

# Department of Chemistry and Physics Newsletter

Summer 2014

## Chair's Corner

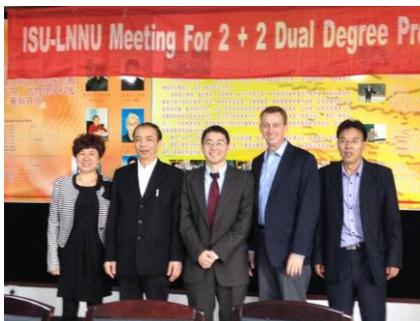
Greetings again from the Department of Chemistry and Physics. We have just completed a very productive year, teaching larger numbers of students than we have in the past 20 years, hiring two new members of the chemistry faculty, renovating additional chemistry and physics laboratories, and sending 13 students to present their research at national ACS and APS meetings.

In addition, the Department is nearing completion of a dual degree program in physics with Liaoning Normal University (LNU) in Dalian, China. This agreement may bring up to two students from China to ISU each year to study physics. Guoping Zhang and I traveled to LNU in May to promote this program (see the photo on the right). Like ISU, LNU has a tradition of preparing students for teaching. Unlike at ISU, the physics program at LNU is sizeable, at least eight times larger than ISU's if measured by faculty and student populations, and even larger if measured in terms of funding and infrastructure. We learned, while at LNU and at five other institutions during the trip, that the Chinese Ministry of Education and National Science Foundation have committed significant resources for the past decade for physics research and training. We heard repeatedly that the Chinese government seeks to support physics at a level that will eventually be recognized by Nobel Prizes. While China acts to grow physics, we are increasingly concerned in the U.S. with the number of physics programs that are being discontinued. Our

physics program is, fortunately, well supported by the ISU administration.

Our attention is now turning to the upcoming academic year. We look forward to welcoming a new freshman class, engaging students again in the classroom and teaching and research laboratories, and ensuring that students successfully complete their degree programs. Thank you for your continuing support of our programs, and we would welcome your visit to the Department if you have not done so recently.

Keep in touch. —Eric Glendening



*Top Photo:* Eric Glendening and Guo Ping Zhang traveled to Liaoning Normal University in China to discuss a 2+2 dual degree program in physics.

*Bottom Photo:* Chemistry students at National ACS Meeting in Dallas.

## Highlights from the 2013-2014 Academic Year

- Eight labs, as well as the space housing the Chemistry and Physics Help Center, are currently under renovation. Included are a 100-level chemistry lab, a 100-level physics lab, the biochemistry lab, and several research labs. Renovations are expected to be complete when classes begin in August.
- Chemistry professor Steve Wolf was promoted to Full Professor this spring.
- John Moody joined the Department last fall as an Instructor for 100-level chemistry (see page 2 for his profile).
- ISU alumnus Robert Compton (class of '12) taught General Chemistry labs this past year to help cover increased enrollments in all 100-level courses.
- Adrienne Gilbert has been hired as an Instructor and will join the chemistry faculty this fall.
- Physics major Greg Gallagher won an Undergraduate Research Presentation Award for his presentation at the National American Physical Society meeting in March (see page 3 for details).
- In the fall the Department will offer a new Preparatory Chemistry course, CHEM 101, intended for students with little-to-no chemistry background who need to take General Chemistry. It is hoped that this will increase student success in General Chemistry.

## Alumni Notes...

**April Manning (Chemistry minor, '07)** is a Supply Chain Senior Specialist with Eli Lilly in Clinton, IN. After receiving her bachelor's degree at ISU she completed an MBA in earth literacy at St. Mary of the Woods College. Last May she published a children's book, *Neighborwood – Earth Literacy for Kids*, with Trafford Publishing. More information can be found at <https://www.facebook.com/Neighborwood>.

**Vince DiNoto (Physics BS, '77; Physics MA, '79)** recently became the Director and PI of the NSF-Advanced Technological Education (ATE) National GeoTech Center of Excellence, located at Jefferson Community and Technical College in Louisville, KY. He is also the co-PI of the National Supply Chain Center and a mentor for both MentorLinks and Mentor-Connect, which are NSF-funded projects.

