

# chemistry@wwu

Chemistry Department • Western Washington University  
Newsletter for Alumni and Friends of the Chemistry Department

Number 8 Spring 2007

## Materials Characterization Laboratory

In April 2006 Western opened a Materials Characterization Laboratory that makes research equipment available to students in Chemistry and other departments across campus. The facility is part of the Western's ongoing effort to establish the Advanced Materials Science and Engineering Center (AMSEC), an interdisciplinary center to educate students, promote research, and work with high-tech industry.

A ribbon cutting ceremony led by Western President Karen Morse and Board of Trustees members Kevin Raymond and Grace Yuan was held to inaugurate the opening of the laboratory. "It represents an opportunity for us to have strong technical partnerships that are going to serve not only the educational process we have at Western, but the community and state as well," said President Karen Morse. "There's only one other lab like it, for undergraduates, in the country. It's a superb example of the quality of faculty and student research at Western."



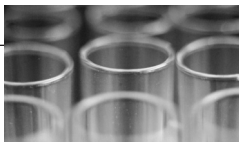
*Left-to-right: Trustee Grace Yuan, Vice Provost Moheb Ghali, Chemistry Professor David Patrick, Trustee Kevin Raymond, Provost Andrew Bodman, President Karen Morse*

Western purchased the equipment for the facility with a \$398,000 grant from the National Science Foundation. The new instruments are housed in the basement of the Communications Building and include a vacuum evaporator system, a pair of instruments for performing thermal analyses, and an X-ray diffractometer.

A group of over a dozen faculty members have been developing the Advanced Materials Science and Engineering Center for a couple of years, along with Arlan Norman, Dean of the College of Sciences and Technology, and Moheb Ghali, the Vice Provost for Research. Chemistry Professor David Patrick serves as AMSEC's provisional director. According to Dean Norman, "This new interdisciplinary center is important to our students and faculty because many of the most important problems faced by science and technology are at the boundaries of the classical disciplines." More information about AMSEC and the materials characterization laboratory can be found at: <http://www.wwu.edu/amsec/>

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# Message from the Chair

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Greetings to all our alumni and friends! This is the final year of our major six-year, \$750,000 Department Development grant from Research Corporation and the Murdock Charitable Trust. We continue to be in the midst of a major transition period with respect to faculty hiring, retirements and departures. I will retire in June after 40 years at WWU and 25 years as chemistry department chair. Gary Lampman, our most

senior faculty member, will retire in December after 43 years at WWU. We recruited for three positions and were fortunate to hire two new faculty. Timothy Clark, an organic chemist with a PhD degree from the University of California-Irvine, comes to us from the University of Wisconsin where he holds a postdoctoral fellowship. Paul (Clint) Spiegel, a biochemist with a PhD degree from the University of Washington, comes to us from the University of California-Santa Cruz where he holds a postdoctoral fellowship. Clint is a native of the Pacific Northwest and received his BS degree at Oregon State University. The department is still behind in its hiring schedule. We are losing Chris Daley who leaves us after five years to take a faculty position at the University of San Diego, and we anticipate recruiting for three more faculty positions this coming September.

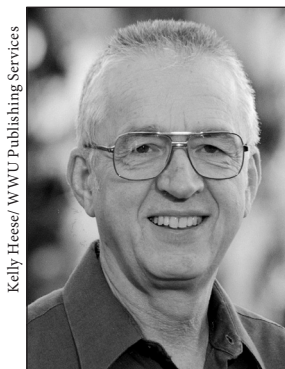
The department continues to emphasize the undergraduate research experience. For faculty and students this is a rich and intensive one-on-one form of instruction. During this current academic year 50 undergraduates are participating in faculty-supervised research projects and 23 worked full-time on funded research projects during the past summer. Our MS graduate program, although small, is of high quality and continues to be productive. During the past summer seven of our graduate students carried out funded thesis research. All funded research for undergraduates and graduate students is supported by faculty research awards from agencies such as the National Science Foundation and the National Institutes of Health. Recent major research awards have been received by Steven Emory (NSF) and Jim Vyvyan (NIH).

On a personal note, I will miss the teaching, research, the stimulating interaction with our students, and the conviviality of our faculty and staff. It's been a great ride, but now it's time to move on and explore the world outside of WWU. Travel will be an important facet of my new life and a trip to New Zealand is in the planning stage. If you want to contact me, my email address remains the same: [wicholas@chem.wwu.edu](mailto:wicholas@chem.wwu.edu)

Our new department chair will be Steve Gammon. I am confident he will do a superb job! We have a great department and are recognized as one of the best nationwide for mentoring students in undergraduate research. Steve Gammon and our faculty will build upon this and make the department an even better place for the study of chemistry. We cordially welcome you to stop by and visit the department any time you are in the vicinity of Bellingham.

