chemistry wwu

Newsletter for Alumni and Friends

Message from the Chair

Jim Vyvyan

Change was a theme in the department again this year. The timing of this newsletter is an obvious change. It is reaching you later in the year, but this 'double issue' puts us on a traditional academic year schedule and is a great fall kick-off. Another big shift is in the chair's office. Steve Gammon left WWU in the summer of 2012 to become dean of Arts and Sciences at Eastern Oregon University. George Kriz pinch-hit for a time, and I began my term as chair in April. I am fortunate to work with a group of such talented faculty and staff, and will do my best to help the department continue to grow and improve.

Transitions and additions continue among the faculty and staff. We are happy to welcome Robert Berger to our department in a tenure-track appointment. Rob's specialty is computational chemistry, and he will be teaching the physical/inorganic laboratory courses in addition to general chemistry this year. Rob's wife, Spencer, will be teaching with us as well, in a non-tenure-track position. Charlie Wandler took on a new role in Scientific Technical Services after many years in the Chemistry Department, first as instrument specialist and then as organic chemistry laboratory coordinator. Fortunately, we still see Charlie often and take advantage of his instrument expertise with SciTech. Our program coordinator, Karen Smith, took a promotion to become the administrative services manager for the WWU Journalism Department. Karen was a strong student advocate, and we wish her well in her new position. Sara Young is leaving us as well to take a management position with the Bellingham Food Co-op. While she was department manager, Sara improved the efficiency of several processes and streamlined office operations. I am grateful to Sara for helping me transition into the chair position and helping me navigate my new environment. Thanks, Sara, and good luck!

Britta Eschete has recently joined our team as program coordinator. Hla Win-Piazza started her position as organic laboratory coordinator last September and has kept the NMR lab humming with the activity of more users than ever before. I hope you'll stop in and introduce yourself to Britta and Hla the next time you visit the department. When you stop by, you'll notice the sign in front of the building is different. The WWU Board of Trustees changed the logical but boring name "Chemistry Building" to Morse Hall, in honor of former WWU President Karen W. Morse. Joe Morse, professor of chemistry emeritus and former director of the Science, Math, and Technology Education (SMATE) program, was honored as well through the naming of a lecture hall in the SMATE building.

Last year we reported on the retirement of long-time department manager Denice Hougen. I am sad to say that Denice lost her battle with ALS at the end of January. Her care and commitment to the department helped make us an extended family, and it was touching to see so many faces from the past at her memorial service. We also mourned the sudden passing of Carolyn Kriz last December. Thanks to everyone that shared memories and kind words as we grieved.

The accomplishments of our tremendous students, past and present, can always lift our spirits. My faculty colleagues enjoyed another year of healthy external funding to provide the research opportunities that have become the cornerstone of our program. I hope you enjoy reading about them inside.

Cheers,

Jim

inside:

In Memoriam: Denice Hougen

This year we were saddened by the passing of Denice Hougen, who died at home on January 29th, 2013 from complications of ALS (Lou Gehrig's Disease). A Celebration of Life was held by her family and friends on February 17th at the Boathouse in Zuanich Park. George Kriz, Gerry Prody, and Spencer Anthony-Cahill represented the Chemistry Department at the event, where they shared readings, songs, and fond memories of Denice.

Denice was an integral part of the Chemistry Department for over 30 years, serving as the department manager for 25 of those years. She worked tirelessly to keep everything running smoothly in the office, and loved interacting with students. Denice was that kind, caring, helpful person that every parent hopes his or her child will find when they go off to college on their own. Denice frequently had a smile on her face, especially when she was doing something with or for students - whether that was helping them with advising, baking fresh chocolate chip cookies for the graduate students defending their theses, taking pictures at the end-of-year award ceremonies, or setting up a reception for graduating students and their families at spring commencement. Denice retired from WWU in December 2011 following her diagnosis of ALS (see our 2012 newsletter).

Her family has established The Denice (Ambrose) Hougen Chemistry endowment, which will allow Denice's legacy of helping and caring for WWU students to continue in perpetuity. These funds will provide scholarship or summer research support to students in the Chemistry Department. The first award from this fund was made this past June at the Chemistry Department Awards Ceremony (see story p. 15).

Donations in honor of Denice can be made to either the ALS Association Evergreen Chapter (webwa.alsa.org), or to Whatcom Hospice Foundation (www.hospicehelp.org), or to the Western Foundation Chemistry Scholarship Fund established in Denice's name (www.wwu.edu/give).

