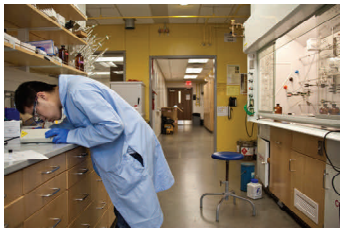
CHEMICAL Compositions

chemistry & biochemistry departmental newsletter

Fall 2011 The University of Texas at Austin

Contents



Connect with the department!

Click images below to follow us on Facebook, Twitter and Linkedin

Alumni - send us your updates and news:

chemalum@mail.cm.utexas.edu

Make a Gift

Letter from the Chairman

Prof. Brent Iverson
chemchair@cm.utexas.edu

Like the rest of the country, the past twelve months have been a roller coaster of ups and downs for the Department of Chemistry and Biochemistry. The last academic year started on a tragic note with the sudden passing of Dr. Paul Barbara. Paul's powerful voice for scientific innovation and change cannot be replaced, but his legacy lives on in the many successful programs he created and his lasting inspiration to all who knew him.

Our physical presence has been greatly improved as several department faculty now occupy the brand new Norman Hackerman building across the street from Welch Hall, on the site of the old Experimental Sciences Building (ESB). Showpiece undergraduate organic teaching labs are part of the package, and much needed renovations to part of the '29 wing of Welch Hall, including updated upper division lab classrooms, are also nearing completion. The net result is a dramatic improvement in both the extent and quality of department research and teaching space, setting the stage for the anticipated hiring of several junior and senior level faculty as well as curriculum enhancement. Later this year, the building housing the Center for Nanomaterials will be officially named after Larry Faulkner, in fitting recognition of the many contributions from the former University president and department alumnus.

On the hiring front, we are proud to announce that an exciting new voice has been added with the signing of Dr. Guangbin Dong from Caltech at the assistant professor level. Guangbin, a synthetic organic chemist, is the first department recipient of a $2 million CPRIT (Cancer Prevention and Research Institute of Texas) recruiting grant from the state of Texas, an achievement recently covered in the Austin Business Journal. *Continued on page 4*

Focus on Giving

Larry R. Faulkner Departmental Chair for Excellence in Chemistry and Biochemistry

In honor of past chemistry professor and University president, Larry R. Faulkner, the Faulkner Chair provides the department chair with unrestricted funds to strengthen the quality of the department's faculty, student and research programs and contribute to its international stature.

Paul F. Barbara Endowment for Student Excellence in Nanoscience

This endowment strives to honor the memory and achievements of Professor Paul Barbara. Awarded to Ph.D. students enrolled in the Graduate Portfolio Program in Nanoscience and Nanotechnology, the endowment will assist students with expenses associated with transitioning from graduate school to a postdoctoral position.

Continued on page 4

Faculty News

Peter Rossky Elected to the National Academy of Sciences

Prof. Peter Rossky

The department is extremely proud of Professor Peter Rossky's election to the National Academy of Sciences (NAS). The NAS is the country's most prestigious scientific organization, and election to membership in the academy is one of the highest honors that can be accorded a scientist or engineer in the United States.

Rossky is one of 71 members chosen this year in recognition of his distinguished and continuing achievements in original scientific research.

Rossky will be inducted into the academy April 2012 during the organization's 149th annual meeting in Washington, D.C. His election brings the number of current faculty at The University of Texas at Austin elected to the NAS to 16.

"Election to the National Academy is a great achievement, and I'd like to congratulate Dr. Rossky for receiving this honor," said University President William Powers Jr. "He joins a stellar list of world-class faculty who are members of the national academies."

Rossky's research seeks to discover the fundamental molecular-level origins of chemical behavior in condensed phases, such as water's influence on biological assembly, the mechanism of energy migration in polymers, and the factors controlling reaction rates in solution.

The National Academy of Sciences is a private, nonprofit honorific society of distinguished scholars engaged in scientific and engineering research, dedicated to the furthering of science and technology and to their use for the general welfare.