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## Recent Publications by the Faculty

Members of the Department published in the following chemistry and physics journals over the past year:

*American Journal of Physics* (J. West);  
*Analytical Chemistry* (R. Noll);  
*Applied Sciences* (G. Zhang);  
*Journal of Computational Chemistry* (E. Glendening);  
*Journal of Physics: Condensed Matter* (G. Zhang);  
*Journal of Physics B: Atomic, Molecular and Optical Physics* (G. Zhang);  
*Physical Review A* (G. Zhang);  
*Physical Review B* (G. Zhang);  
*Scientific Reports* (G. Zhang);  
*Vaccine* (R. Fitch).

Papers in the areas of chemical and science education were published in the following journals:

*Journal of Chemical Education* (E. Glendening);  
*Journal of Science and Mathematics Education* (E. Seung);  
*Research in Science Education* (E. Seung).

## Chemistry Faculty Profile: John Moody

John Moody was a Lecturer in the Department of Chemistry and Physics at ISU for the 2013-14 academic year, during which he taught CHEM 100 and 105 lectures as well as CHEM 100 lab sections.

John received his B.S. in Chemistry from Juniata College and his Master's degree from the University of Delaware. After teaching for a semester at Bloomsburg University and for a year while in graduate school at the University of Louisville, John left Louisville to accept a position as Laboratory Coordinator in the Department of Chemistry at Valdosta State University in Georgia.

John's initial duties as laboratory coordinator included teaching labs and ensuring that all lab sections were properly set up. During his eleven-year tenure in this position, the number of lab sections in introductory and general chemistry increased approximately five-fold, resulting in an increased emphasis on managing the stockroom and setting up the labs. At that point, John decided that he wanted to spend more of his time teaching, so he left Valdosta State to pursue a Ph.D. at the University of Georgia.

John's research at the University of Georgia involved the implementation of problem-based learning. In these studies students were asked to use material from several different areas in order to solve a problem. John subsequently worked on a second project which ultimately became the basis for his thesis, titled "Identifying Difficult Topics and Problematic Subtopics Using Item Response Theory (IRT) Analysis of Mastery Mode Homework Questions in a National Online Web-Based Learning (OWL) Database." He defended his thesis in July 2013, and two weeks later was offered the Lecturer position at ISU.

Based on his excellent performance as a Lecturer at ISU during the

past academic year, John was offered a three-year Instructor position in the Department. He is teaching CHEM 106 over the summer and is looking forward to teaching CHEM 100 and 106 lectures and labs in the fall.

John's current research interests include the use of laboratory experiments as a way to dispel students' misconceptions in chemistry, and the analysis of student performance on homework in order to identify topics which tend to be difficult for them.

In his free time John enjoys exercising at the ISU recreation center. He also likes to travel, especially to eastern Virginia to visit his seven-year old niece and to central Pennsylvania where his parents reside.



**John Moody**

## Sixteen Students Receive Chemistry or Physics Degrees this Academic Year

One student majoring in physics, Jason Bonacum, received his degree this May, and a total of fifteen students received chemistry degrees in December or May: Paige Adejare, Tyler Cunningham, Caitlyn East, Caleb Gilman, Benjamin Hancock, Sydney Holmberg, Andrew Jacobs, Aric King, Suji Lee, Lucy Moser, Ty Rosenbalm, Jessica Stanfield, Emery Steele, Matthew Whitaker, and Nicholas Wells. All the graduates and their families were honored at a departmental reception prior to commencement on May 3<sup>rd</sup>. Congratulations all!

## Students Present their Research Projects

### **Local & Regional Meetings**

Chemistry and physics majors presented posters or gave oral presentations at the following meetings during the past year.

- Rose Hulman Interdisciplinary Research Collaborative, Rose Hulman Institute of Technology, Terre Haute, IN, Oct. 25, 2013 (2 students);
- National Conferences on Undergraduate Research Conference, University of Kentucky, Lexington, KY, Apr. 3-5, 2014 (1 student);
- Indiana State University Expositum (ISU's annual celebration of student research), Apr. 7, 2014 (8 students);
- Butler Undergraduate Research Conference, Butler University, Indianapolis, IN, Apr. 11, 2014 (2 students).

