August 2006

CHEMIGRAM

Brigham Young University

Message From the Chair

Paul B. Farnsworth

Academic life has its own rhythm defined by semesters, terms, and breaks. As I write, we are in the middle of our summer term, the most peaceful time on campus. It is a good time to reflect on the past year's accomplishments and to look forward to the challenges of an approaching academic year. This has been a good year for the department. As you will see from reports in this newsletter, our faculty are being recognized both inside and outside the university for the quality of their scholarly work. In 2005 our faculty received a record $3.88 million in external funding. We had the largest graduate student class in our department's history. Our student evaluations were at an all time high.

With our successes we have ongoing challenges. In last year's message I asked for your help in recruiting qualified graduate students to our program. We still need your help. We are particularly interested in attracting good students for whom the combination of an outstanding graduate education with BYU's church sponsorship is appealing. I have emphasized recruiting of graduate students because that has been where our needs have been the most pressing, but we also want to attract the best undergraduates to our programs. One of the goals I stated when I became chair was "to build a world-class educational program for our undergraduate majors, incorporating excellent classroom instruction and meaningful research experiences." Talented, motivated students, are a necessary ingredient in reaching that goal. We tend at BYU to take our outstanding undergraduates for granted. I ask for your help in communicating to talented high school science students that we want them here. I am convinced that our combination of committed faculty, quality classroom experiences, and research opportunities are second to none. As you talk to high school students considering a choice of university, encourage them to call or visit the department. I will welcome the opportunity to introduce them to our department.

Please consider attending our alumni gathering this fall. The evening presents you with an opportunity to renew acquaintances with your favorite professors from when you were a student here and also to meet the new faculty. This year will be our sixth homecoming gathering. The event has grown every year, and we hope to continue that trend in October. A registration form for the evening is included in this newsletter. I hope to see you there.

Best wishes,
Paul B. Farnsworth
Chair

A Newsletter for Brigham Young University Chemistry Alumni
Department of Chemistry and Biochemistry, C100 BNSN, Provo, Utah, 84604 Visit our Website at
http://www.chem.byu.edu

NEW FACULTY

Dr. Jaron Hansen is a new analytical/physical chemistry faculty member who arrived at BYU this year having previously come from the California Institute of Technology/Jet Propulsion Laboratory in Pasadena, CA. Dr. Hansen researches the gas phase kinetics and spectroscopy of molecules with atmospheric implications. Of special interest is the kinetics and spectroscopy of weakly bound radical-molecule complexes. The HO2 radical is an important species in atmospheric oxidation processes. HO2 has been shown to form weakly bound complexes with NH3, CH3OH and H2O. When complexed with ammonia, methanol or water, HO2 has been shown to have enhanced reactivity compared to uncomplexed HO2. Dr. Hansen's group uses a variety of experimental and computational techniques to probe the kinetics and spectroscopy of radical-molecule complexes such as the HO2-H2O complex, these include: UV time-resolved spectroscopy and wavelength modulated diode laser spectroscopy as well as quantum chemistry computational packages like Gaussian and ACESII.

Dr. Hansen and his wife are the parents of four children: Kaity (9), Becca (7), Jace (4) and Carson (1.5). They recently finished building a house in Springville and have enjoyed hauling tons (literally) of rocks from their yard in preparation for a lawn. Dr. Hansen enjoys hiking, camping, fishing, skiing, biking and boating in the local Wasatch Mountain range.

Professor Daniel Austin is one of the newest faculty members in Chemistry, joining us this fall from Sandia National Laboratories. Falling somewhere between analytical and physical chemistry, his research involves using mass spectrometry to study the chemical and physical processes taking place in hypervelocity micro-particle impacts. He is currently designing a new type of electrodynamic microparticle accelerator that will greatly expand the range and velocity of particles that can be accelerated. High-velocity microparticles are useful for simulating various processes in space, for studying reaction mechanisms of energetic materials, for biodetection, as a possible route to controlled thermonuclear fusion, and many other applications. He is also involved in developing mass spectrometers for astrobiology and planetary science, and microfabrication of ion trap mass analyzers.

