ChemLetter

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Paul Hopkins, Chair

In this issue

Photos:
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Dear Friend of Chemistry,

No, you have not missed the last few *ChemLetters*. Rather, it has been several years since you last heard from us. An issue of the *ChemLetter* that was planned for the spring of 2008 was delayed by staffing changes within our organization. Then, the summer and fall of 2008 brought financial turmoil to our nation on a scale almost none among us imagined possible, stopping more than just the *ChemLetter* in its wake.

It would have been my preference to delay this issue of the *ChemLetter* until financial uncertainty was behind us and a largely positive message could be conveyed. Unfortunately, two years into the "Great Recession," the University of Washington continues to be challenged; current best estimates are that we have not yet seen the worst. I return to this subject below. But life does go on, and much has changed that merits reporting to you. At the very least, we hope you will find this issue of the *ChemLetter* to be informative.

There certainly is much good news to report. Our undergraduate instructional programs remain at record large levels. About 3,000 freshman enroll in at least one quarter of general chemistry with us each year. One thousand sophomores start the path through organic chemistry annually. We are already planning for the June 2011 graduation ceremony. This year, our 300 bachelor's graduates and their 700 guests will celebrate this milestone in a historic facility in downtown Seattle. We are far and away the largest program in the nation by this measure. And we are in the final stages of trying to recruit two or even three new members to join our faculty in the fall of 2011.

In this issue, we are pleased to announce, somewhat belatedly, an exhilarating event for the Department: the establishment of not one, but two, endowed chairs, the first in our history. On April 1, 2008, two of our funds simultaneously reached the magic level of $1,000,000 in gifts needed to become endowed chair funds. We are deeply indebted to the family and friends of two faculty members, the late Professor Boris Weinstein and Professor Emeritus Seymour Rabinovitch. Their extraordinary generosity has allowed us to establish the Weinstein and Rabinovitch Endowed Chairs in Chemistry. These funds will have enormous positive impact on us in the years to come.

And our students and faculty members have accomplished much. Space does not permit us to record the names of about 1,000 undergraduates who earned a bachelor's degree with us since I last reported; however, you will find an impressive list of newly minted Ph.D.s and their respective thesis titles. Their many accomplishments have been recognized by numerous awards.

You can read in this issue about two of our newest faculty members, Assistant Professors Bo Zhang and Gojko Lalic, who joined us in 2009 from Penn State and Harvard, respectively. This past fall, we were joined by three new faculty colleagues, Assistant Professors A. J. Boydston, Champak Chatterjee, and David Masiello. We will profile their backgrounds and research programs in a future issue. Nevertheless, a very disturbing trend has continued as we have operated under severe financial constraint: the decline in our faculty count. We began the current academic year with fewer than 32 faculty members, down from nearly 42 a decade ago. Our central administration

—continued on last page

FIRST TWO ENDOWED CHAIRS

It is a great privilege to announce the establishment of the first two endowed chairs in the Department of Chemistry. Through the generosity of their respective families and colleagues, the B. Seymour Rabinovitch Endowed Chair in Chemistry and the Boris and Barbara L. Weinstein Endowed Chair in Chemistry have been created to enhance the teaching and research of the Department.

The B. Seymour Rabinovitch Endowed Chair in Chemistry

Emeritus Professor B. Seymour Rabinovitch came to the University of Washington as an assistant professor in 1948. He and his students pioneered the development of chemical activation as a means by which nearly mono-energetic highly excited molecular species may be prepared. Using this technique, they experimentally validated statistical reaction theory. These experiments are an important foundation of modern gas phase kinetics, and now appear as standard material in physical chemistry textbooks.

Professor Rabinovitch's honors span the Atlantic: He is a Fellow of the Royal Society in London and a Fellow of the American Academy of Arts and Sciences. He has received the prestigious Peter Debye Award in Physical Chemistry from the American Chemical Society and the Polanyi Medal Award of the Faraday Division of the Royal Society of Chemistry.

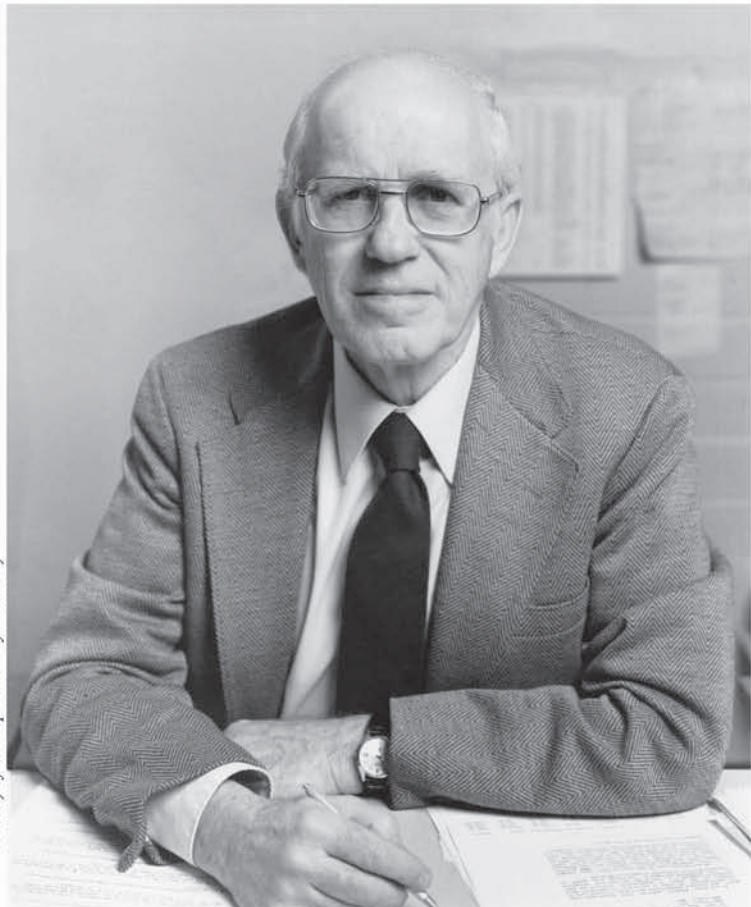
In his post-retirement years, Professor Rabinovitch has taken up silversmithing, an activity which complements his wife's work as a jewelry designer. He has written two books on the subject of silversmith works and his contributions have been noted by The National Metalsmiths Hall of Fame and by *Silver* magazine, which named him a "World Personality." Professor Rabinovitch is also a member of the Silver Society (London), and one of just 40 individuals worldwide to have been inducted as a "Foreign Associate of the Worshipful Company of Goldsmiths, London."

