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## **Mole Street Journal, March 2010**

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

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# THE MOLE STREET JOURNAL

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

MARCH 2010

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## Student to Attend Meeting of Nobel Laureates

Doctoral candidate **Abigail Hubbard** has been accepted as a young researcher for the 60th Interdisciplinary Meeting of Nobel Laureates at Lindau, Germany, June 27 to July 2, 2010. Hubbard was chosen in the top 500 of 20,000 young researchers who applied.

Originally from New Philadelphia, Ohio, she was a participant in the department's REU program in 2005, where she received the Tony Jude award for best research.

Hubbard has an undergraduate degree in chemistry from Kent State University and is pursuing her doctoral degree under the direction of Bob Gawley. She began her graduate studies here in 2007.

She spent the summer 2009 in New Zealand participating in the East Asia and Pacific Summer Institute on an NSF fellowship.

The Meetings of Nobel Laureates in Chemistry, Physiology or Medicine and in Physics have been held since 1951

and provide a globally recognized forum for the exchange of knowledge between Nobel Laureates and young researchers. Participants come from a variety of

national and scientific backgrounds.

The Lindau Meetings in natural sciences take place annually. For more information see: <http://www.lindau-nobel.de/>



Abby Hubbard poses with the scenery in summer 2009

## Pulay Named to Academy



Peter Pulay

Distinguished Professor **Peter Pulay** has been honored once again for his research contributions, this time being named to the European Academy of Arts and Humanities.

He is known the world over for his work in molecular quantum mechanics. Pulay is also a Fellow of the AAAS and has received numerous awards including the Schrödinger Medal of WATOC (World Association of Theoretically Oriented Chemists) and Alexander Von Humboldt Senior Scientist Award.

In fall 2004, a symposium took place in his honor. His work was cited in the official background material released by the Royal Swedish Academy of Sciences in connection with the 1998 Nobel prize in chemistry.

## Department Sets SURF Record

A record number of university undergraduates earned state Student Undergraduate Research Fellowships (SURF) for the 2009-10 academic year.

A total of 108 students from various disciplines were awarded funds for research projects. The awards more than doubled the 51 SURF grants received by the university in 2008-2009.

Nearly 25 percent of the 51 grants awarded to Fulbright College students were in chemistry and biochemistry. The 11 funded this year sets a department record. Since 1995, there have been 76 department SURF awards.

See list inside.

## Faculty News

### On the Go

**50th Sanibel Symposium** St. Simons Island, Georgia, February 24-March 2

**Peter Pulay** gave a plenary talk "Laplace Transform Calculation of the Perturbational Triples (T) Contributions"

**Tomasz Janowski** presented a poster "Laplace Transformed MP4 and CCSD Perturbative Triples Contribution. Cost Saving Application of Pseudonatural Orbitals to Reduce the Size of the Virtual Space"

**PITTCON** Orlando, Feb. 28-March 5

**Charles Wilkins** will organize a session on Ion Mobility MS for Polymer Analysis, selected by organizers as one of 10 symposia at the conference to be Webcast to attendees after the conference.

Wilkins will also give a talk "Ion Mobility-MS of Polymers Validated with Fourier Transform MS"

Undergraduate **Joshua Brown** will present a poster "Development of a Double-Isotope Uplc-MS/MS Method for the Determination of Plasma Citrulline Concentration"

REU '09 student **Cynthia J. Kaeser** will present a poster "Fragmentation of Multiply-Charged Polymers Using ESI-FTMS"

Graduate students **Matthias Knust** and **Sasa Miladinovic** will attend.

**American Chemical Society (ACS) 239th National Meeting** San Francisco, March 21-25

Faculty **Neil Allison** and **Matt McIntosh** will attend.