*~Mark Wicholas*

# Message from the Editor



Kelly Heese/ WWU Publishing Services

I want to thank everyone who made contributions to the text of the newsletter. Gary Lampman and I did the planning while Bernadette Davidson and Denise Hougen collected much of the information. Chris Baker and Kim Rhodes of Publishing Services were responsible for design and production. In addition, we gratefully acknowledge the Research Corporation/Murdoch Charitable Trust

who paid for the printing. We invite you to fill out an alumni questionnaire that you will find on the last page. You may also contact the Department at the following e-mail address: [Chemdept@chem.wwu.edu](mailto:Chemdept@chem.wwu.edu).

I encourage you to view our impressive website ([www.chem.wwu.edu](http://www.chem.wwu.edu)) that has current information about departmental activities and copies of previous newsletters. This site is maintained by Professors Chris Daley and Steven Emory.

*~Sal Russo*

# Faculty

## Betsy Raymond Joins Faculty



Betsy Raymond joined the department this fall as an assistant professor in physical chemistry. She is a Washington native, having grown up in Port Townsend, and was a Chemistry/Physics major as an undergraduate at Whitman College. For her graduate work, Betsy attended the University of Oregon where she

worked in a chemistry group directed by Geraldine Richmond, while receiving her Ph.D. in physics. Her doctoral research investigated the structure and bonding of water molecules at the air/water interface using a surface-specific spectroscopic technique. Betsy further expanded her interdisciplinary interests by taking a post-doctoral position in the chemistry department at UCLA with Benjamin Schwartz, investigating the photo-physics and surface properties of organic light emitting diodes.

While she enjoyed living in Los Angeles, and took full advantage of the warm temperatures, seemingly non-stop sunshine, and all the culture and excitement of that area, Betsy is extremely pleased to be back in the Northwest again. In particular, she is enjoying the readily accessible hiking in the Bellingham area, and is looking forward to sailing in the San Juans with her dad once the weather warms up again this spring. In addition to enjoying spending time outdoors, Betsy is a self-admitted mystery story and crossword puzzle addict. Betsy is currently teaching physical chemistry, and in the process of ordering equipment and setting up her research lab. Her future research plans are to investigate the adsorption of atmospherically relevant molecules to water surfaces, in particular molecules commonly found in air-pollution in urban environments.

## Loren Williams Joins Faculty



Loren Williams was born in Seattle, and in 1981 he received his BS degree in Chemistry from the University of Washington. In 1985 he was awarded a PhD in physical chemistry from Duke University where he worked in the laboratory of Barbara Shaw. He was an American Cancer Society Postdoctoral Fellow first at Duke and then at Harvard. From 1988 to 1992 he was an NIH Postdoctoral Fellow

in the laboratory of Alex Rich in the Department of Biology at MIT. He joined the School of Chemistry and Biochemistry at Georgia Tech in 1992 and became a full professor in 2000. Loren received an NSF CAREER Award in 1995, and the Sigma Xi Award for best paper from Georgia Tech in 1996.

Loren Williams is a biochemist with an interest in understanding nucleic acid conformation and reactivity. His laboratory makes use of x-ray crystallography, optical spectroscopy, calorimetry, and structural bioinformatics. His research has exploited methods that reveal a fine detail of DNA bending and RNA folding. In addition, he has elucidated reaction mechanisms of anticancer drugs with nucleic acids.

Loren and his wife Nidhi have a son Justin who attends Fairhaven Middle School.

## Faculty News

In fall 2006 **Spencer Anthony-Cahill** broke his collarbone in a mountain bike accident. He adapted to writing with his left hand.

In addition to teaching **George Kriz** is now Director of Pre-Healthcare Advising.

**Gary Lampman** had a hip replacement operation in August 2006. After six weeks of recuperation he was able to resume teaching fall quarter.

**Joe Morse** retired in June 2006. In January he slipped on the ice which resulted in a broken hip.

In July 2006 **John Whitmer** was in a bicycle accident that resulted in a fractured hip socket. An operation at Harborview Hospital in Seattle was required followed by extensive rehabilitation.

## Scott Wilkinson Joins Staff



Scott Wilkinson joined the department in July 2006 as the General Chemistry Lab Coordinator after earning two chemistry degrees from Western - his B.S. in 2003 and his M.S. in 2006 with David L. Patrick as his advisor.