"Rab is a treasure," says Paul Hopkins, professor and chair of the Department of Chemistry. "Had his contributions here been limited to his teaching and research activities, we would consider ourselves extremely lucky to have him. But he, his friends, and his family have chosen to go far beyond this with their recent gifts, leaving a legacy of enduring support for faculty, staff, and students. These gifts will make a huge difference."

Shortly after the establishment of this endowed chair, the Rabinovitch family was delighted to learn that Chemistry Professor Larry Dalton was appointed to it.

We are deeply indebted to Professor Rabinovitch's family and colleagues for their generosity in creating this endowment to honor his contributions and to support our programs. ■

Professor B. Seymour Rabinovitch



Courtesy of the Department of Chemistry

The Boris and Barbara L. Weinstein Endowed Chair in Chemistry

Professor Boris Weinstein joined the organic faculty of the Department of Chemistry in 1967. His research was concentrated in the areas of natural products and peptides. Professor Weinstein published more than 100 scientific papers, obtained several patents, and supervised numerous doctoral students. He also served as Associate Chair for the Graduate Program. In this role, he made important contributions to improving the quality of our graduate program.

Professor Weinstein also served as co-secretary of *Organic Reactions* and editor of eight volumes of its book series. He held memberships in numerous scientific societies, was a co-founder and executive committee member of the American Peptide Symposium, and was a Councilor in the Puget Sound Section of the American Chemical Society.

Before coming to the University of Washington, Professor Weinstein was laboratory director of the Department of Chemistry at Stanford University. Throughout his career he lectured and presented papers in the United States, Europe, and Asia, and was awarded the Bronze Medal from the University of Padua in Italy.

Professor Weinstein passed after a brief illness in 1983. Soon after his death, his family and friends formed the first endowed graduate student fellowship in chemistry at the UW. That fund supported many students during its 20-plus years. New gifts to this graduate fellowship now bring even greater support to our programs, meeting the UW requirements to establish an endowed chair.

The Department of Chemistry is delighted to have this endowed chair in honor and recognition of Professor Weinstein and his many accomplishments and contributions to the Department and to the field of chemistry. The chair is currently being held in reserve as a recruitment tool for the hiring of a new senior faculty member, a preference expressed by the Weinstein family, in the spirit of seeing the chair used to improve our Department.

Courtesy of the Department of Chemistry

Professor Boris Weinstein

Department Chair Paul Hopkins comments, "In these challenging economic times, we are constantly working to balance the hiring of new faculty, especially senior faculty, with the resources available to support the highly capable faculty we already have."

Hopkins continues, "We are exceptionally grateful to the Weinstein family for their generous support. Whether the fund is initially used to recruit a new senior faculty member or to reward an existing, outstanding faculty member, I am confident that the fund will achieve the Weinstein family goal of supporting an exceptional Department of Chemistry." Professor Weinstein's surviving spouse, Barbara, and sons, William and Michael, have been particularly generous supporters of our programs for many years. ■

Background image: Courtesy of the Department of Chemistry

Gojko Lalic

Assistant Professor

By Gojko Lalic

The main focus of the Lalic group is the development of practical transition-metal catalyzed transformations that address challenges encountered in the synthesis of complex organic molecules. Our approach to reaction development involves the synthesis of new transition-metal complexes, the systematic study of their reactivity, and the detailed exploration of reaction mechanisms. Finally, the utility of the transformations pioneered in our group are demonstrated by the expedient total synthesis of complex organic molecules.

Our focus on both practical and fundamental aspects of reaction development provides an opportunity for students in the group to obtain training and expertise in various aspects of organometallic, physical organic, and synthetic organic chemistry.

Assistant Professor Gojko Lalic

Courtesy of Gojko Lalic

2004 Ph.D., Organic Chemistry, Harvard University

1998 B.S., Chemistry, University of Belgrade, Belgrade, Serbia

I was born and grew up in Belgrade, Yugoslavia (now Serbia). As far as I can remember, I always wanted to become a scientist, but at an early age I was fascinated by math and physics, and didn't care much for chemistry. A substitute teacher in high school changed all that and since then chemistry has been my passion.

While I was an undergraduate at the University of Belgrade, my teachers were again a decisive influence and got me interested in organic chemistry. As a senior, I had the opportunity to spend four months in the lab of Sir Derek Barton at Texas A&M, working on the development of a new iron catalyzed C-H bond activation reaction. This experience gave me a taste of how exciting doing science can be, and opened doors to graduate programs in the United States.