Dr. Austin enjoys racquetball, woodworking, gardening, and playing various musical instruments, including his collection of Native American flutes. He and his wife, Lisa, are the parents of five future scientists.

RETIREMENTS

John F. Cannon began his long and productive association with BYU when he transferred here from Harvey Mudd College in 1965. John completed his Bachelor's degree at BYU and then stayed on for a Ph.D. under the direction of H. Tracy Hall. He did post-doctoral work at Georgetown University, and then returned to BYU in a research position, first as Associate Director of the High Pressure Data Center, and then as Associate Director of the BYU Center for High Pressure Research.

John joined the faculty in the Chemistry Department in 1978. In 1983, he assumed responsibility for the introductory chemistry labs, and was appointed as a teaching professor in 1991. John's contributions to the department have been wide-ranging. He shaped the Chemistry 107 labs as they exist today, and was a pioneer in having students enter experimental data on the department network. He has consistently challenged students in Chemistry 105 and Chemistry 106 courses. Students who have risen to the challenges offered in his courses have emerged with an excellent foundation in introductory chemistry.

John returned in part to his research roots in 2001 when he assumed responsibility for the department's x-ray diffraction facility. He has enjoyed the opportunity to mix his teaching responsibilities with some laboratory work, and has relished the chance to break in the new diffractometer acquired in 2004.

John has been an exemplary friend and colleague. We wish him well as he enters this new phase of his life.

Marvin C. J. Kuchar was born in Silverton, Colorado. His father was a miner and both of his parents were of Polish/German/Czech decent. Marv's family eventually moved to Safford, Arizona although he lived for a short time on the San Carlos Apache Indian reservation. As a result of this background he claims to have learned a "salad" of languages (German, Polish, Spanish, Apache, and some English). He married Unie Cathcart who was raised in Efrida, Arizona. They have 6 children.

Marv started his undergraduate work at Eastern Arizona Junior College, then finished his degree at BYU and stayed on at BYU for a Ph.D., which he received in 1963. He took an industrial position at DuPont where he worked on polymers, dyes, and drugs for 16 years. He came back to BYU in 1979 and served as the chair of the Textiles Department for 16 years.

Marv started teaching organic chemistry for the chemistry department around 1990. He functioned on a shared FTE between the textile and chemistry departments for several years, then in 1997 he became a full-time chemistry faculty member. Jim Thorne (a former physical chemist in the department) recognized Marv's expertise in dye chemistry and asked him to join in on a research project dealing with photodynamic therapy. Together they mentored several undergraduate students. Marv also worked regularly with a group of BYU scientists excavating in Egypt. His expertise in textiles and dyes once again was put to use. Many friends and colleagues have been privileged to hear his presentation on the clothing and dyes used in Egyptian antiquity.

The organic class that Marv taught most often, was Chem 152. This class is a pre-requisite for the nursing program. Marv's students enjoyed his class. The most common student response was "Dr. Kuchar is a wonderful, kind teacher. He tells great stories!" Marv was able to bring his experience from industry and world travels into the classroom with enthusiasm and conviction. He was a dedicated teacher. His door was open and the students found him very approachable. In retrospect, one can only think of Marv as an upbeat, positive force for good. The department in general, and the 4th floor in particular, will miss having Marvin C. J. Kuchar in our midst.

Noel L Owen came to BYU in 1987, bringing with him expertise in spectroscopy, an affinity for students and colleagues and a spontaneous sense of humor. Noel's research includes probing the structures of organic molecules with multidimensional NMR, searching for naturally occurring medicinal compounds, and examining the chemistry of wood surfaces. He travels extensively. He collaborates with scientists from every continent except Antarctica. He has published nearly 120 scientific papers during his career.

Noel is dedicated to his discipline and his students. His students express their appreciation of his clarity and rapport in the classroom. He has taught Book of Mormon, physical chemistry, and freshman chemistry classes. He directed nearly 100

student undergraduates, six M.S. and one Ph.D. student in his lab.