Guangbin Dong Welcomed to Department

This summer, Dr. Guangbin Dong joined the Department as an Assistant Professor.

Dong received his BS in chemistry from Peking University in Beijing in 2003 and his Ph.D. in chemistry at Stanford University under the supervision of Barry Trost. He went on the hold a Camille & Henry Dreyfus Postdoctoral Fellowship at the California Institute of Technology in the lab of Nobel Laureate, Robert Grubbs.

We congratulate Guangbin on being named a Cancer Prevention and Research Institute of Texas Scholar in Cancer Research, which includes a $2 million recruitment award. CPRIT recruits investigators with the ability to make outstanding contributions to the field of cancer research.

The Norman Hackerman Building is the new home of the Anslyn, Bielawski, Dong, Sessler and Siegel Groups.

More Faculty Highlights...

- **Dean Appling** named Associate Dean for Facilities; **David Laude** named Interim Dean
- Welcome to new lecturer, **Gail Grabner**
- **Lauren Webb** received the Iota Sigma Pi Agnes Fay Morgan Research Award
- **Christopher Bielawski** selected to participate in the 2012-2013 Defense Science Study Group
- **Dmitrii Makarov** receives Moncrief Grand Challenge Faculty Award
- **John Stanton** and **Brent Iverson** awarded Regents' Outstanding Teaching Award
- **Brent Iverson** featured in *Alcalde* as one of the top 10 best professors at UT Austin
- In memoriam: **Jim Brown** (joined UT in 1966 and retired in 1992) passed away May 7, 2011

Student News

Women in Chemistry Win Service Award

The student organization Women in Chemistry (WIC) won the 2011 College of Natural Sciences Service Award Service Award in recognition of its outstanding community outreach and efforts to understand and improve our department's graduate students' experiences.

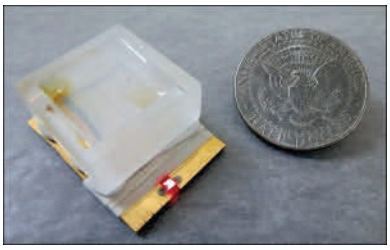
WIC engages with middle-school aged students through a variety of fun chemistry-related events that spark and fuel kids' interest in science. From "Explosive Foods" at Explore UT to "potions" lessons at a local Harry Potter themed camp, WIC inspires the next generation of chemists.

This year, collaborating with the Psychology department, WIC held a survey of Chemistry and Biochemistry graduate students. WIC gathered data on issues such as student happiness, future career plans, and possible discrimination based on gender or race. Presented at the annual faculty retreat, the survey results generated discussion on issues raised and ways to improve the department. WIC hopes a recently administered survey and future surveys will strengthen their data and provide evidence to influence improvement of the graduate student experience.

WIC is led by co-presidents and graduate students Katie Walker and Stephanie Taylor.

Pancreatitis Sensor Small, Inexpensive and Convenient

Graduate student in the lab of Professor Richard Crooks, Brian Zaccheo developed an acute pancreatitis sensor using Reynold's Wrap, JELL-O and milk. This thrifty and simple-to-use device could improve diagnoses in situations or locations where resources are sparse.



In step one, a bit of blood extract is dropped onto a layer of gelatin and milk protein. If there are high levels of trypsin, an enzyme that is overabundant in the blood of patients with acute pancreatitis, the trypsin will break down the gelatin in much the same way it breaks down proteins in the stomach. In step two, a drop of sodium hydroxide (lye) is added. If the trypsin levels were high enough to break down that first barrier, the sodium hydroxide can trickle down to the second barrier, a strip of Reynold's wrap, and go to work dissolving it. The foil corrodes, and with both barriers now permeable, a circuit is able to form between a magnesium anode and an iron salt at the cathode. Enough current is generated to light up a red LED. If the LED lights up within an hour, acute pancreatitis is diagnosed.