I went to graduate school at Harvard, working under the mentorship of Professor Matt Shair. Harvard offered a wonderful education and a lifestyle much closer to the one I knew back home. During my graduate studies, and later during my postdoctoral research at UC Berkeley with Professor Bob Bergman, my research remained focused on the development of new organic transformations.

While working on my doctorate, I learned to appreciate the diversity and interconnectedness of various fields of chemistry. I gained an appreciation for the power and importance of rigorous scientific method in solving problems in chemistry. Finally, during a second post-doctoral position back at Harvard with Professor E. J. Corey, I had the opportunity to work on the synthesis of a complex natural product and obtain a better understanding of the practical aspects and utility of organic reactions.

Throughout my scientific training, I have deeply enjoyed analyzing and solving scientific problems. Moreover, choosing problems and defining project goals have always been the most exciting parts of doing science for me. That's why I felt that continuing my career in academia was the best choice. My position at the UW Department of Chemistry gives me an opportunity to be a part of a great scientific community in one of my favorite American cities.

My scientific interests remain in discovering new reactivity and developing practical ways for making chemical bonds in organic molecules. I am fascinated by the rich and varied chemistry of organometallic complexes, which provides a great opportunity for developing highly selective and efficient catalytic transformations. Within the area of organometallic chemistry, my focus is on developing transition metal-catalyzed reactions that create new carbon–carbon bonds and, at the same time, lead to the selective formation of new stereogenic centers. Such transition metal-catalyzed transformations remain relatively rare yet of significant utility in organic synthesis. Their development would also lead to new insights into the chemistry of known organometallic complexes, and would encourage exploration into the basic properties and the reactivity of new ones. ■

Bo Zhang
Assistant Professor

Assistant Professor Bo Zhang

Courtesy of Bo Zhang

2006 Ph.D., Chemistry, University of Utah
2002 M.S., Chemistry, Peking University, China
1999 B.S., Chemistry, Shandong University, China

By Bo Zhang

Research in the Zhang group primarily is focused on fundamental and applied aspects of electrochemistry and bioanalytical chemistry utilizing materials of nanoscale dimensions. We are interested in developing novel electrochemical methods for the study of single molecules (e.g., redox, DNA, and proteins) and single biological cells (e.g., neurons and neuron model cells). Current projects include electrochemistry and electrochemical sensing utilizing molecular/atomic scale electrodes, electrochemical imaging of single neurons and neural networks, and bioanalytical applications of solid-state nanopores. To accomplish these projects, various novel nanomaterials and nanodevices are developed and applied, including nanoelectrodes, nanowires, nanopores, nanochannels, and nanoporous membranes.

I was born and raised in a small and beautiful town in eastern China. In high school, my favorite class was physics, perhaps because I received high marks. However, on the advice of a high school teacher, I chose chemistry as my major when I entered Shandong University. I think that was one of the best decisions in my life.

I have extensive research experience in electrochemistry. In 1999, the last year of my undergraduate studies, I did electrochemical studies on current oscillations of iron electrodes in acid solutions. I went on to Peking University and received my master's degree in physical chemistry. My research was on electrochemistry and electron transfer of gold nanoparticle electrodes chemically attached to metal surfaces. After that, I went to Professor Henry White's laboratory at the University of Utah. Professor White is a world-class expert in electrochemistry, especially in the nanoscale domains.

Very quickly, I invented new ways of making glass-sealed metal nanoelectrodes. They were very useful for both fundamental research in the nanodomains and as nanoprobes for scanning electrochemical microscopy. In 2004, Professor White and I both felt that we should make something more useful using these tiny electrodes. We made the glass nanopore electrode and the glass nanopore membrane, which have been extremely helpful in studying molecular transport at the nanometer scale. In 2005, I received a graduate fellowship from the American Chemical Society, Division of Analytical Chemistry.

After obtaining my Ph.D. in 2006, I felt I should gain some training in biochemistry, and I became extremely interested in neurochemistry and neuronal communications. I thus went to Professor Andy Ewing's group, at Penn State University, to do postdoctoral research. While working in his group, I invented a microelectrode-array probe, which is a new platform to investigate neurochemical secretion. This new probe allows for the study of heterogeneity of neurochemical secretion at the single-cell level.

I am very excited to be a member of the UW Department of Chemistry because I believe it offers me the opportunity to do great science. In my laboratory, I continue to use very small electrodes to study single biological cells. For example, I hope to develop nanoelectrode arrays and new electrochemical imaging techniques to study single neuronal cells and neuronal networks in biological brains. My laboratory also focuses on new analytical applications of nanopore sensors in a variety of different projects. ■