Scott enjoyed his years as a student at Western and was happy to return as a staff member after a brief foray into the world of college instructing at Whatcom Community College. He looks forward to the opportunity to work with the faculty and staff that he knew and admired as a student and also to meet and work with new members of the department.

As the Lab Coordinator, Scott is involved with maintenance and support for the lab portions of general and analytical chemistry as well as the new Honors Chemistry series. Scott supervises lab preppers, lab assistants and graduate teaching assistants, develops new experiments, and teaches several labs each quarter.

Scott trains all year for the annual Chuckanut 50 km trail race and other long distance races. He also enjoys writing, reading, playing blitz chess, and flailing away on the drum kit he has had for 25 years.

## Pauling Award

Peter Stang, Distinguished Professor in the Department of Chemistry at the University of Utah, received the 2006 Linus Pauling Medal at the 41st Annual Pauling Award Symposium held at Western on November 4, 2006. The Linus Pauling Medal is given annually by the Oregon, Portland, and Puget Sound Sections of the American Chemical Society. The award recognizes outstanding accomplishments in chemistry in honor of Linus Pauling, a native of the Pacific Northwest.

The Symposium featured the following lectures: "The Nanoscience of Heterogeneous Catalysis and Evolution of Molecular Surface Biology" by Gabor Somorjai (UC Berkeley); "The Evolution of Massively Parallel Dip Pen Nanolithography" by Chad Mirkin (Northwestern); "Structure and Stability of a Protein Devoid of Alphaamino Acids" by Alanna Shepartz (Yale); "Nanoscale Molecular Architecture: Design and Self-Assembly of Metallocyclic Polygons and Polyhedra via Coordination" by Peter Stang (Utah).

David Patrick served as chair of the Pauling Award Committee and Chris Daley organized the Symposium.

## Carrie Stoffel: Instrument Specialist



Carrie Stoffel became our new instrument specialist in July of 2006. Carrie comes to us from Wisconsin, where she received her BA in Chemistry from Lawrence University. From there she went on to graduate school in analytical chemistry at the University of Colorado - Boulder. For her PhD she worked on designing

and building a fluorescence instrument to count active virus particles in solution. For her postdoctoral work Carrie received an NSF Discovery Corps Fellowship and came to Bellingham to work at Western in the Science Education department (SMATE). During the two years of her postdoctoral work she worked with the WWU Science Tutoring Program to establish after school science programs in local elementary and middle schools. These programs allow WWU students to work with younger students in the community to get them excited about and interested in studying science.

As the instrument specialist Carrie helps to make sure the instrumentation is ready for use in much of the upper level chemistry courses. Carrie enjoys being able to work with students and use her analytical chemistry education to teach them how to use the department's instrumentation.

When not working hard in the chemistry department Carrie can be found exploring the Pacific Northwest (coming here from the Midwest there is a lot to explore), cooking, traveling, reading, hiking, or quilting. After a recent trip to Germany she is trying to brush up on her high school German and research her family's genealogy.

## Annual Colloquium

Our annual Scholars Day was held on May 19, 2006. Undergraduate and graduate students presented a total of 30 posters and 5 talks. The keynote speaker was Harry Gray, Arnold O. Beckman Professor of Chemistry and founding Director of the Beckman Institute at Cal Tech. His talk was entitled "The Currents of Life: Electron flow through iron and copper proteins."

For Scholars Day on May 18, 2007 our keynote speaker will be Elsa Reichmanis, Director of Polymer and Organic Materials Research at Bell Labs. She is also past-president of the American Chemical Society.





# Graduation



## RECENT DEGREES

### CLASS OF 2005/2006

Congratulations to our graduation class of 2005/06. Graduation honors and immediate post-graduation activities as known to us are in parentheses behind each graduate's name.

#### MS CHEMISTRY

**Monique Brewer**

(Instructor, Whatcom Community College, Bellingham, WA)

**Amanda Henry**

(Instructor, Fresno City College, Fresno, CA)

**Jennifer Meyer**

(Lab Technician, British Petroleum, Cherry Point, WA)

**Bruce Van Dyke**

(Instructor, New Hampshire Community Technical College, Portsmouth, NH)

**F. Scott Wilkinson**

(General Chemistry Lab Coordinator, WWU)

#### BA ED Chemistry/ Mathematics

**Melissa Chalfant**

(Chemistry Instructor, Mount Vernon High School, Mount Vernon, WA)

#### BA Chemistry

**William Heaton**

(Quality Assurance, Medtronic Inc., Santa Rosa, CA)