Researcher presentations

**John Hutchison** "Studies Toward the C22-C34 Fragment of Antascomicin B"

**Hang Qi** "Electron Transfer in a Bandgap and Composition Engineered CdS/ZnS/ZnSe core/shell/shell Nanocrystal: Synthesis and Characterization"

Graduate student oral presentations  
**Aaron Beuterbaugh** "Benzannulated 5-Member Quinone Methide Analogs Derived from the Unique Reactivity of Dihalocyclopropanes"

**Silvana Dormi** "Toward the Synthesis of Sclerophytin A"

**Christian Loeschel** "Elimination of  $\alpha$ -halosilanes: A Mild Approach to Benzylic Carbenes"

Graduate student poster presentations  
**Sefat Al-Warsh** "Toward Solutions to the Problem of Controlling E-O-enolate Geometry of Lactate Ester"

**Tim Beng** "Catalytic Dynamic Resolution of N-Boc-2-lithiopiperidine"

**David Clay** "Toward the Asymmetric Synthesis of The C17-C34 Fragment of Antascomicin B Via An Ireland Claisen (ICR) and Allylic Diazene (ADR) Rearrangement Sequence"

**Juliette Rivero Castro** "Toward the Total Synthesis of Antascomicin B Via Amino Claisen and Allylic Diazene Rearrangement Sequence"

**Abigail Hubbard** "Synthesis and Application of a Novel Chiral NHC Catalyst"

**Zheng Li** "Elucidation and Advancement of the Cds Nanocrystal Formation Process"

**Grace Ong** "Investigating the Surface Ligand Dynamics of Colloidal Semiconductor Nanocrystals"

**Michael Rutherford** "Determination of the Dopant Ion Location In Doped Semiconductor Nanocrystals Resulting from a Lattice Self-Purification Process"

**Maha Shrestha** "New Applications of the Allylic Diazene Rearrangement"  
Undergraduate presentations

**Stefan Ruider** "Novel  $S_N2'$  Reactions in Terpenoid Synthesis"  
REU '09 student **Robynetta**

**Hargrave** "Characterization of Cdc42 and its Mutant Cdc(T35A)"

REU '09 student **Melanie Pund** "Fast-Scan Cyclic Voltammetry And Redox Cycling For The Detection Of Serotonin"

Graduate students **Kolawole Ayinuola** and **Barry Sharp** and undergraduate **Danile Rackl** will attend.

## Safety Tip

Be careful with the little spills. Chronic poisoning typically does not show any immediate symptoms.

## From the Library by Luti Salisbury

We have acquired several new books. Check them out online in InfoLinks (Online catalog), (<http://library.uark.edu/search/i>), click on **Number Searches**, then **LC Call No.**, type in qd, then click on **Submit**, click on **Limit/Sort**, year after 2007 and **where material is located**: chemistry library.

You may also check the new books list published each month at <http://library.uark.edu/ftlists>

As usual you can drop in the library for help or send me an e-mail at [lsalisbu@uark.edu](mailto:lsalisbu@uark.edu) to schedule an appointment.

### Instruction Sessions for March 2010

Register and/or view all 1-hour sessions at <http://libinfo.uark.edu/reference/instruction.asp>

- Want to receive articles on your topic in your e-mail through ISI Current Contents, plan to attend one of the following sessions to learn how to do this:  
Tues, Mar 2, 9:30 a.m.    Tues, Mar 2, 4 p.m.    Thurs, Mar 4, 4 p.m.
- EndNote Web - Learn how to create your own database of references and use them to write while you cite when writing your theses/dissertations or papers. Knowing how to do this will save you valuable time.  
Tues, Mar 2, 11 a.m.    Thurs, Mar 4, 1 p.m.    Tues, Mar 16, 1 p.m.  
Wed, Mar 17, 5 p.m.    Thurs, Mar 25, 10:30 a.m.    Thurs, Mar 25, 1 p.m.
- Learn how to find peer-reviewers, understand faculty/department productivity, or do a comprehensive literature search based on one paper.  
Wed, Mar 3, 1:30 p.m.    Fri, Mar 5, 10:30 a.m.