Noel served the department in a variety of assignments including six years as associate chair. He was a member of the college and the BYU Rank and Status Committees. He also chaired both the University Forum Committee and the advisory Board of BYU Studies. He was honored with a John A. Widstoe Fellow award in 2000-2002 and presented a BYU Devotional in 1990. Noel has made significant contributions to his discipline, to his students and to BYU.

Gerald D. Watt came to BYU in 1990 after seventeen years at the Kettering Laboratory in Yellow Springs, Ohio and two years at the University of Colorado in Boulder. While he was doing research on biological nitrogen fixation at the Kettering Laboratory, he also taught courses in environmental chemistry, biochemistry, physical chemistry, metalloproteins, and physical biochemistry at Antioch College and Wright State University. At BYU, he taught bioinorganic and physical chemistry courses for biology and biochemistry majors. Because of his interests in physical, inorganic, and biochemistry, Gary has made a unique contribution to the development of interdisciplinary research and courses in the department. He was instrumental in the development of the physical chemistry course for biochemistry majors.

The biochemistry of iron, molybdenum and tungsten and properties of cluster compounds of these metals have been explored in more than one hundred publications by Gary and his students and co-workers. This research has been recognized by several invited lectures at international conferences. Gary's research has significantly increased understanding of the mechanisms of biological nitrogen fixation and of iron storage and release by ferritin proteins.

Faculty•Awards

Juliana Boerio-Goates received the Karl G. Maeser Distinguished Faculty Lecturer Award. This award, BYU's most prestigious faculty award, is given to recognize demonstrated clear superiority in both scholarship and teaching. Dr. Boerio-Goates has established a justified reputation as an exemplary university citizen, excellent teacher, and dynamic scholar since her arrival at BYU in 1982. With course assignments ranging from Physical Sciences 100 to graduate chemical thermo-

dynamics, she approaches every class with rigor, dedication, and sensitivity to the needs and educational level of the students. Her work in chemical thermodynamics is internationally recognized. Through careful experimental measurement of thermodynamic properties, she has made significant contributions to chemical, environmental, energy, biological, and materials sciences and has established a laboratory numbered among only a few in the world where such measurements can be made. She has authored or coauthored two advanced textbooks and more than 70 peer-reviewed publications. In addition to her accomplishments in teaching and scholarship, Dr. Boerio-Goates has served BYU as associate dean of General and Honors Education, as associate director of the Center for the Improvement of Teacher Education and Schooling, and as director of the Center for Chemical Thermodynamics. She is, in every sense, a distinguished faculty member.

Paul B. Farnsworth was selected to receive the Society for Applied Spectroscopy's 2006 Lester W. Strock Award. This award is given in recognition of outstanding work in analytical spectroscopy that best exemplifies the work of Dr. Lester W. Strock. Dr. Farnsworth was nominated to receive the award because of his accomplishments in understanding the complex fundamental processes that control ICP-OES and ICP-MS signals and the implications of his findings on practical measurements. The award will be formally presented at the 2006 Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) meeting in Kissimmee, Florida on September 26.

Morris J. Robins was recognized with the Wesley P. Lloyd Award for distinction in graduate education. This award is given to honor a faculty member of exemplary performance in teaching, research/creative work, and citizenship in graduate education.

He came to BYU in 1988 and has been the J. Rex Goates Professor of Chemistry and Biochemistry for the past 16 years. He has had a consistently strong voice for high standards, and nowhere more clearly than in scholarship and graduate education. Over his career he has guided the work of 70 graduate students and postdoctoral researchers, authored or coauthored 260 peer-reviewed publications, been awarded five patents, given over 80 invited lectures, and received both the Utah Governor's Medal for Science and Technology and the Karl G. Maeser Distinguished Faculty Lecturer Award.