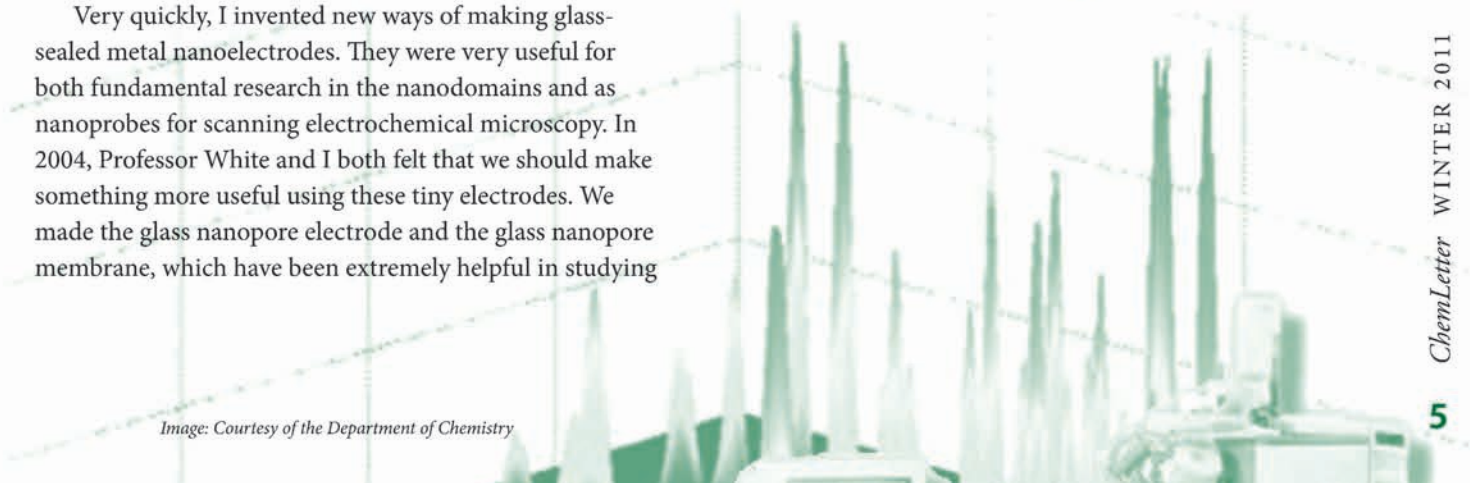


Image: Courtesy of the Department of Chemistry

Courtesy of Michael Gelb

Michael Gelb
receives Hopkins Faculty Award

Professor Michael Gelb, Harry and Catherine Jaynne Boand Endowed Professor, received the 2010 Paul B. Hopkins Endowed Faculty Award on May 19, delivering the lecture titled *"Newborn screening for lysosomal storage diseases: Another triumph for organic chemistry."* Lysosomal storage diseases are caused by a deficiency of enzymes that break down cellular metabolites. The Gelb group, in collaboration with Professors Frantisek Turecek and C. Ronald Scott (Pediatrics), has developed new methods based on synthetic organic chemistry and tandem mass spectrometry to screen newborns for several types of these often-fatal, but treatable, diseases. Early detection allows for treatments that improve the quality of life for children with these diseases. These screening methods are being adopted around the world.

The Paul B. Hopkins Endowed Faculty Award is given to a member of the Department of Chemistry faculty to honor outstanding achievement in any area of professional responsibility. The award was established through a gift from Emeritus Professor B. S. Rabinovitch. Unlike awards given by professional societies or within specific fields of chemistry, the Hopkins Award is given by UW Chemistry faculty to their colleagues for outstanding achievement. Previous Hopkins Award recipients have been Professors Charles T. Campbell, Lloyd E. and Florence M. West Endowed Professor; Alvin L. Kwiram; James M. Mayer, Alvin L. and Verla R. Kwiram Endowed Professor; and Frantisek Turecek. ■

Courtesy of Karen Goldberg

Goldberg et al.
characterize methane-metal complex

Professor Karen Goldberg, Nicole Boand Professor of Chemistry and Director of the Center for Enabling New Technologies through Catalysis (CENTC), in collaboration with researchers at the University of North Carolina, has described the first observation of a metal complex that binds methane in solution. The finding was reported in the October 23, 2009 issue of *Science*.

The binding of methane to a metal complex is a key first step in the selective breaking of the C-H bond in methane. While the breaking of all four C-H bonds in methane is quite easy to do (think of burning natural gas to heat your stove or house), breaking just one bond has proven to be quite difficult. A few metal catalysts are known to carry out this bond activation, but they have proved to be too slow, too inefficient, or too expensive for widespread industrial use.

The research reported in *Science* gives new insight into this bond activation process, which should be useful in the quest to formulate other catalysts that may one day lead to the easy conversion of methane into valuable chemical feedstocks and fuels such as methanol. The research is directly related to CENTC's goal to utilize methane stranded in remote areas.

The *Science* report is the first observation and full characterization of a relatively long-lived σ-methane complex in solution at low temperatures. Nuclear magnetic resonance spectra of the complex were obtained by protonation of a rhodium-methyl precursor at -110°C. The complex is observed to rapidly tumble in the coordination sphere of rhodium, exchanging free and bound hydrogens. Density functional theory calculations indicate that the complex is best described as η^2-C,H methane coordination to the metal.

To learn more about CENTC, visit *www.nsfcentc.org*.

Bernskoetter, Wesley H.; Schauer, Cynthia K.; Goldberg, Karen I.; Brookhart, Maurice; "Characterization of a Rhodium(I) σ-Methane Complex in Solution" *Science*, **326** (*5952*), **2009**, 553–556. (DOI: 10.1126/science.1177485) ■

Undergraduates

Nicholas Anderson
Merck Index Award

Elena Babkina
H. K. Benson Undergraduate Tuition Scholarship

Joan Bleecker
American Institute of Chemists Award
Berkelhammer Senior Book Award

Emily Cedarbaum
American Institute of Chemists Award

Devon Chandler-Brown
Barry M. Goldwater Scholarship

Stephanie Daifuku
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Kseniya Deryckx
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Kristin DeVleming
CRC Freshman Achievement Award

Trevor Dickey
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Hau Do
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Byron Doepker
American Institute of Chemists Award
Outstanding Student in Analytical Chemistry (2007–08)

Katja Dove
Merck Index Award
Zahlia Jencks Rowe Undergraduate Tuition Scholarship

August Flanagan
Bonderman Travel Fellowship

Dominic Forte
Hyp Dauben Award

Alexandra Herndon
United Negro College Fund Merck Fellowship

Sarah Hershman
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Ngan Hoang
Berkelhammer Book Award