**Benita Ikegwuoha**

(Masters in Nursing, University of Texas - Arlington)

**Shelley Kinney**

(2nd degree B.S. Mathematics)

**James Pearson**

(Masters in Teaching, Secondary Science Education, WWU)

**Mary Steele**

(Completed Masters in Teaching, WWU; PhD program, University of Arizona)

#### BS Chemistry and ACS Certification

**Alexandria Anderson**

(PhD program, University of Washington)

**Benjamin Boritz**

(Chemist, Laucks Testing Laboratory, Seattle, WA)

**John Collins**

(Chemist, Botanical Laboratories, Ferndale, WA)

**Natalia DeKalb**

(MS program in Chemistry, WWU, Kriz Lab)

**Tiffany Fegurgur**

(Nursing School interest)

**Joshua Freeman**

(Chemist, Botanical Labs, Ferndale, WA)

**Morgan Gleaves**

(PhD program in Chemistry, University of Washington)

**Jonathan Jennings****Jeffrey Keverline**

(Analytical Chemist, Myramid Analytical, Austin, Texas)

**Andrew Killgore****Christopher Leiske****Brian Michel**

(PhD program in Chemistry, University of Utah)

**Patricia Neff****Kevin Nordby****Daniel Rohde**

(Chemist, Clean Harbors Environmental Services)

**Jennifer Sherin**

(Water Quality Testing, Edge Analytical, Burlington, WA)

**Brian Simonson****Rebecca Swanson**

(Chemistry MS program, WWU, Daley Lab)

**Candace Thompson**

(Chemistry MS program, WWU, Emory Lab)

#### BS Biochemistry

**Anne Chapin**

(Chemistry Department Honors)

**Michael Durrant****Daniel Finley**

(Chemistry MS program, WWU)

**Michelle Frome****Katherine Graham****Jacqueline Hawkins**

(PhD program, Washington University, St. Louis, MO)

**Chadwick Merkel**

(Dental program, University of Washington)

**Nathan Morgan**

(Dental program, University of Washington)

**Brian Nelson**

(Lab Assistant, St. Joseph Hospital, Bellingham, WA)

**Emily Olson**

(Physician Assistant program, Shenandoah University, Winchester, VA)

**Daniel Roeter**

(School of Medicine, University of Miami, Miami, FL)

**Sean Rumberger**

(Technician, ZymoGenetics, Seattle, WA)

**Sandlin (Preecs) Sequin**

(Chemistry Department Honors; Chemistry Department Outstanding Graduate Award; PhD program, University of Pittsburgh, Pittsburgh, PA)

**Aleksey Shkurat****Jessica Telleria**

(Cum Laude; WWU Female Scholar/Athlete of the Year; School of Medicine, Stanford University, Palo Alto, CA)

**Adella van der Walde**

(Chemistry Technician, Edge Analytical, Burlington, WA)

**Kevin Yeadon**

(Chemistry Technician, Edge Analytical, Burlington, WA)