Paul B. Savage received the BYU Technology Transfer Award given to a faculty member who has made significant research contributions that have led to the development of useful commercial products. His group has discovered and optimized a new class of antibiotics that mimic the bactericidal activities of endogenous peptide antibiotics. These new antibiotics have been licensed to Ceragenix Pharmaceuticals, a company focusing on products in dermatology, oncology, and infectious disease. Dr. Savage's group has also been involved in determining structures of and optimizing glycolipids that can stimulate cytokine release from natural killer T cells. This cell type regulates immune responses, and glycolipids have proven useful in eliciting specific responses in animal models of human disease.

In addition, Dr. Savage was named as a winner in the fourth annual Stoel Rives Utah Innovation Awards. A committee of nearly 70 experts from private industry, government and higher education selected the award winners. His research was selected in the Biotechnology/pharmaceuticals category. His selection was based upon his discoveries in "cationic steroid antibiotics, which attack microbes' outer membranes and rapidly kill target microbes without promoting formation of resistant strains".

Barry M. Willardson was recognized with a John a. Widtsoe Fellowship for his research that enhances the quality of life and/or contributes to the solution of pressing world problems.

Brian F. Woodfield was selected as an Alcuin Fellow. These awards recognize outstanding teacher scholars whose work at the university transcends the limits of their disciplines and who have made significant contributions to the general education and honors curriculum.

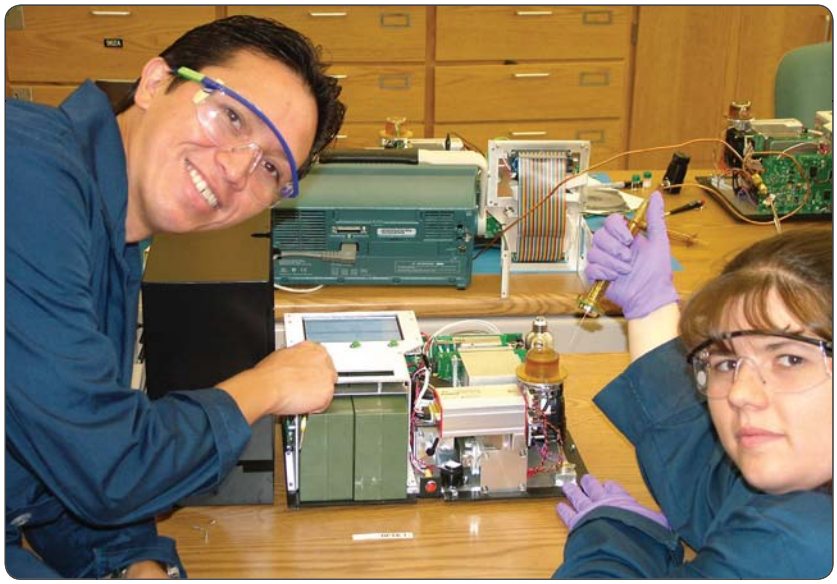
Daniel L. Simmons received the 2005 Governor's Medal for Science and Technology presented by Gov. Jon Huntsman to 11 individuals. The medals recognize those Utahans who have provided "distinguished service to the state" in science and technology. Dr. Simmons received his award in recognition for his discovery and explanation of the COX-2 enzyme.

Research Highlights

Portable Chemical/Biological Agent Detector

The September 11th attacks on the World Trade Center in New York City and the Pentagon in Washington DC brought a renewed worldwide interest and commitment to develop effective technologies to thwart anti-terrorism activities. Among the various threats are chemical and biological agents. Milton Lee and his research group have been developing a new portable device that will be able to detect the presence of chemical and biological agents in the field.

Chemical agents can be classified as nerve, vesicant, or blood agents. Nerve agents disrupt neurological regulation by inhibition of cholinesterase, vesicants cause blistering, and blood borne agents prevent tissue utilization of oxygen by inhibition of cytochrome oxidase. The effects of exposure to chemical agents are usually immediate, giving little time to administer antidotal treatment. In contrast, biological agents are typically distributed in their weaponized forms as invisible, tasteless, and odorless aerosols, and they cannot be recognized after initial release until victims display characteristic symptoms after a period of incubation. Furthermore, the initial symptoms of fever and nausea can be mistaken for flu-like symptoms, further delaying treatment and allowing the spread of disease.