Emily Hollenbeck
CRC Freshman Achievement Award

Noah Horwitz
Outstanding Student in Analytical Chemistry
P. C. Cross Award
Barry M. Goldwater Scholarship
Arts & Sciences Undergraduate Research Award (2009–10)
Hyp Dauben Award
CRC Freshman Achievement Award

Evan Howard
Berkelhammer Senior Book Award

Sean Hughes
American Institute of Chemists Award
Dean's Medalist in the Humanities

Andrew Ishizuka
CRC Freshman Achievement Award Merck Index Award
Astronaut Scholar
H. K. Benson Undergraduate Tuition Scholarship
Hyp Dauben Award

Jeffrey Jacobs
Berkelhammer Book Award

Mia Jaffe
Zahlia Jencks Rowe Undergraduate Tuition Scholarship

Tim Milton Janetos
Hyp Dauben Award

Ilan Jen-LaPlante
Hypercube Scholar

Louis Kam
Hypercube Scholar

Mitchell Kim
P. C. Cross Award (2008–09)

Kuzma Kovzun
Berkelhammer Book Award

Michelle Kriner
American Institute of Chemists Award
Hyp Dauben Award

Michalina Kupsik
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Lucia Kwong
Berkelhammer Senior Book Award

Natalie Larson
CRC Freshman Achievement Award

Carmen Lau
Zahlia Jencks Rowe Undergraduate Tuition Scholarship

Anna Lindsay
Outstanding Student Service Award (2006–07)

Jiao Ma
P. C. Cross Award
Zahlia Jencks Rowe Undergraduate Tuition Scholarship

Melody Maa
CRC Freshman Achievement Award

Benjamin Matson
Hyp Dauben Award

Tyler McKay
Hypercube Scholar
Merck Index Award
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Ahmad Moayedpardazi
Bonderman Travel Fellowship

Ryan Murphy
Merck Index Award
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Minh-An Nguyen
Merck Index Award
President's Medalist

Quyen Nguyen
Berkelhammer Book Award

Ioana Nitulescu
Zahlia Jencks Rowe Undergraduate Tuition Scholarship

Sharmila Pal
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Vanessa Palmer
Berkelhammer Senior Book Award
Outstanding Student Service Award (2007–08)
Merck Index Award

Shujun (June) Peng
Outstanding Student in Analytical Chemistry (2006–07)
Merck Index Award
P. C. Cross Award (2007–08)
President's Medalist (2007–08)

Chris Poon
Hypercube Scholar

Mahfuzur Rahman
H. K. Benson Undergraduate Tuition Scholarship

Matthew Ruppel
Outstanding Student in Inorganic Chemistry
Outstanding Student in Analytical Chemistry (2008–09)

Steven Rutherford
CRC Freshman Achievement Award

Anna Schneider
Merck Index Award

Katherine Schwedhelm
American Institute of Chemists Award

Rudy Sharar
Arts & Sciences Undergraduate Research Award (2010–11)

Mark Shi
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Jakub Sliwinski
Berkelhammer Book Award

Jessica Smith
P. C. Cross Award

Krystal St. Julien
Outstanding Student Service Award (2007–08)

Eric Stenehjem
Merck Index Award

Mark Stevens
Merck Index Award

Isaac Stormer
Berkelhammer Book Award

Brandon Thomas
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Wallis Thompson
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Erin Tsai
P. C. Cross Award

Patricia Tsai
American Institute of Chemists Award

Palmer Vanessa
Outstanding Student Service Award (2007–08)

Pavan Vaswani
Dean's Medal in the Natural Sciences (2009)
Merck Index Award
President's Medalist (2008–09)
Astronaut Scholar
Junior Medal for High Scholarship (2007–08)
Sophomore Medal for High Scholarship (2006–07)
Berkelhammer Book Award
Barry M. Goldwater Scholarship
Hyp Dauben Award

Angelina Winata
Berkelhammer Book Award

Matthew Winkler
American Institute of Chemists Award

Eric Yuen
Rex J. and Ruth C. Robinson Scholarship Fund in Chemistry

Graduates

Ashcraft Jacob
Natt-Lingafelter Endowed Fund in Chemistry

Shoshanna Barnett
Norman and Lillian Gregory Endowed Fund in Chemistry

Nickolas Bastianon
Irving and Mildred Shain Endowed Fund in Chemistry

Darren Begley
B. Seymour Rabinovitch Endowed Fellowship

Samuel Berweger
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Genevieve Boice
Boris and Barbara L. Weinstein Endowed Fellowship in Chemistry

Liam Bradshaw
Norman and Lillian Gregory Endowed Fund in Chemistry

Miles Braten
David M. Ritter Endowed Scholarship

Jennifer Brigham
LaTourette Graduate Student Fellowship

Jennifer Brookes
Natt-Lingafelter Endowed Fund in Chemistry

Mimosa Burr
Norman and Lillian Gregory Endowed Fund in Chemistry

Gerard Carroll
Bertram Rowland Endowed Fellowship

Jin Chen
Outstanding TA (2009–10)

Erica Chong
Martin P. Gouterman Endowed Fund
Mindlin Brothers Graduate Student Fellowship

Deanna Clem
LaTourette Graduate Student Fellowship

Michael Coggins
Howard J. Ringold Graduate Student Fellowship

Jonathan Cox
David M. Ritter Graduate Student Fellowship

Matthew Diener
Outstanding TA (2006–07)

Feizhi Ding
College of Arts & Sciences Dean's Fellowship in the Natural Sciences

Natalia Doubina
Outstanding TA (2007–08)

Megan Duda
Natt-Lingafelter Endowed Fund in Chemistry

Jason Farmer
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Daniel Freeman
Outstanding TA (2006–07)
Outstanding TA (2008–09)