# Awards

## 2005/2006 Chemistry Department Awards

Outstanding Chemistry Department Graduate

Sandlin (Preecs) Sequin

Sea Bong Chang Memorial Biochemistry Award

Sandlin (Preecs) Sequin

Hypercube Scholar

Calvin Murphy

Outstanding Analytical Student

Angela Munson

Outstanding Organic Series Student

Laura Steffens

Outstanding Honors Student

Karla Slenkamp

CRC Press Freshman Chemistry Award

Dane Kim

# Scholarships

## 2006/2007 Scholarship Recipients

Knapman Senior Renewal

Tyler Mamiya

Knapman Junior  
Scholarship

Matthew Holt

Ruth Watts Female  
Research Scientist

Laura Steffens

Jerry Price/Nancy Sherer

Brendan Abolins

Verna A. Price

Amy Olson

Barbara French Duzan

Bennett Johnson  
Brad Zeiger

Tuition/Fee Waiver

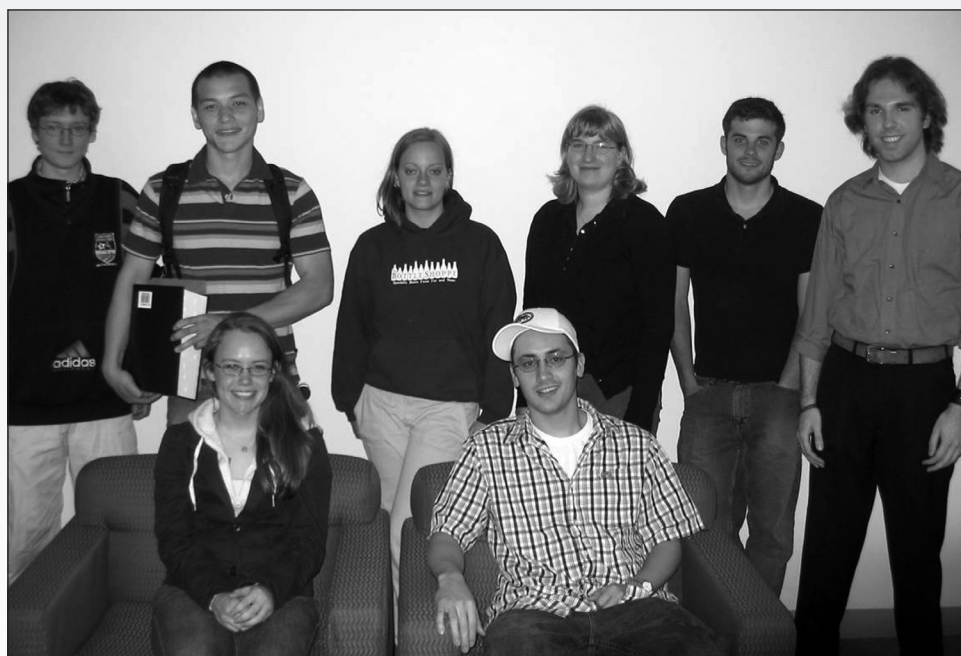
Gretchen Bartelson

College of Sciences &  
Technology - Women in  
Science

Jennifer Angelosante

Hach Scientific Foundation  
Chemistry Teaching

Andrea Davidson  
Karen Hasenoehrl  
Morgan Luce  
James Pearson  
Sian Thornton



### Award and Scholarship Winners

Front row, left to right: Laura Steffens,  
Tyler Mamiya

Back row, left to right: Brad Zeiger, Dane  
Kim, Sandlin (Preecs) Sequin, Angela  
Munson, Matt Holt, Brendan Abolins

Missing: Jennifer Angelosante, Gretchen  
Bartelson, Bennett Johnson, Calvin Mur-  
phy, Amy Olson, Karla Slenkamp

## Sequin Chosen for Awards

Sandlin (Preecs) Seguin was chosen as the outstanding graduate for the Chemistry Department and as the recipient of the Sea Bong Chang Memorial Award in biochemistry. She began doing scientific research during her freshman year, when she worked with John Bower assessing seabird populations in the Strait of Georgia. During her sophomore year she started the Out of State Students Association and began working with Lisa Gentile on the gamma secretase complex. This enzyme has been shown to lead to the plaques associated with Alzheimer's disease. Sandlin shared her research with a variety of audiences, including the Alzheimer's Society of Washington, the Protein Society meeting in Boston, and legislators at the Posters on the Hill meeting in Washington DC. Her parents and grandparents attended her honor's thesis defense. During her career in chemistry Sandlin was also awarded the Ruth Watts Scholarship and Women in Science Scholarship.

After graduation, Sandlin married Matt Seguin, a graduate of Western's Vehicle Research Institute and fellow Alaskan at a ceremony at the Mendenhall Glacier in Juneau, Alaska. The two have moved to Pittsburgh, Penn, where Sandlin has started graduate work in Biological Sciences at the University of Pittsburgh.



### 2006/07 Hach Scholars

Front row, left to right: Morgan Luce, Andrea Davidson  
Back row, left to right: Karen Hasenoehrl, James Pearson, Sian Thornton



*Professors Chris Daley and Jim Vyvyan*

## Commencement Reception

The Chemistry Department now hosts a spring Commencement Reception each year to congratulate our graduating students from the past academic year and to give them an opportunity to share their memories and future plans with family, friends, faculty, and staff. More than 100 people attended the Inaugural Spring 2006 Commencement Reception. Reception remarks were given by Professor George Kriz as guests enjoyed a buffet.



*Left to right: Daniel Roeter, Jessica Telleria, Sean Rumberger, Anne Chapin, Professor Steven Emory*



# Alumni News

## 1960's

**Robert Matson** '69 MS '71 was inducted into the Beckman Coulter Inventors Hall of Fame in ceremonies held on May 6, 2006 in Palm Springs, California. The Hall of Fame was created to promote inventiveness and creativity throughout the company and to bring public recognition to both the inventors and their contributions to the organization. Robert is a Senior Staff Research Biochemist at the Advanced Technology Center, Beckman Coulter, Inc. in Fullerton, California.

