Microspheres for the Capture and Detection of Cytokines during Microdialysis Sampling," at the IEEE/NIH 2009 Life Science Systems and Applications Workshop (LiSSA 2009) at NIH in Maryland April 9-10.

Graduate student **Nicole Richardson** presented a poster "Mutagenesis of Cytochrome f Y160 and R156: Effects on Redox Properties," at the 70th annual meeting of the Association of Southeastern Biologists in Birmingham, Ala., April 1. Richardson is in the Davis lab.



Steve Gann

The following are titles presented at the American Chemical Society meeting in Salt Lake City in March.

From the McIntosh lab  
**David Clay** "Toward the Total Synthesis of Antascomycin B via an Ireland Claisen (ICR) and Allylic Diazene (ADR) Rearrangement Sequence."

**Silvana Dormi** "Towards the Synthesis of Sclerophytin A."  
**Juliette Rivero** "Toward the Total Synthesis of Antascomycin B. Obtention of the C10-C16 Fragment via [3+3]-Sigmatropic and Allylic Diazene (ADR) Rearrangement Sequence."

**Maha Shrestha** "New Applications of Allylic Diazene Rearrangement (ADR)."

From the Durham lab

**Tamil Marutharaj** "Synthesis of Dinuclear Ruthenium (II) Diphen Complex of HAT and TAP."



Nick Gleason

## Calendar of Events

### April

- 03..... CUME  
 06..... Department seminar - Squire Booker, Penn State Univ.  
 13..... Fry Lecture - Nobel Laureate 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  
 24..... Analytical seminar - Jamie Hestekin, University of Arkansas  
 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 spring courses

### May

- 01..... Dead Day, no classes  
 01..... Final copies of master's thesis doctoral dissertations must be submitted to the Graduate School for students graduating in May  
 02-08 ..... Finals  
 09..... Commencement  
 18..... Meet the REU students reception  
 18..... Classes begin for summer session one  
 19..... Last day to register for for summer session one  
 21..... Last day to drop a session one course without a "W"  
 25..... Memorial Day holiday, university closed

### June

- 15..... Last day to drop a session one course with a "W"  
 26..... Last day of session one classes  
 26..... Last day to officially withdraw from all session one courses  
 29..... Classes begin for summer session two  
 30..... Last day to drop a session two course without a "W"

### July

- 03..... Independence Day holiday, university closed  
 23..... REU research presentations  
 27..... Last day to drop a session two course with a "W"

### August

- 07..... Last day of session two courses  
 07..... Last day to officially withdraw from all session two courses.  
 19-28 ..... Open registration for fall 2009  
 24..... Fall classes begin  
 28..... Last day to register for a full semester course

## April Birthdays

- 02..... Timothy Beng  
 05..... Janice Chapman  
 21..... Feng Chen  
 24..... Silvana Dormi  
 29..... Jeremy Durchman

*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-Thursday.....8 a.m. to 9 p.m.  
 Friday .....8 a.m. to 6 p.m.  
 Saturday .....CLOSED  
 Sunday .....2 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

April 3, April 17

## Honors Night

Undergraduate honor students will make poster presentations of their research at Honors Night from 4 p.m. to 5:30 p.m. Thursday, April 23 at the UARK Ballroom on Dickson Street.

Approximately 40 posters will be on display. The poster session is open to the public.