## Student News

### Grad Students Pass Cumes

The following students have passed the appropriate number of cumulative exams and have been admitted to candidacy — **David Clay, Sasirekha Murugananthan and Samrat Thapa.**

Clay is from Fayetteville and entered the graduate program in 2007. He has an undergraduate degree from Hendrix College. His doctoral advisor is **Matt McIntosh.**



David Clay

Murugananthan is from Coimbatore, Tamilnadu, India and entered the graduate program in 2008. She has a B.Sc. and M.Sc. in chemistry from Bharathiar University. Her doctoral advisor is **Julie Stenken.**

Thapa is from Kathmandu, Nepal and entered the graduate program in 2007. He has an undergraduate degree from Lyon College. His doctoral advisor is **Wes Stites.**



Sasi Murugananthan



Samrat Thapa

### Undergraduate Presents

**Omar Salem**, an undergraduate in the Adams's lab, presented a poster "Characterization of a Switch I Mutant of the Ras Protein Cdc42," at the 30th Annual Undergraduate Research Conference hosted by the University of Memphis, department of chemistry, in Memphis, Saturday, Feb. 27.

### SURF Awards

- **Ryan Bauer**, mentor **Joshua Sakon** - "Linker Peptide Isomerization Linked to Divalent Cation Affinity Mechanism in the Collagen Binding Domain from Collagenase Produced by the ColH Gene of *Lostridiumhistolyticum*"
- **Geri Burkett**, mentor **Denise Greathouse** - "Investigation of the Anti-Angiogenic Properties of Lactoferricin Peptides"
- **Emily Erstine**, mentor **Anna Daily** - "The Monomerization of S100A13, a Dimeric, Calcium-Binding Protein Involved in the Non-Classical Export of Fibroblast Growth Factor 1"
- **Amir Francis**, mentor **Denise Greathouse** - "Synthesis and Characterization of Antimicrobial Retro-Lactoferricin Peptides"
- **Lauren Hall**, mentor **T.K.S. Kumar** - "The Conformational and Functional Role of Proline in Human Fibroblast Growth Factor-1"
- **Hannah Henson**, mentor **Anna Daily** - "Investigation of W121 on the Conformation and Functional Properties of the Human Acidic Fibroblast Growth Factor-1"
- **Amen Ismail**, mentor **T.K.S. Kumar** - "Effects of Molecular Crowding Agents on Structure of Fibroblast Growth Factor"
- **Sigrid Johannesen**, mentor **Paul Adams** - "Synthesis of 15 Amino Acid GTPase-binding Region of Tuberous Sclerosis 2 to Study its Interaction with the Ras GTPase Rheb"
- **Omar Salem**, mentor **Paul Adams** - "Characterization of a Switch I Mutant of the Ras Protein Cdc42"
- **Jessica Sutton**, mentor **Neil Allison** - "A Study of the Synthesis and Chemistry of a Transitional Metal Complexed Quinone"
- **David Williams**, mentor **Matt McIntosh** - "Synthesis of C27-C34 Fragment of Antascomycin B"

### Fall Dean's and Chancellor's List

The following undergraduate chemistry majors made the fall 2009 dean's and chancellor's list for a 4.0 GPA.

Adams, Shaun D.  
Ali, Heather K.  
Avery, Andrew Hunter  
Boswell, Ryan S.  
Broja, Thomas Paul  
Brown, Joshua David  
Brown, Natalie A.  
Burnside, Timothy  
Cagle, Courtney Anna  
Dehbozorgi, Arshan  
Dunn, Samuel Hunter  
Francis, Amir V.  
Hall, Lauren A.  
Harmon, Ross A.  
Haydar, Ali A.  
Henson, Hannah Marie

Hockman, Lukas Graham  
Hoover, Emily A.  
Inboden, William C.  
Johannesen, Sigrid Leigh  
Knewton, Kelsey E.  
LaGrone Jr, Rodney Lloyd  
Langston, Rebekah  
Lee, David  
Martfeld, Ashley Nichole  
McMahon, Matthew Wayne  
Meredith, Grant Whitfield  
Moore, Rhys Clinton  
Morris, Marie T.  
Mumma, Shannon  
Ong, Kellie Li-Li  
Peterson, Kyle W.