## 1980's

**William "Greg" Cox** '82 continues to work on his science fiction books. Newest releases are "Star Trek: To Reign in Hell", "Alias: Namesakes", "Infinite Crisis: The Novel", and "Ghost Rider". His website is at [www.gregcox-author.com](http://www.gregcox-author.com).

**Teresa Nicolson** '87 received her PhD in Biological Chemistry from University of California, Los Angeles. She is an assistant professor of otolaryngology /head and neck surgery at Oregon Health & Science University where she has been named a Howard Hughes Medical Institute Investigator. She is interested in the mechanisms underlying hearing and is using zebrafish genetics to identify key components of the transduction apparatus responsible for hearing in vertebrates.

## 1990's

**Hiro Yamamoto** '93 is an organic chemist with Edge Analytical in Burlington, Washington. He and his wife Kate live in Sudden Valley with their sons (Choji and Yoshi).

**Kate (Arundell) Sandelin** '94 returned to Bellingham and is teaching for the physics department, Western Washington University.

**Garth Simpson** '95 gave a seminar entitled "Novel Approaches for Investigating Biological Interfaces" to our department on May 11, 2006.

**Michael Haas** '96 is an ophthalmologist with Eye Associates of New Mexico. He and his wife live in the Four Corners area of New Mexico in the foothills of the San Juan Mountain Range where they enjoy hiking and other outdoor activities.

**Bob Baker** '96 MS '98 is working for General Electric in Massachusetts.

**Drew Brackley** '99 is currently a liquid crystal display engineer at Rockwell Science Center in Thousand Oaks, CA.

**Hawkins DeFrance** '99 received his Doctor of Pharmacy degree in 2006 and has accepted a position as a Senior Scientist in a division of Siemens Molecular Imaging called PETNET Solutions.

**Meredith Morgan** '99 is finishing her postdoc at NIH Bethesda and is seeking a position on the west coast. Her

research is focused on cartilage tissue engineering using polymer scaffolds and adult bone-marrow derived stem cells. Her fiancé Dan, whom she met at Duke University, is completing his MBA.

## 2000's

**Brian Baer** '00 received his PhD in Medicinal Chemistry from University of Washington in December 2005. He is working in the Drug Metabolism group for Array Biopharma. Brian and his family (wife Nicole and son Dylan) now reside in Boulder, Colorado.

**Joe Deverich** '00 works in Research and Development with Mylan Technologies in Vermont.

**Bekah (Main) Mellema** '00 and **Tyler Mellema** '04 Sociology welcomed their second son Nathan into their family in August 2006.

**Chuck Schelle** '00 continues teaching the sciences at Windward High School in Ferndale where there are small classes and student-teacher interaction is emphasized. Chuck says he is still having fun teaching. "I like the kid's response to science....I enjoy offering classes that they want to take." Chuck fishes, hikes, and plays sports when not teaching.

**Nick Smith** '00 received his PhD from University of Wisconsin, Madison and is currently a postdoc at Los Alamos National Laboratory in New Mexico.

**Andy Bookter** '01 completed an MS in Geology with emphasis in hydrology and geomorphology at the University of Montana. He is currently working a seasonal position at the Juneau Forestry Science Laboratory in Juneau, Alaska. Andy tells us, "...the job is interesting and exciting and has been getting me out in the field a fair bit...southeast Alaska is a great place to explore...."

**Nikki Chin** '01 recently graduated from University of Washington School of Dentistry and is an Associate in private practice in Mill Creek, Washington. Nikki shares her time with friends, reading, or just enjoying the outdoors.

**Barrett Nelson** '01 is a Senior Associate at Amgen and is also in his last year of an MBA program at the University of Washington.

**John Flanagan** '02 earned his PhD from University of Virginia and is currently a postdoc at Oxford University, England.

**Will Freeman** '02 completed his MS Mathematics from WWU in 2005 and is currently in a tenure track position in the math department at Portland Community College in Oregon. Will tells us that he is "...telemark skiing...Mount Hood is boring compared to Mount Baker...!" He has also taken up surfing off the coast of Oregon.

**Rhys Lawson** MS '02 earned his PhD from University of





# Alumni News

Washington in 2006 and is finishing his law degree.

**Aaron Schützer** '02 finished law school and was sworn into the Washington State Bar Association. Aaron is working towards his registration with the Patent and Trademark Office and hopes to work as a patent attorney in chemistry.