A variety of technologies have been investigated for early detection of chemical and biological agents. Most of these are difficult to incorporate in field operations because of size and weight constraints or environmental conditions. For example, incorporation of mass spectrometry detection, one of the most sensitive and selective types of chemical detection, is limited by size and weight as determined primarily by the vacuum system. Battery power to operate such a detector is also a problem. In comparison, detectors that rely on biological reactions, such as antigen-antibody-based and polymerase chain reaction systems, are specific to target agents and can be relatively small and lightweight, they are difficult to utilize on-site. They require careful control of environmental conditions, especially temperature, to maintain reliability.

To address the need for a hand-portable detector for target chemical and biological agents in defense and homeland security operations, a major effort has been underway for the past two and a half years in the laboratories of Professor Milton Lee to develop a small, battery operated gas chromatograph-mass spectrometer system. The requirements of such instrumentation include robustness, small size and weight, sensitivity, selectivity, and speed. The researchers have been through three iterations of the technology to date, primarily funded by the Defense Threat Reduction Agency with additional support from the Department of Defense Dugway Proving Ground located in the west desert of Utah. The heart of the

system is a novel, miniature toroidal ion trap mass spectrometer that can be operated at RF voltages significantly lower than required for conventional ion traps The large trapping volume characteristic of the toroidal geometry allows miniaturization while still preserving high sensitivity. The ion trap is interfaced to a low thermal mass gas chromatograph that provides rapid chemical separation before mass spectrometry detection. Helium carrier gas is supplied by a small pressurized gas cartridge. Sample introduction is based on solid phase micro extraction for which a new syringe with identification chip was developed for one-hand operation. The complete system weighs approximately 8.2 kg (including batteries) and has a volume of 0.014 m3. A typical analysis for chemical agents can be completed within 3 minutes.

For biological agent detection, a methylating reagent is added to a suspension of the agent before introducing the sample into the injection port of the gas chromatograph-mass spectrometer system. Thermal hydrolysis/methylation of the bacterial endospores takes place which produces characteristic fatty acid methyl esters, dipicolinic acid methyl ester, and some unique amines, which are separated and identified by gas chromatography-mass spectrometry. Differentiation of the bacterial agents is based on fatty acid methyl ester distribution and presence or absence of the other biological marker compounds. This project is multidisciplinary in nature and involves researchers from chemistry, microbiology, statistics, chemical engineering, and electrical engineering.

Future plans include finishing the current beta-prototype detection system by early fall, 2006. Seven of these instruments will then be subjected to a combat evaluation by the Department of Defense. If everything goes well, the detector will be further miniaturized and ruggedized for adoption by various government agencies during 2007-08.

Virtual Chemistry Laboratory

For the past six years many undergraduate chemistry students working under the direction of Brian Woodfield have been involved in developing a virtual chemistry laboratory software program called Virtual ChemLab. This software package was recently featured in the Chemistry and Engineering News (Jan 16, 2006 page 31).

Virtual ChemLab is a set of sophisticated and realistic simulations for high school, freshman, and sophomore level chemistry classes. These simulations are a bridge from the abstract to the real, combining old tech with new tech to connect theory in the classroom with real-world experience in the lab. This project was primarily funded by Brigham Young University and by the Department of Education through the Fund for the Improvement for Post Secondary Education (FIPSE). The conceptual basis for these instructional laboratory simulations is that it is difficult to teach laboratory technique on a computer. Instead,

the most powerful use of the computer in the instructional laboratory is to provide a virtual environment where students are free to make the decisions they would confront in an actual laboratory setting and, in turn, experience the resulting consequences. This virtual environment, then, is the most effective means for students to apply the concepts and skills learned in the classroom.

The current set of completed simulations include: Qualitative Inorganic Analysis, Organic Synthesis and Organic Qualitative Analysis, Fundamental Experiments in Quantum Chemistry, Gas Properties, Titration Experiments, and Calorimetry. We are currently working on a set of physics simulations that will include Mechanics, Density, Circuits, and Optics that will be included in a Physics and Physical Science product.