### **National APS Meeting**

Three physics majors presented work done with Prof. Zhang and Prof. West at the American Physical Society Meeting in Denver, Mar. 3-7, 2014. Greg Gallagher won an Undergraduate Research Presentation Award for his talk titled "How they (should have) built the pyramids" which summarized his work with Prof. West and another physics student (Kevin Waters, class of '13) conducted during the 2012 and 2013 SURE programs.

### **National ACS Meeting**

Ten chemistry students presented posters at the 247<sup>th</sup> National American Chemical Society Meeting in Dallas, Mar. 16-20, 2014. See photo on page 1.



**Caitlyn East**

**Recipient of President's Medal**

## 2014 Outstanding Chemistry and Physics Graduates Recognized

**Benjamin Hancock** graduated with honors with a chemistry major and environmental science minor. He is the son of Stan and Janis Hancock and brother to Cory Hancock. In 2010, Ben graduated from Indian Creek High School in Trafalgar, Indiana. He has been actively involved in the Chemistry program at Indiana State as an undergraduate researcher and supplemental instructor. Ben has presented his research at the American Chemical Society's National Meetings in San Diego, California (2012) and Dallas, Texas (2014). During the spring of 2013, he studied abroad with Semester at Sea. While at Indiana State, Ben received the Top Student in General Chemistry Award, the Top Student in Organic Chemistry Award, the Stanley Scholarship, the P.D. Wilkinson Award, and the Hines Medal. Ben will be attending Indiana University School of Medicine in the fall on a four-year scholarship where he will pursue his interest in rural and international medicine.

**Jason Bonacum** graduated with honors with a physics major and a chemistry minor. He is the son of Michael and Marisa Bonacum. He graduated in 2010 with academic honors from Floyd Central High School in Floyds Knobs, Indiana. At Indiana State, Jason received several awards recognizing his academic achievements. These have included: Best Student in Modern Physics Award, Stanley Scholarship, John McCarthy Outstanding Physics Junior Award, Gary Erwin Memorial Award, and Outstanding Teaching Assistant Award. He is a member of Sigma Pi Sigma, Alpha Lambda Delta, and the National Society of Collegiate Scholars. He also performed research in the Summer Undergraduate Research Experience (SURE) program at ISU for the past three summers and presented his research results at the American Physics Society March meetings in 2013 and 2014. Jason plans to pursue a Ph.D. in physics and a career in computational physics research.

## Senior Chemistry Major Receives President's Medal for Community Service

**Caitlyn East** of Huntingburg, IN, received the President's Medal for Leadership, Scholarship and Service at ISU. The award goes to a junior or senior who excels in community service. Caitlyn graduated in May with a bachelor's degree in chemistry. During her four years at Indiana State she was heavily involved in numerous organizations. Serving in a number of leadership roles for her sorority, Delta Gamma, she went on to serve as vice president of standards in the Panhellenic Association. She holds membership in the Order of Omega leadership and Alpha Lambda Delta honors society. She was also active in the Student Government Association and Rhoads Hall LEAF (Leadership, Engagement, Activities, Fun) Committee.

Her involvement with the American Chemical Society student chapter, Mathematics and Mentoring for Girls, and Go Figure! at the Terre Haute Children's Museum have helped her gain experience in her field, as have tutoring at the Chemistry Help Center, working as a supplemental instructor for chemistry courses, assisting in laboratory teaching, and working as a stockroom assistant. Caitlyn received a number of awards and scholarships while at ISU, including the Rural Health Scholarship, the Department's Stanley Scholarship, and a Summer Undergraduate Research Experience (SURE) fellowship. Following commencement, she intends to attend graduate school for college student affairs.