In Memoriam: Ruth Minge

Ruth Minge passed away on March 10, 2013 at the age of 89. In 1960 she became the administrative secretary for the Physical Science Department (physics and chemistry) that was located in Haggard Hall. She stayed with chemistry when those disciplines became separate departments in 1962. She was promoted to administrative assistant in 1970. Ruth faithfully served the Chemistry Department until she retired in 1986. She was superintendent and Sunday school teacher at Ebenezer Lutheran Church, and an active member and former recording secretary at St. John's Lutheran Church. Ruth loved artwork, holidays, picnics with family and friends, theater, games, walks, and the Seattle Mariners. She was preceded in death by her parents and siblings, and is survived by nieces and nephews and their children

Alumni Spotlight - Ken Roberts

Ken Roberts

Ken Roberts grew up in Pacific Beach, WA, a small town north of Grays Harbor, and graduated from North Beach High School. After an unsuccessful bid for a position at the US Coast Guard Academy, Ken enrolled at Grays Harbor Community College (GHCC) where he found that chemistry, a subject he loathed in high school, was actually pretty cool. After receiving his AA degree from GHCC, he transferred to Western Washington University where he discovered biochemistry, a subject he liked even better than chemistry. In his senior year at Western, he did a research project with Professor Sal Russo who advised him to consider graduate school and pointed him in the direction of Washington State University (WSU). Ken entered the program in Biophysics and Biochemistry at WSU where he worked in the lab of Professor Michael Griswold. His thesis study focused on the endocrine regulation of Sertoli cells and the role of these cells in transporting nutrients, such as iron, to developing sperm cells. Upon completing his PhD in 1989, he joined the lab of Professor Barry Zirkin at John Hopkins University, continuing his work in the endocrinology of male reproductive biology and biochemistry. His postdoctoral investigation demonstrated that sperm cells, and not hormones, are the primary regulators of Sertoli cell secretory activity in the testis.

In 1993 Ken joined the faculty of the University of Minnesota Medical School in both the Departments of Urologic Surgery and Cell Biology & Genetics. Here his research interests expanded to genetic causes of male infertility. In collaboration with a urologist and infertility specialist in his department, they demonstrated that micro-deletions in critical regions of the Y chromosome were present in 5% of men who had male-factor infertility, and that it was likely that genetic infertility could be passed on by assisted-reproductive technologies. This work was published in the New England Journal of Medicine in 1997. Subsequently his research interests have expanded to the study of epididymal sperm maturation and its possible role in male infertility. Another area of research is gamete cryopreservation. This involves an exciting collaboration with a colleague in the Department of Mechanical Engineering, bringing together biochemistry and biophysics.

While at the University of Minnesota, Ken's career took a very unusual turn, at least unusual for a biochemist. Because of the responsibilities of his department, he began teaching anatomy to medical students and residents. This was an unsettling experience in the beginning, since he had no formal training in anatomy other than an anatomy and physiology course at Western. But over time he grew to enjoy the teaching experience, and in 2001 he became the director of the Human Anatomy Program at the University of Minnesota. His accomplishments in teaching and education have been recognized by membership in the Academy of Medical Educators. In addition, he received the Minnesota Medical Foundation Outstanding Medical School Teacher Award in Basic Science (2004) and the University of Minnesota Distinguished Teacher Award (2008).

Because of his experience in medical education at the University of Minnesota Medical School, Ken was recruited back to Washington State University in 2008 to become the first director of a new university-phase medical education site for the WWAMI program. (WWAMI is an acronym for Washington, Wyoming, Alaska, Montana and Idaho, the 5 state participants in the medical education program accredited through the University of Washington School of Medicine.) The new WWAMI program, now in its fifth year on the Spokane Riverpoint campus of WSU, has over 25 participating faculty in Medical Sciences at WSU, and it is projected to grow substantially over the next 5 years.

Ken Roberts is currently an associate professor in the School of Molecular Biosciences and director of Medical Sciences at WSU Spokane. He is also an assistant dean and an affiliate associate professor of biochemistry at the University of Washington School of Medicine. He has published over 60 peer-reviewed articles in reproductive biology, male infertility, and urology. His research has been funded by the NIH, EPA, NSF, and various foundations and industry sources. He is continuing his research on epididymal sperm maturation, taking a global proteomics approach to this problem in collaboration with colleagues at Pacific Northwest National Laboratory in the Tricities. He is proud to have been recognized as a Distinguished Alumnus of North Beach High School and an Outstanding Alumnus of the School of Molecular Biosciences at WSU.

Ken and his wife Meghan, a physician, live in Spokane, WA, with their children, Madeleine (8) and Will (6). The Roberts family enjoys outdoor activities such as biking, hiking, or swimming in the summer and skiing, sledding, or ice skating in the winter.

Founding a New College: My Western Adventure

Ten years ago I made a move that proved to be one of the most exciting of my entire career. From the University of Colorado as a professor in the Chemistry Department and associate dean for Natural Sciences, my wife and I decided to move to Bellingham, where I would become founding dean of the newly-formed College of Sciences and Technology and a member of the Chemistry Department. This proved to be a challenging and rewarding adventure, the sort that not many have the chance to experience during their careers.