Graduation

Congratulations to the Class of 2011! The department had a record-breaking 189 spring graduates. This year's department commencement ceremony, held on May 20th, featured an inspiring speech by alumnus Dr. Michael Collins, CEO and president of CEM Corporation. We look forward to hearing about the progress of our new alumni.

Stellar Student Spotlight: Emily Keller

Background and Interests: I grew up in Friendswood, Texas. I'm a junior majoring in Chemistry. I enjoy cooking for friends and listening to live music.

Describe your research project: I am a member of Dr. Stevenson's FRI lab, Nanomaterials for Chemical Catalysis. In our lab, we study dendrimer-encapsulated metal nanoparticles and their catalytic abilities. My project involves the catalytic evaluation and comparison of the mono- and bi-metallic series of metal nanoparticles. Metal particles consisting of ~55 atoms are synthesized in a polymer support structure and then their functionality as catalysts is examined via a hydrogenation reaction of p-nitrophenol. The goal of my project is to determine the best metal or combination of metals for a catalyst that could later be applied to larger areas of focus for nanomaterials such as fuel cells or medicinal applications.

Plans for the future: I plan to continue with my education and research in a Ph.D. program and hopefully move on to another research position.

Thoughts about the department, UT and Austin: When I first came to UT, I was worried about being at such a large campus and community but I've come to greatly enjoy the people and the many opportunities presented within such a large university.

THE UNIVERSITY OF TEXAS AT AUSTIN
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

1 University Station A5300
Austin, Texas 78712

Phone: 512-471-3949
Fax: 512-471-6835
Website: www.cm.utexas.edu

Focus on Giving, *Continued from page 1*

Chemistry and Biochemistry Undergraduate Scholarship

This scholarship provides funds for research supplies, text books and other academic tools to high achieving undergraduates who are research-active.

To support the Larry R. Faulkner Departmental Chair for Excellence in Chemistry and Biochemistry, the Paul F. Barbara Endowment for Student Excellence in Nanoscience, or the Undergraduate Scholarship Fund, follow any of the above links or click the "Give" button on the front page. You may also visit the College of Natural Sciences for more giving opportunities.

Thank you for support and interest.

Letter from the Chairman

Continued from page 1

Speaking of awards, several faculty won national research awards including Dr. Peter Rossky, who earlier this year became a member of the prestigious National Academy of Sciences.

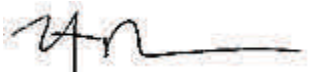
Without a doubt, this year's budget cuts have been painful. But from my perspective, there is tremendous reason for optimism, even in this uncertain economic climate. The entire department - faculty, lecturers, and staff - have responded by pulling together and doing much more with less.

As enrollment in our classes and number of department majors has continued to increase, there is a contagious "can do" attitude at all levels. We are the most efficient department (by far) in terms of teaching delivered per dollar received from the College, yet our lecturers and faculty continue to win a disproportionate number of teaching awards, including two more statewide UT Board of Regents Outstanding teacher awards to go with the four we received last year (light years ahead of ANY other department in the state). We have taken the financial crunch as an opportunity to rethink our approach to undergraduate and graduate education with a renewed focus on what is most important. The emerging vision will realize programs with greater emphasis on fundamental concepts in the context of the most recent chemistry and biochemistry breakthroughs, all the while teaching better critical thinking and communication skills. The innovative use of technology to enhance (not replace) classroom instruction is being developed in house at an accelerating pace.

Less support from the state also means that the department is necessarily more dependent on other revenue sources, including donations from alumni. The need has never been greater for financial support from those wanting to make a real and catalytic difference for the next generation of undergraduate and graduate science students. Assistance can also come in the form of helpful advice.

You can contact me by email or even surprise us with a campus visit. Either way, please come join us! Your generous support allows us to reshape the Department of Chemistry and Biochemistry.

Sincerely,



Brent L. Iverson