## Faculty Briefs...

### Chemistry:

**Robert Compton**, who completed his chemistry degree at ISU in December 2012, taught general chemistry labs for the Department this academic year. He is hoping to attend chemistry graduate school next fall. **Rick Fitch** worked with eight students in the SURE program last summer on four projects: phantasmidine synthesis, frog alkaloids, lizard secretions, and fluorescent ligands for nicotine receptors. **Bill Flurkey** spent time this spring moving equipment out of the biochemistry lab in anticipation of the renovations taking place this summer. He is looking forward to moving into the updated lab at the end of the summer. **Eric Glendening** toured Austria, Slovakia, and Hungary by bicycle in July. **Richard Guanawardane** is spending the summer in his native country, Sri Lanka. **Jennifer Inlow** had a great time teaching biochemistry lab (Chem 431L) for the first time last fall. She is excited about teaching the course in the newly renovated lab next fall. She had some "down time" this summer due to minor foot surgery. **Amila Jeewandara** is spending time over the summer developing the new Preparatory Chemistry course, CHEM 101, which the Department will offer for the first time next fall. **Rich Kjonaas** had his largest organic class ever this year—130 in Organic I and 115 in Organic II. He will retire after one more academic year. **John Moody** completed his first year of teaching at ISU and also taught CHEM 106 this summer. He is looking forward to teaching CHEM 100 and 106 again in the fall. **Rob Noll** is working with three students this summer on two projects: calculations and simulations of ion motion in ion mobility spectrometers, and characterization of the response of a small gas chromatograph to judge its suitability for field studies. This summer **Larry Rosenhein** is continuing his on-going research involving metal-isocyanides. **Eulsun Seung** is searching for a one-year full-time instructor to teach

in the Center for Science Education next year. As usual, she and the students in her Elementary Methods course conducted the Summer Science Camp for local elementary students. **Steve Wolf** was promoted to Full Professor this spring. He continues his research in cosmochemistry and is currently working with his students to develop improved chemical and physical methods for the analysis of trace element distributions in primitive meteorites.

### Physics:

**Valentina French** taught PHYS 105 this summer. **Joe West** is spending time this summer making changes to his PHYS 101 materials, especially the lab exercises and class projects. He is also working with a colleague from Rose-Hulman on a paper and in the laboratory doing Raman scattering and Kerr rotation. **Guo-ping Zhang** travelled to China this summer to work out details concerning a 2+2 dual-degree program in physics between ISU and Liaoning Normal University.

executive director of Central States Universities Inc. **Marlowe Owen** recently returned from a cruise with family and friends to Mexico, Belize, and Honduras. She also finally fulfilled a lifetime ambition by going on a zip line! **D. J. Reuland** is living in Terre Haute. **Alan Siegel** is finally taking a summer off! For the first time since he retired, he has decided NOT to "come out of retirement" to teach summer sections of organic chemistry. **John Swez** has been active in Amateur Radio. **Pat Tatum** is living in Terre Haute and is traveling as much as ever. **W. A. Trinler** and his wife are living in the Seelyville area. He reports that he does some mowing and some fishing, and he often sits on the deck relaxing and watching the birds. **James Westgard** is living in Wisconsin. **Mary Whitlock**, retired administrative assistant in chemistry, passed away this spring.

## Staff Briefs...

**Patti Archer** travelled to Florida in July where she spent time with 20 members of her extended family. They all stayed together in a large rented house for about a week. **Mitzi Nichols** is pleased that her son, Matthew, has just completed his Master's degree in architecture at Ball State University and has taken a job with CSO Architects in Indianapolis. **Michelle Baltz-Knorr** has been actively involved with the physics lab renovations. She met with architects to help with layout and design for the three labs as well as the Chemistry & Physics Help Center. After clearing out these rooms and watching the renovations progress, she is now looking forward to teaching in the remodeled spaces this fall. In April **Erik Ingebrigtsen** and his wife participated in the "Mutt Strut," a Humane Society fund-raiser held at the Indianapolis Motor Speedway. They circled the track with a German shepherd that belongs to a friend.