In 2003 Western Washington University decided to split the large College of Arts and Sciences into two new colleges, the College of Sciences and Technology (CST) and the College of Humanities and Social Sciences (CHSS). This was not popular with some of the Western faculty. So as you might expect when I arrived on the scene as the new dean of CST, there were skeptics and some distrust of what would happen, both in CST and in CHSS. Was this college split really a good idea and would it succeed? Would the faculty in the departments of the new CST come together into a new college not only formally, but also in spirit? These questions did not come as a surprise, since at Colorado I had overseen several difficult departmental reorganizations. I knew that departments, the CST, and I faced a challenge.

CST was to be made up of the Biology, Chemistry, Computer Science, Engineering Technology, Geology, Mathematics, and Physics departments and the Science, Mathematics, and Technology Education program. Some were in favor of forming the new college; some were not. It became my challenge to convince the doubters that the departments and their students could do better as part of a new college than they could under the old system.

Several things were important from the beginning. It was necessary to develop effective communication with departmental chairs, faculty, and staff. Biweekly chairs meetings, visits to departmental meetings, and a transparent system of college management were essential. By adopting an interactive style of management that was supported by a first-rate office staff, it was amazing how quickly the faculty and departments came together as a coherent and highly competitive new college. Student recruiting programs were established, a development effort was mounted to increase faculty and student support, and a number of new, vibrant, and exciting faculty were hired. We found new sources of external funding and advocated tirelessly for an increased level of undergraduate and graduate research. The Chemistry Department was a leader among the CST departments as we moved ahead. Through the leadership of chairs like Mark Wicholas and later Steve Gammon and George Kriz, and the support of committed departmental staff, departments coalesced as had been hoped when the CST was first formed. For me as the first dean, it was exciting to be leading these efforts. The College of Sciences and Technology is now well established and recognized, both locally and nationally, as a vibrant leader among the colleges of Western Washington University.

I now have been retired for almost 2 years and can look back at the highs and lows of the eight years I was CST dean. It has been rewarding seeing our students enter national competitions and regularly emerge on top and being told by companies hiring our students and graduate and professional schools accepting our students that they are among the very best. It has been exciting to see the CST faculty coalesce to establish important new centers of undergraduate excellence, such as the Advanced Materials Science and Engineering Center (AMSEC) and the Behavioral Neurosciences program (BRAIN). Both are recognized as outstanding undergraduate programs in the nation. To have our faculty and students increasingly winning major awards is a real high.

But we did see some tough times. Because of budget-cuts several years ago, we were forced to reduce programs, eliminate several faculty and staff positions, and cut back on the richness of our course offerings. But we did this without seriously eroding the student experience. The departments came together, faculty and staff made adjustments, and we weathered the storms. Through all of this I believe CST and its departments have emerged stronger and more resilient, and are well positioned to face the higher education challenges of the future.

There are still challenges ahead, but given Western's exceptionally high-quality faculty, staff, and students, I am optimistic about where CST and Western will go in the future. As the founding dean who had the opportunity to lead the college through its first formative years, I will sit back and watch what happens next. I feel very lucky to have been a part of the development of CST at Western.

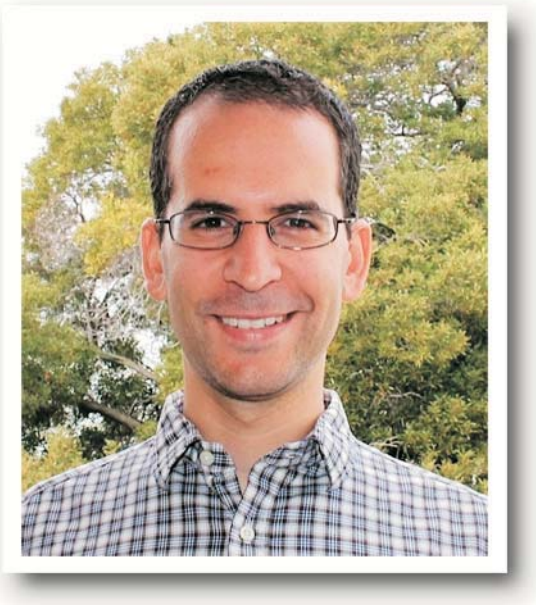
Although still closely in touch with CST, the Chemistry Department, and other Western friends, my attention is now focused on community activities such as the Bellingham Festival of Music, Rotary, and the SPARK Museum of Electrical Invention. My wife and I now have time to enjoy the Washington great outdoors and our five grandsons and their families. There is, of course, traveling. During the past year, in addition to several weeks of travel around the United States, we spent time in London, Paris, Normandy, and Turkey. On the horizon is a trip to Nicaragua and Costa Rica – always looking for a new adventure.