**Steve Staben** '02 is finishing his PhD at UC Berkeley and has accepted a position with Genentech in San Francisco.

**Joe Valente** '02 is in the chemistry doctoral program at Colorado State University in Fort Collins, Colorado.

**Rebecca (Engle) Bulanhagui** '03 received her graduate degree in Nutrition from Bastyr University and took some time off to enjoy her new baby girl! Congratulations!

**Ben Edwards** '03 was in the Bellingham area and said he misses the ambience of the chemistry office. Ben is currently with the Washington State Department of Transportation Materials Laboratory. For fun and relaxation Ben referees high school football, tutors high school students in math and the sciences, and occasionally hikes and bikes.

**Jill Larson** '03 enjoys her work with Ambry Genetics in Aliso Viejo, California. The company primarily tests patients for cystic fibrosis. Jill is busy planning her wedding for June 2007 and has a side business to pay for the wedding! She enjoys spending time on the beach with her golden retriever, Cosmo.

**Nitobe London** '03 is a Laboratory Technician with the Fred Hutchinson Cancer Research Center in Seattle, WA.

**Jennifer Meyer** '03 MS '06 is currently a Lab Technician with British Petroleum at Cherry Point, WA.

**Andy Morgan** '03 works at the Fred Hutchinson Cancer Research Center for Steve Henikoff. A young chocolate Labrador retriever is part of the Morgan household.

**Ava Berg** '04 is studying to be a horticulturist.

**Zach Biddle** '04 earned his MS from Pennsylvania State University in August 2006 and is now a Staff Chemist in the Drug Metabolism Division with Merck Research Laboratories in New Jersey.

**Lance Culnane** '04 is in the PhD program in chemistry at the University of Hawaii at Manoa. His activities include taking part in protests and environmental activism.

**Abbie Lambert** '04 is in her third year in the Biomolecular Structure and Design Program at the University of Washington and is working with the Barry Stoddard group at Fred Hutchinson Cancer Research Center.

**Kasey Messer-Daley** '04 is in her second year of Pharmacy School at Washington State University. She married Joseph Daley WWU Business Administration '06. She holds the public relations position for the Professional Pharmacy Student Organization at WSU and is actively involved in community and student health outreach. She was selected to join the WSU

College of Pharmacy Rho Chi Honor Society.

**Haley Pugsley** '04 is in her third year of graduate school in the Chemistry Department at the University of Washington. In summer 2006 she was selected by the Department of Energy to attend the 56th Lindau Meeting of Nobel Laureates and Students in Lindau, Germany.

**Melanie Rehm** '04 and **Jeff McMahon** '04 are busy with working, living in Chicago, saving for a condo, and an upcoming wedding.

**Vlad Spivak** '04 is currently with Merrimack Pharmaceutical in Cambridge, MA where he is working in protein purification and process development. He writes that "my roles have diversified and my responsibilities (as well as my workload and work output) have increased greatly."

**Jon Stewart** '04 is the Lab Supervisor with a petroleum testing lab called Intertek Caleb Brett.

**Marissa Bebee** '05 is attending University of Washington School of Medicine with little time to herself.

**Craig Campbell** '05 was recently married and spent time on the Big Island of Hawaii. He has returned to complete his Chemistry MS studies at WWU under the guidance of Mark Wicholas.

**Brian Jeppesen** '05 was married in June 2005 and is now attending medical school at Oregon Health and Science University in Portland, Oregon. Brian and his wife Julie enjoy their free time by hiking around the Columbia Gorge, biking in Portland, and visiting the coast.

**Sean Morgan** '05 is enrolled in the School of Dentistry at Indiana University.

**Calvin Murphy** '05 is now working with Intalco in Ferndale, WA.

**Rebecca Newhouse** '05 completed an internship with Intel and then returned to University of California, Santa Cruz for her second year of graduate school where she is studying physical chemistry.

**Ron Norwood** '05 is part of the design team with Aluminum Chambered Boats in Bellingham.

## Annual Chemistry Department Picnic

Date: Saturday, June 2, 2007

Location: Fairhaven Park

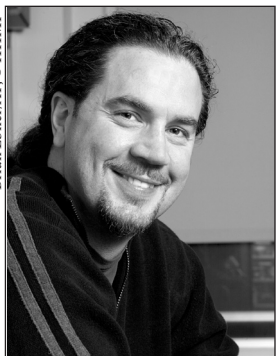
Time: 1 – 6 PM

Please call the department at (360) 650-3070 if you plan to attend

# Alumni Spotlight

## Ed Chapman

Brian Ebner/AP, © HHMI



Ed Chapman grew up in Bellingham and after high school he attended WWU (as did his father and siblings), graduating in 1985 with a BS in Chemistry/Biology. He then moved to downtown Seattle where he worked at a local biotech company (Genetic Systems Inc.) on diagnostic tests for HIV, hepatitis, and tissue typing. In 1987 Ed decided to