Kerry Garrett
College of Arts & Sciences Dean's Fellowship in the Natural Sciences

Morgan Gleaves
Outstanding TA (2006–07)

Carrie Gower
LaTourette Graduate Student Fellowship

Joshua Guerrette
Mindlin Brothers Graduate Student Fellowship

Bejan Hakimi
Klaus and Mary Ann Saegebarth Endowed Fellowship in Chemistry

Alison Herrick
Mindlin Brothers Graduate Student Fellowship

Aurelia Honerkamp-Smith
B. Seymour Rabinovitch Endowed Fellowship
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Trevor James
George and Agnes Irene Cady Endowed Fund in Chemistry

Gavin Jeffries
Lloyd E. and Florence M. West Fellowship in Chemistry

Audra Johansen
Boris and Barbara L. Weinstein Endowed Fellowship in Chemistry

Eleanor Johnson
Boris and Barbara L. Weinstein Endowed Fellowship in Chemistry

Lewis Johnson
Paul H. and Karen S. Gudiksen Endowed Fund in Chemistry

Peter Johnston
B. Seymour Rabinovitch Endowed Fellowship

Jace Jones
Bertram Rowland Endowed Fellowship

Aaron Kaufman
Paul H. and Karen S. Gudiksen Endowed Fund

Alicia Key
Mindlin Brothers Graduate Student Fellowship

Kristina Knesting
Natt-Lingafelter Endowed Fund in Chemistry

Dustin Kramer
George and Agnes Irene Cady Endowed Fund in Chemistry

Ratika Krishnamurty
Usha and S. Rao Varanasi Endowed Fund

Benjamin Leipzig
Boris and Barbara L. Weinstein Endowed Fellowship in Chemistry

Shirley Leu
B. Seymour Rabinovitch Endowed Fellowship

Jonathan Litz
Brian R. Reid Endowed Fellowship

Helena Lovick
Howard J. Ringold Graduate Student Fellowship

Michael Lynch
Bertram Rowland Endowed Fellowship

Virginia Manner
Natt-Lingafelter Endowed Fund in Chemistry

Samuel Marionni
Klaus and Mary Ann Saegebarth Endowed Fellowship in Chemistry

Todd Markle
Natt-Lingafelter Endowed Fund in Chemistry

Alicia McGhee
Outstanding TA (2009-10)

Sarah McGuffin
Natt-Lingafelter Endowed Fund in Chemistry

Tammie Nelson
S. P. Pavlou and D. E. Strayer Endowed Fund in Chemistry

Marsha Ng
Howard J. Ringold Graduate Student Fellowship

Phu Nguyen
Norman and Lillian Gregory Endowed Fund in Chemistry

Rob Oslund
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Brendon Parsons
Marilyn Werby Rabinovitch Endowed Fellowship

Stephan Percival
Lewis R. and Joan M. Honnen Endowed Fund in Chemistry

Julia Petersen
Chemistry Graduate Alumni Fund

Brent Polishak
Outstanding TA (2008–09)

Thomas Porter
George and Agnes Irene Cady Endowed Fund in Chemistry

Lauren Ramsay
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Glennis Rayermann
Washington Research Foundation ARCS Endowment Fellow

Obadiah Reid
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Anthony Reynolds
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Andrew Ritchie
Paul H. and Karen S. Gudiksen Endowed Fund

Joelle Rolfs
Howard J. Ringold Endowed Fellowship

Richard Rucker
Tomas Hirschfeld Fellowship

Margaret Scheuermann
Dorothy Lewis Simpson ARCS Endowment Fellow

Alina Schimpf
George and Agnes Irene Cady Endowed Fund in Chemistry

Jason Sellers
Irving and Mildred Shain Endowed Fund in Chemistry

James Sharp
Basil G. and Gretchen F. Anex Endowed Fund in Chemistry
S. P. Pavlou and D. E. Strayer Endowed Fund in Chemistry

Ross Shingledecker
Joanne & Bruce Montgomery ARCS Endowment Fellow

Karla Slenkamp
David M. Ritter Endowed Scholarship

Cynthia Stanich
Lewis R. and Joan M. Honnen Endowed Fund in Chemistry

E. Nathaniel Sylvain
Howard J. Ringold Endowed Fellowship

Kelli Takaki
Howard J. Ringold Endowed Fellowship

Wallace Thompson
Alvin L. Kwiram/CCR Graduate Student Fellowship

Carolyn Valdez
Joanne & Bruce Montgomery ARCS Endowment Fellow

Stephanie Vasko
Lloyd E. and Florence M. West Graduate Student Fellowship in Chemistry in Memory of Professor Rex Robinson

Emilie Viglino
Irving and Mildred Shain Endowed Fund in Chemistry

Annie Vikart
Montgomery Endowed Fund in Chemistry

Jeffrey Warren
Bertram Rowland Endowed Fellowship (Special Merit in Research)

Kelly Whitaker
Alvin L. Kwiram/CCR Graduate Student Fellowship

Michael White
Outstanding TA (2007–08)

Derek Whorton
LaTourette Graduate Student Fellowship

Ryan Wilson
Tomas Hirschfeld Fellowship

Ariel Zane
Basil G. and Gretchen F. Anex Endowed Fund in Chemistry

David Zeigler
B. Seymour Rabinovitch Endowed Fellowship

Photos: above: Jasmine Bryant

Courtesy of Alexandra Hendon

Alexandra Herndon

Courtesy of Noah Horowitz

Noah Horowitz

Courtesy of Stephanie Benight

Stephanie Benight

Undergraduates

Alexandra Herndon

Alexandra Herndon, a junior and Federal Way native, doesn't like to limit her opportunities. Even though she decided very early on in her studies that she would go to medical school, she has approached her undergraduate career as a way to explore all the ways a chemistry degree can be put to use.