## Retired Faculty Briefs...

**Myong Ahn** is living in Michigan. **Torsten Alvager** is living in Terre Haute and spends a lot of time on the ISU campus. **Adron Barbee** is also living in Terre Haute. **Walt Carnahan** is serving as the Program Chair and webmaster for the Sierra Foothills Audubon Society: ([www.sierrafoothillsaudubon.com](http://www.sierrafoothillsaudubon.com)). He enjoys photographing birds in his free time. **Phil Di Lavore** reports that after 21 years of retirement the aches and pains are increasing, but he still has good mobility and still spends too much time on the computer, and too little time on woodworking projects. **Arthur Halpern** and his wife Janice have moved to the Washington DC area. He is still serving as associate editor of the *Journal of Chemical Education*. **Uwe Hansen** is serving as the editor of the *Proceedings of the Indiana Academy of Science* and as

## Summer Undergraduate Research Experience (SURE) Program in its Ninth Year

The 2014 Summer Undergraduate Research Experience, or SURE Program, began in May and finished in late July. The ongoing program, which is now in its 9<sup>th</sup> year, provides ISU students an opportunity to participate in an intensive research experience under the direct supervision of a faculty advisor for 10 weeks during the summer months. Participating students receive SURE Fellowships and spend their time principally in the laboratory, though considerable time is also devoted to reading and searching the scientific literature, as well as discussing their progress with their peers and faculty in a series of weekly group meetings.

This summer 34 students worked under the mentorship of 12 faculty mentors from ISU and the IU School of Medicine. Sixteen of these students (listed in the table at the right) worked with five faculty members in the Department of Chemistry and Physics. Congratulations to all these students for being selected to participate in the program!

A record number of students, 40, participated in last summer's 2013 SURE Program. Twenty of these students worked with faculty members in chemistry or physics. Of these 20 students, 13 presented their work at the National American Chemical Society Meeting or American Physical Society Meeting last spring (see page 3). The 2013 SURE participants and faculty mentors are pictured below.

2014 SURE Fellow	Research Advisor
Anna Walls	Rick Fitch
CaSondra Linne	Rick Fitch
Alexander Penry	Rick Fitch
Allyson Morris	Rick Fitch
Hunter Lavoine	Rick Fitch
Tulsi Vaid	Eric Glendening
Allison Schoenberg	Rob Noll
Mopelola Akinlaja	Rob Noll
Jeff Latka	Steve Wolf
Arnan Rahmatullah	Steve Wolf
Cody Leasor	Steve Wolf
Christopher Rogers	Guoping Zhang
Nicole Hostetter	Guoping Zhang
Kyle Drake	Guoping Zhang
Tanner Latta	Guoping Zhang
Myriam Houston	Guoping Zhang

**Pictured below are student and faculty participants in the 2013 SURE Program.** First row (L-R): Yahzmine Rodriguez, Jakoby Sherrell, Tionna Harris, Mopelola Akinlaja, Soutcho Toure, Dianne Reeves, Ellery Steele, Jordan Gillenwater, Katherine Milsho, Melanie Johnson, Suji Lee, Amber Lockett, Roya Ball, Hanyang Zhou, Matthew Hall. Second row (L-R): Courtney Morris, Sarah Ford, Veronica Rodriguez, Anna Walls, Emily Dransfield, Daniel Burkett, Bobby Webb, Kristina Kobb, Austin Thomas, Kit Murphy, Bill Flurkey, Kris Rodgers, Jarad Foster, Rob Noll, Cory Portwood, Ben Hancock, Kevin Hardin, Hunter Lavoine, Jason Bonacum, Seth Lutjemeyer, Kyle Drake, Nathan Meyers, Jen Latimer, Jeffery Stone. Third Row (L-R): James Speer, Steven Farrar, Joe West, Kenneth Cleghorn, Hallie Harbison, Cait East, Tyler Cunningham, Josh Stolz, Guoping Zhang, Stephen Wolf, Rusty Gonser, Rick Fitch, Mitzi Nichols. Not pictured: Greg Gallager, Ali Salman, Jeff Kinne, Steven Templeton, Caroline Savage.



Indiana State University  
Dept. of Chemistry & Physics  
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## ISU Department of Chemistry and Physics Newsletter

### **We want to hear from you!**

Please send us your updates for inclusion in the "Alumni Notes" section of the newsletter. Send an email to Jennifer Inlow (jennifer.inlow@indstate.edu) or complete the form on the insert and mail it to the Department.

### **Check out the alumni link on the Department of Chemistry and Physics website.**

The Department of Chemistry and Physics website provides information for current and prospective students as well as a link to alumni contact information.

[http://www.indstate.edu/chem\\_phys](http://www.indstate.edu/chem_phys)

### **Questions or comments?**

Contact  
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812-237-2239.