Pianalto, Kaila Michelle  
Pickhardt, Mark William  
Price, Andrew Beckam  
Pyland, Derek B.  
Rackl, Daniel  
Ragland, Christina Elizabeth  
Ramey, Leah K  
Rastelli, Ettore J.  
Robertson, Kara S.  
Roeser, Jeffrey R.  
Rosenberg, Ashley Gabrielle  
Ruider, Stefan Alexander  
Salem, Omar M.  
Sharum, Matthew A.  
Shinabery, Ryan S.  
Smith, Colby E.

Sparks, Kelsey Ann  
Srader, Elizabeth Suzanne  
Stanton, William Chase  
Sutton, Jessica Dawn  
Tchakhalian, Daniil  
Tobey, Galen W.  
Tran, Julie Ngoc  
Tran, Peter  
Vo, Daniel T.  
Welston, Kirby N.  
Williams, Caitlin Rachel  
Winford, Sidney Gene  
Zehtaban, Jahon Thomas

\* Certain students have been omitted from this list because of FERPA regulations

## Calendar of Events

### March

- 01..... Last day for graduate students to submit a research proposal  
 01..... Department seminar - Blake Peterson  
 01..... Faculty ARU's are due to Leslie Johnson  
 05..... CUME  
 08..... Department seminar - John Gladysz  
 11..... Special organic seminar - Ryan Looper  
 15..... Department seminar - Iain Coldham  
 19..... Last day to drop a full semester course with a "W"  
 22-26 ..... Spring Break  
 29..... Department seminar - N. Rama Krishna

### April

- 02..... Special analytical seminar - Michael Johnson  
 05..... Department seminar - John P. Wolfe  
 05-16 ..... Priority registration for summer and fall courses  
 09..... CUME  
 12..... Department seminar - Jerry Ware  
 15..... Last day for graduate students to defend research proposal  
 15..... Special organic lecture - John Starrett  
 18..... Physics Maurer Lecture  
 19..... Department seminar - W. Carl Lineberger  
 22..... Honors Night - UARK Ballroom  
 23..... CUME  
 26..... Fry Lecture - Dieter Seebach  
 29..... Last day of classes  
 29..... Last day to officially withdraw from all courses  
 30..... Dead Day, no classes

### May

- 01-07 ..... Final exams  
 08..... Commencement  
 17..... First day summer I  
 31..... Memorial Day holiday, university closed

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

## Spring Break

There will be no classes during spring break March 22-26. Administrative offices will be open Monday to Thursday but the University of Arkansas will be CLOSED Friday, March 26.

## Maurer Distinguished Lecture

Biophysicist Steven M. Block, Stanford University, will present "Facing the Growing Threat of Bioterrorism," as the 2010 Robert D. Maurer Distinguished Lecturer 7:30 p.m. Thursday, March 18 in Giffels Auditorium. Sponsored by the department of physics.

## March Birthdays

- 09..... Colin Heyes  
 10..... Art Fry  
 18..... Lois Geren  
 21..... Teresa Waddell  
 24..... Matt McIntosh  
 25..... Adam Kriedermacher  
 25..... Mike Rutherford  
 30..... Chris Clanton  
 31..... Juliette Rivero Castro  
 31..... Sasa Miladinovic

*The publishing of birthdays is not intended to invade the privacy of anyone. If you prefer not to be included, please let us know.*

## Spring CUMES

The cumulative exams for graduate students will be the following Fridays from 5 p.m. to 6 p.m. in CHEM 144.

March 5      April 9      April 23

## Library Hours

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

### Spring hours

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

### Exceptions to regular hours

March 21 .....CLOSED  
 March 22-25.....8 a.m. to 5 p.m.  
 March 26-28.....CLOSED  
 May 09 .....CLOSED

## Home Notes

A photo exhibit by **Denise Greathouse** will be display at Arsaga's on Gregg Street through March 6. Photos were taken in Northwest Arkansas and Northern New Mexico.

### Brandon Suttles and Nicole

**Vanderbush** will perform a concert "Sing, Sing, Sing" March 14 at Central United Methodist Church at 2:30 p.m. in the sanctuary. The event is free to the public but there will be a love offering taken to benefit Tommy Van Zandt and Josh Vanderbush (Nicole's brother).