Virtual ChemLab is currently sold through Prentice Hall at the high school level as an integral part of the high school chemistry program, at the freshman and sophomore level as a standalone product, and Virtual ChemLab is packaged with three of the top selling freshman-level general chemistry texts. Currently, over 150,000 students per year use Virtual ChemLab for homework, quizzes, and laboratory work.

Please visit the Virtual ChemLab web site, http://chemlab.byu.edu/, for more information about the laboratory simulations, a virtual tour, links to various independent assessments of the simulations, and research papers describing its educational effectiveness.

UNDERGRADUATE 2006 AWARDS

Keith P. Anderson-Outstanding Senior
Spencer Jones

ACS Analytical Chemistry-Junior Award
Lawrence Robert Baker

Analytical Chemistry
Adam Lee Washburn

Biochemistry
Matthew Brent Blodgett

Chemistry Literature
Caleb Stowell

Freshman Chemistry Major
Kortney Anne Judd

Freshman Chemistry Non-major
Kevin William Dahle

Inorganic Chemistry
Adam Lee Washburn

Organic Chemistry Major
Deborah M. Gale

Organic Chemistry Non-Major
Elizabeth Robyn Wallmann

Physical Chemistry
Stacey Janel Smith

Catalyst Club-Outstanding Woman
Carolyn Evans

College Undergraduate Research Awards - Spring and Summer 2005

Name	Faculty Adviser
Benjamin Allred	Paul Savage
Nathan Bennett	Noel Owen
Jeffrey Chen	Daniel Simmons
Jamie Ellsworth	Gregory Burton
Bryce Harbertson	Heidi Vollmer-Snarr
Maurine Mayhew	Eric Sevy
Laura McAllister	Steven Castle
Kirk Morri	Roger Harrison
Daniel Nielsen	Steven Castle
Michael Pfeiffer	Allen Buskirk
Stephen Robison	Allen Buskirk
Stacey Smith	Wodfield & Boerio-Goates
Ryan Thalman	Jaron Hansen
Adam Washburn	Adam Woolley
Jon Willes	David Dearden

Ott Undergraduate Research Award
Deborah M. Gale
Eric Sevy

Harr Undergraduate Research Award
Sarah Weinrich Matthews
Roger Harrison

Garth L. Lee Undergraduate Teaching Awards for Fall and Winter 2005

Fall 2005

Student	Class
Karl David Bedke	Chem 105
Jessica Bentley	Chem 106
Ryan Christensen	Chem 353/354
Tyson Davis	Chem 105
Mary Ellsworth	Chem 107
Matt Gertsch	Chem 107
David Harris	Chem 353/354
Jason Hawkes	Chem 105
Michelle Lambert	Chem 227/391
Megan Gould Larsen	Chem 353/354
Curtis Nelson	Chem 105
Rick Nordgren	Chem 105
Bryant Oliverson	Chem 351
Brandon Peterson	Chem 351
Nouar Qutob	Chem 152
Brad Rogers	Chem 107
Melissa Schmidt	Chem 152
Cody Smith	Chem 105
Nick Tanner	Chem 353/354
Benjamin Thomas	Chem 105

Winter 2006

Student	Class
Kristie Aamodt	Chem 354
Brittany Bates	Chem 353
Morgan Gainer	Chem 353
Benjamin Greenfield	Chem 353
Dainon Haggard	Chem 353
Robert Hill	Chem 105
Blake Hillstead	Chem 106
Tyson Jones	Chem 213
Michelle Lambert	Chem 353
Joshua Larson	Chem 352
Alicia Mabey	Chem 353
Tyler Meldrum	Chem 105
Spencer Morgan	Chem 107
Curtis Nielson	Chem 105
Rick Nordgren	Chem 105
Miriam Pulsipher	Chem 112
Nouar Qutob	Chem 152
Brad Rogers	Chem 107
Melissa Schmidt	Chem 101
Chandra Trejo	Chem 107