Her interest in chemistry began in high school and she was able to immerse herself in chemical research through the UW Office of Minority Affairs & Diversity's Initiative for Maximizing Student Diversity (IMSD). Her first research experience was in bio-engineering and then, through IMSD, Alexandra was connected to a position in the inorganic chemistry laboratory of Professor Karen Goldberg, Nicole Boand Professor. Research in Professor Goldberg's laboratory allowed her to "make things people hadn't made before." The position helped her to learn about and compete favorably for the 2010 United Negro College Fund (UNCF)/Merck Science Initiative Award, an honor that includes up to $25,000 in scholarships, as well as the opportunity to take part in two summer research internships. Alexandra is one of just 15 undergraduates from across the country to receive the honor in 2010.

The UNCF/Merck Award has afforded her even more opportunities to explore all that chemistry has to offer. The program involves two summers of research at Merck, the first of which Alexandra completed this past summer. This gave her an even broader picture of what chemists do beyond medical school and graduate school—including the field of pharmaceutical research. While Alexandra still plans to attend medical school, she is planning to take some time off after graduation and is continuing to look for ways to broaden her horizons.

Noah Horowitz

Originally from Bellevue, Noah Horowitz came to the UW after just two years of high school as part of the UW Academy Program at the Robinson Center for Young Scholars. Though he was originally interested in the fields of computer science and chemical engineering, Noah's experience in the honors freshman chemistry course led him to choose to major in chemistry.

Noah's performance in the classroom, research laboratory, and instructional laboratory have all been

outstanding. In recognition, he has received numerous awards, including a 2010 Goldwater Scholarship, the CRC Freshman Chemistry Achievement Award, the Hyp J. Dauben Award for the top student in Honors Organic Chemistry, the Outstanding Student in Analytical Chemistry Award, and the PC Cross Award for the top student in Physical Chemistry. He has also won a Washington NASA Space Grant, a Washington Research Foundation Fellowship, and a Mary Gates Research Scholarship.

Noah's undergraduate research with Professor David Ginger has involved the surface modification of the electrodes in organic solar cells in order to improve their efficiency. The experience has helped him to focus his career goals, and as a result, he intends to attend graduate school in chemistry, possibly in the field of renewable energy research. His current challenge, however, has been as a teaching assistant for CHEM 120—chemistry for non-majors. He finds explaining chemistry concepts to non-scientists "a significant intellectual challenge."

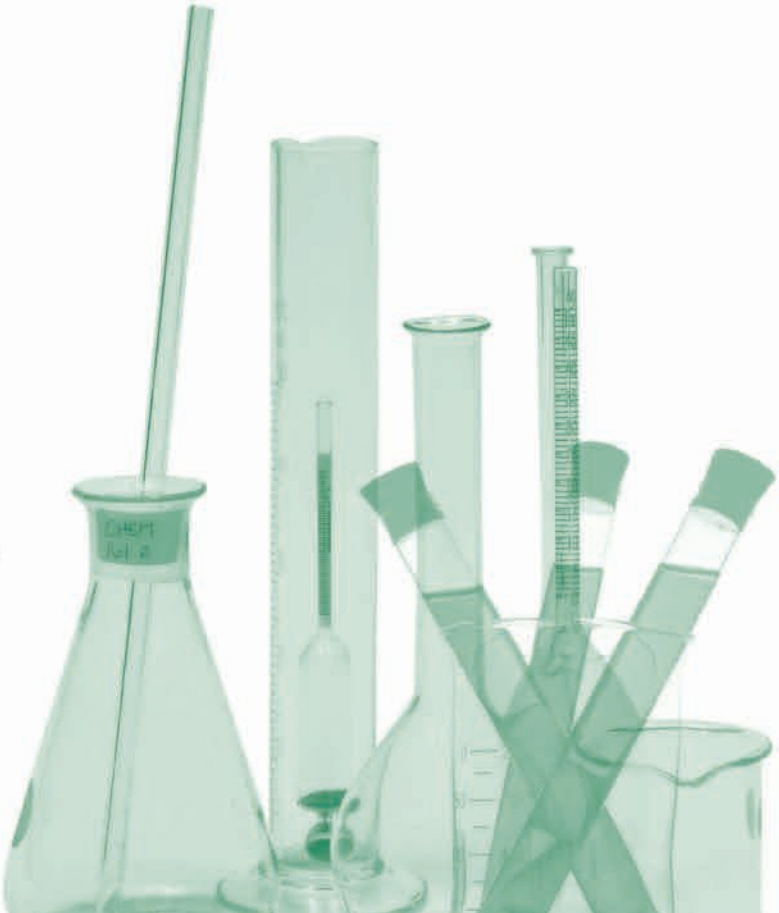
Graduate Student

Stephanie Benight

Stephanie Benight enjoys a challenge. Actually, she seeks them out. While completing her undergraduate degree at Stanford University, Stephanie's best grades were in mathematics, but chemistry provided a greater intellectual challenge. So, she pursued chemistry as a major and is now less than a year from graduating from the UW with a Ph.D. in Chemistry, under the supervision of Professor Larry Dalton, B. Seymour Rabinovitch Endowed Chair in Chemistry. Her research was recently featured as the cover story in the *Journal of Physical Chemistry B* (September 23, 2010 issue).