go back to school and 5 years later he received his PhD in Pharmacology from the University of Washington. He then drove cross-country in a pick-up truck to commence post-doctoral studies with Reinhard Jahn at the Howard Hughes Medical Institute at Yale University in New Haven, Conn. In 1996 Ed became an Assistant Professor of Physiology at the University of Wisconsin-Madison. In 2005 he was promoted to full Professor and was appointed as an Investigator of the Howard Hughes Medical Institute. Ed has been the recipient of numerous awards including a Pew, Shaw, and Romnes Awards.

While a post-doctoral fellow at Yale, Ed became fascinated by the question of how biological membranes fuse. This is one of the most elementary events in biology, mediating processes ranging from synaptic transmission to fertilization, yet the mechanism of membrane fusion remains, to this day, largely unknown. Part of Ed's laboratory uses a reductionist ground-up approach to try to address the mechanism that underlies the exocytosis of neurotransmitters from neurons. His lab has recently succeeded in reconstituting, using purified components, the fusion machine that mediates neurotransmitter release. His group is now using biophysical methods to elucidate the inner workings of this membrane fusion machine.

Ed's lab is also studying the fusion machine in living cells. During neuronal exocytosis, an aqueous connection between the lumen of synaptic vesicles (SVs) and the synaptic cleft is formed, allowing efflux of neurotransmitter – this structure is called the fusion pore. His laboratory uses a number of biophysical and optical methods to study the fusion pore in both neuroendocrine cells and in neurons. His group has shown that neurons employ distinct modes of exocytosis including full fusion and collapse of SVs as well as “kiss-and-run” exocytosis that involves the reversible opening and closing of the fusion pore

without full membrane merger. His laboratory is now trying to determine whether neurons switch between these distinct modes of exocytosis, and whether this switch mediates aspects of synaptic plasticity, including memory and learning.

Ed's education at WWU profoundly affected his scientific career in numerous ways. His work on exocytosis was strongly influenced by his background in chemistry, and he credits his WWU mentors, especially Crook, Pavia, Wilson, and Whitmer, for instilling the first principles that helped him along during his career. As a further example, while in a biology course taught by Don Schwemmin in the Biology Department, Ed learned that botulinum neurotoxins (BoNTs) are the most potent toxins known to mankind; he also learned that the mechanism of action of these toxins was unknown. This planted a seed in Ed's mind to someday determine how these toxins exert their effects. There are seven related toxins, and during his post-doctoral studies Ed helped to discover that these neurotoxins enter neurons and cleave components of the fusion machine, resulting in paralysis and death. While the action of BoNTs within neurons has been well established over the last decade, little is known concerning the means by which the toxins gain entry into neurons in the first place. What are the cell surface receptors? What are the entry pathways for internalization of the toxins? Ed's lab recently discovered that a number of BoNTs enter neurons by binding to synaptic vesicle proteins that are transiently exposed to the outside of neurons during exocytosis. In effect, the toxins “piggy-back” onto recycling vesicle and enter cells via a Trojan horse strategy. His lab has used this information to render animals resistant to these toxins, and to create designer toxin-receptor pairs that can be used to sensitize cells to this class of molecules for therapeutic uses. This work has resulted in a number of patents as well as a start-up company called Biosentinel that is located in Madison, Wis.

Ed's parents and siblings continue to thrive in the Pacific Northwest, and so he visits Seattle and Bellingham a few times a year. When not working or traveling, Ed and his girlfriend Stefanie spend their weekends with Stefanie's two daughters, ages 7 and 9. Ed's hobbies include listening to music, watching films, strength training, and enjoying the pubs in Madison with friends.



# Thank You to Donors

We wish to thank the following alumni and friends of the department who donated to the following Chemistry Department Western Foundation Funds during the 2005/06 academic year. Employees that matched donations are noted in brackets following the donors' names. Donations during the past year funded a variety of activities, including scholarship matching, academic awards, undergraduate research projects, small equipment purchases, and events for department majors and alumni.

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Name: \_\_\_\_\_

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Is this a change? \_\_\_\_\_

Do you have any news to share in the 2008 Alumni Newsletter?

Information of interest might include job descriptions, promotions, research, awards, publications, outside interests, and news of your family.

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