Undergraduate Research Awards

Fall 2005

Student	Professor
Rebecca Baum	David M. Belnap
Nathan Bennett	Noel L. Owen
Mark Broadben	Allen R. Buskirk
Eric Chen	Paul B. Savage
Carolyn Evans	Matthew C. Asplund

Jeremy Johnson	Eric T. Sevy
Carl Jones	Morris J. Robins
Spencer Jones	Steven L. Castle
Kam Lau	Heidi R. Vollmer-Snarr
Mickey Miller	Allen R. Buskirk
Cheryl Morris	John D. Lamb
Allen Nicholson	Lee D. Hansen
Bryant Oliverson	Jaron C. Hansen
Mary Whitsitt	Lee D. Hansen

Winter 2006

Student	Professor
Robert Blake	Matthew R. Linford
Carolyn Evans	Matthew C. Asplund
David Feller	Steven A. Fleming
Morgan Gainer	Merritt B. Andrus
Deborah Gale	Eric T. Sevy
Taylor Greenwood	Barry Willardson
Jeremy Johnson	Eric T. Sevy
Sarah Matthews	Roger G. Harrison
Maurine Mayhew	Eric T. Sevy
John-David McElderry	Steven Goates
Joseph Ostler	Heidi R. Vollmer-Snarr
Shawn Perdue	Daniel E. Austin
Stephen Robison	Paul B. Savage
Caleb Stowell	Barry M. Willardson
John Strum	Matthew R. Linford
Ryan Thalman	Jaron C. Hansen
Mary Whitsitt	Lee D. Hansen

Spring/Summer 2006

Student	Professor
Benjamin Allred	Paul B. Savage
Nathan Bennett	Noel L. Owen
Jeffrey Chen	Daniel L. Simmons
Jamie Ellsworth	Gregory F. Burton
Bryce Harbertson	Heidi R. Vollmer- Snarr
Maurine Mayhew	Eric T. Sevy
Laura McAllister	Steven L. Castle
Kirk Morris	Roger G. Harrison
Michael Pfeiffer	Allen R. Buskirk
Stephen Robison	Allen R. Buskirk
Stacey Smith	Brian F. Woodfield/ Juliana Boerio-Goates
Ryan Thalman	Jaron C. Hansen
Adam Washburn	Adam T. Woolley
Jon Willes	David V. Dearden

Chemistry Department Graduate Awards

Fellowships

Bradshaw Graduate Fellowship in Organic Chemistry –

Jing Liu

Outstanding continuing graduate student in organic chemistry - 10-hour research assistantship for up to 12 months beginning Fall 2006.

Charles E. & Margaret P. Maw Research Fellowship-

Xiangtian Long

Outstanding continuing graduate student in any area - 20-hour research assistantship for up to 12 months beginning Fall 2005.

Roland Robins Research Fellowship –

Morad Alawneh
Hector Becerril-Garcia
Jesse Contreras
Yang Liu
Lijin Xia

Outstanding continuing graduate students in any area - 20-hour research assistantship for up to 12 months beginning Fall 2005.

BYU Graduate Studies Research Fellowships (Internships) –

Yanshu Feng
Bing Ma
Jacolin Murray
Douglas Tanner
Michael Wood

Outstanding continuing graduate students in any area -10-hour research assistantship for up to 12 months beginning Fall 2005.

Stanley & Leona Goates Research Fellowship-

Haizhen Zhang

Outstanding continuing graduate student in any area - 20 hour research assistantship for Spring and Summer beginning Spring 2005.

CONTINUING STUDENT SUPPLEMENTARY AWARDS

Garth L. Lee Award –

Hector Becerril-Garcia

Outstanding continuing graduate student in any area, based on religious commitment, service, and scholarship- $1,250

Loren C. & Maurine F. Bryner Award –

Xiangtian Long

Outstanding continuing graduate student in any area - $1,000

Jennie R. Swensen Award –

Alyson Cerny

Outstanding continuing biochemistry graduate student - $1,000

Graduate Outstanding Teaching Award

Morad Alawneh

GRADUATING AWARDS

Outstanding graduating M.S.