When exploring options for graduate school, Stephanie decided she wanted to see a project through from beginning to end—to make something, characterize it, see how it performs and how it is applied. This goal led her to Professor Dalton's laboratory, where her research has been focused on investigating intermolecular interactions in electro-optic (EO) chromophore systems, using experimental and theoretical methods. Organic EO materials have the potential to minimize the size, weight, and power requirements of next generation computing, telecommunications, and sensing applications. Stephanie and her coworkers have been able to demonstrate both experimentally and theoretically that lattice dimensionality can be defined using the relationship between centrosymmetric order and acentric order.

Stephanie grew up in Chicago, where she took on the challenge of track and field. She has excelled as both scientist and athlete. She was the state champion in discus in high school and continued to excel as a track athlete at Stanford University while majoring in chemistry, including participating in undergraduate research with Stanford University Professor Robert Waymouth. After wrestling with the decision of whether or not to pursue medical school or graduate school, Stephanie visited the UW and "really liked it." She has begun exploring options for either a post-doctoral position or a permanent job for after graduation. We are sure she will continue to challenge herself in whatever she chooses. ■



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Enzyme Kinetic Studies of Pyrimidine Analogs for PET-Imaging
(Professor Ken Krohn, Radiology) Summer 2008

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Synthesis, Structure, and Reactivity of Dithiolate Bridged Iron Carbonyl Dimers
(Professor Michael Heinekey) Winter 2008

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Microfluidics for Subcellular Chemical Analysis
(Professor Daniel Chiu) Autumn 2008

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Developing a Five Channel Capillary Electrophoresis Instrument for the Analysis of Single Cells
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Overcoming Challenges in Doping Semiconductor Quantum Dots
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Fragment-Based Drug Design of Novel Leads for Thymidylate Synthase Inhibition by NMR
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The Characterization and Optimization of Small Oxygen Sensors Based on a Porous Phosphorescent Metal Complex
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Synthetic Models Relevant to the Non-Heme Iron Enzymes Superoxide Reductase and 15-Lipoxygenase
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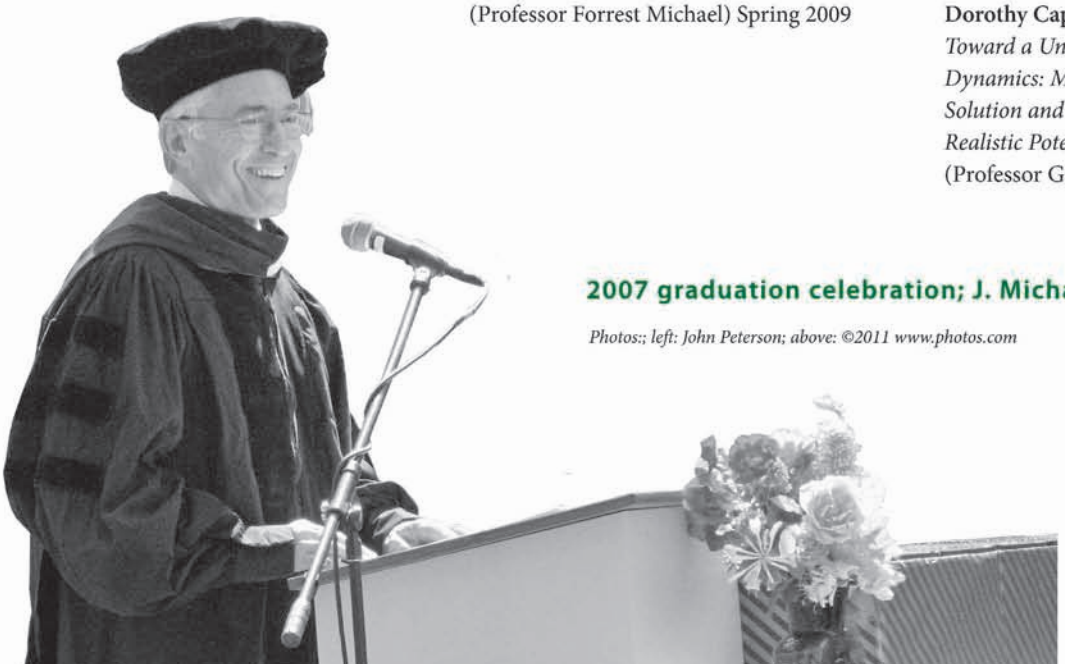

2007 graduation celebration; J. Michael Schurr, professor

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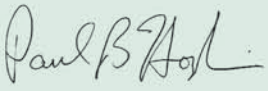
assures me that this is the opposite of what they would prefer for a department with such an outstanding record as ours, but that fiscal realities must, for now, prevail. We remain hopeful that in time we will rebuild our faculty numbers.

I would be remiss if I did not describe to you some of the impacts of the UW losing about one fourth of the state-provided budget during the current biennium. Chemistry lost about 10% of our budget as a result. This meant that not all departing faculty members were replaced (thus the smaller faculty count), that two staff positions were closed, and that about one-sixth of our graduate teaching assistant positions were closed. We are using more temporary instructors in our classrooms, and freshman and sophomore students are receiving less hands-on laboratory instruction. We were able to protect the junior- and senior-level courses from undergoing similar changes. As this *ChemLetter* goes to press, our state legislators are pondering how to close our state's budget gap, likely resulting in additional painful budget reductions at the University of Washington. We will do our best to continue to provide students with relatively open access to our courses, and to keep these courses high in quality despite these circumstances.

You may have seen in UW publications a slogan that captures an important part of our mission: "creating futures." At UW Chemistry, we are helping to create the futures of thousands of students every year. What could be more important? We do it with your help and support. For this, I thank you. If you are ever in Seattle, please stop by to say hello.

With very best wishes,



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