Bridget Peeni

Outstanding graduating Ph.D.

Binghe Gu

Sponsoring a Mentoring Scholarship

by Brent Hall

"Every student who leaves the College of Physical and Mathematical Sciences with an undergraduate "MENTORED LEARNING" experience is better prepared to bless others and help the world solve its problems. Mentored learning is what happens when a student works with a faculty member outside of class on research consequential to them and to their scientific discipline."

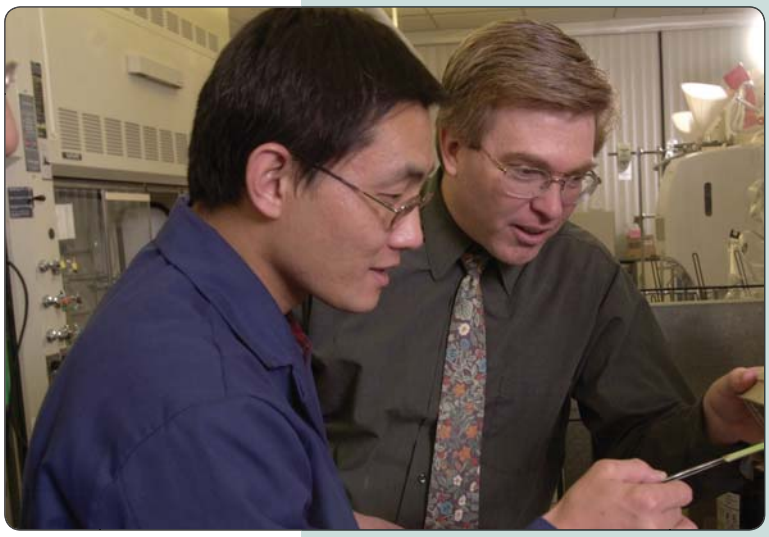
---Earl M. Woolley, Dean

Brent Hall

We have established a fund to provide mentored learning scholarships to outstanding students in the Chemistry department. Instead of finding needful employment off campus, the mentored students do real-world research that helps prepare them for their professional lives.

Your donations, $1 or $50,000 will help sponsor these bright students. We invite you to experience the happiness of helping. You will find few things more satisfying.

Email your desire to help to:
Mentorachemist@byu.edu



Or call Brent Hall our representative from LDS Philanthropies at 801-422-4501.

Note: Do not forget to remember the Department in your estate planning. We can help with Trusts, Wills, and donations of IRA's. Call Brent to discuss your inclinations.

2006 BYU HOMECOMING EVENTS

Please mark your calendars and plan to renew your friendships in the department at our homecoming activities as follows:

Department of Chemistry and Biochemistry Activities on October 20
(Room W-170 Ezra Taft Benson Science Building)

6:00 p.m.	Reception
6:30 p.m.	Dinner
7:30 p.m.	Speaker – Professor Morris J. Robins, "Curiosity-Based Research: A Productive Avenue for Biomedical Discovery" (See Chemigram article on Morris J. Robins in the Faculty Awards section).

Homecoming Spectacular, 7:30 p.m. October 19 & 20 (Marriott Center)

Homecoming Parade, 10:00 a.m. October 21 (downtown Provo)

Homecoming Game, BYU vs University of Nevada at Las Vegas, Saturday, October 21

Below is a reservation form which you can return to Homecoming, Department of Chemistry and Biochemistry, C-104 BNSN, Brigham Young University, Provo, UT or by email to marcia@chem.byu.edu. Please make your reservations no later than October 9, 2006.

RESERVATIONS FOR DEPARTMENT ACTIVITIES

Dinner, October 20, Friday; 6:30 pm

☐ Yes Number of Guests _____
(Please include yourself in the total.)

☐ No

(Please RSVP no later than October 9)

Featured Speaker Morris Robins, October 20, Friday, 7:30 pm

☐ Yes Number of Guests _____
(Please include yourself in the total.)

☐ No

Name: _____

Address: _____

City, State, Zip: _____

E-mail: _____

Contact Phone: _____

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