Arlan Norman
Emeritus Dean and Professor of Chemistry

New Faculty & Staff

Robert Berger will join the Department of Chemistry as an assistant professor in the fall of 2013. Growing up in Longmeadow, Massachusetts, Rob always had interests in math and science. He majored in chemistry at Princeton University, graduating in 2005. Rob then did his graduate research at Cornell University from 2005-2009, in computational chemistry with Profs. Roald Hoffmann and Stephen Lee. He studied the geometries of complex crystals made up of metallic elements, trying to understand why their structures are stable. Rob also enjoyed the opportunities to teach undergraduate chemistry at Cornell -- particularly because he met his wife, Spencer, when they taught a lab section together (this was a source of great amusement to their students). From 2009-2013, Rob headed west to California to do postdoctoral work at the Molecular Foundry at Lawrence Berkeley National Laboratory, a Department of Energy-funded facility for nanoscience research. This work, in the group of Dr. Jeffrey Neaton, focused on the computational design of transition metal oxide materials for energy applications.

Rob is eager to join the WWU community and to contribute to the outstanding research and teaching in the chemistry program. His research at Western, which lies at the interface of chemistry, physics, and materials science, will use chemical intuition and various types of electronic structure calculations to understand and design new inorganic materials for solar energy capture and conversion. Rob and Spencer are very excited to move north to Bellingham and look forward to exploring the area. In his free time, Rob enjoys running, reading, playing saxophone and tennis, and watching baseball.



Robert Berger

Hla Win-Piazza

Hla Win-Piazza joined the department in September 2012, taking over the Organic Lab Coordinator/NMR manager position long held by Charles Wandler (who is now employed by Scientific and Technical Services at WWU). Hla was born in Burma, and was well known throughout her younger years for running away from school. Each day her parents had to drag her to attend kindergarten. Hla hated school because it was "cold" and unfriendly.

From Burma, she moved to Canada and attended the University of Winnipeg where she began her interest in chemistry research. After graduating with a bachelor's degree in chemistry, she pursued a PhD in chemistry at the University of South Florida, studying the role of protein kinases in prostate cancer. While in Florida, Hla met her husband Michael, and found Toby her orange tabby cat. In graduate school, Hla gained an interest in applying chemistry to the life sciences, and decided to explore drug discovery and molecular biology in cancer research as a postdoctoral fellow. She spent 3 years at the Moffitt Cancer Center in Tampa, FL, and another year in the Department of Medicine at the University of British Columbia before taking the position here. Her knowledge of both chemistry and biology has provided a broad preparation for her staff position at WWU.

Having gone through years of highly demanding research, she finally found a niche where she is happy: namely, giving support to the Chemistry Department program at WWU. As a child, Hla thought she would not last long in school, but the one thing she has still failed to do is run away from school!

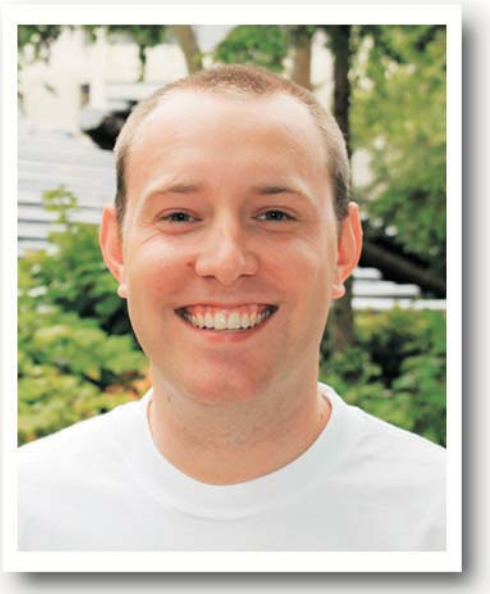
New Faculty & Staff (cont.)

Britta Eschete

Britta Eschete has a long history with Western Washington University as a student, liaison, and employee. She graduated from Western in 1998 with a degree in anthropology and biology. After participating in AmeriCorps for several years, she went on to work as education coordinator for the environmental non-profit organization People for Puget Sound. While on staff for over 9 years, she had numerous opportunities to interact and work directly with student interns and volunteers from WWU. In addition, she participated in campus career events and volunteer fairs, while networking with campus clubs. After the closure of People for Puget Sound, she worked in Academic Custodial Services at WWU, where she developed a sincere appreciation for all of the work that goes into the maintenance and stewardship of facilities here. She sought out opportunities such as taking Spanish classes and the Community Emergency Response Team. Britta is energized by the variety of activities and opportunities on campus - ranging from supporting the mission of environmental sustainability here at WWU to attending events, checking out the free rock bin, reading the New York Times or meandering through campus.

She is honored to be joining the Chemistry Department staff and is committed to meeting the needs of students whether they are new to the discipline of chemistry or are participating in the graduate program. She is most appreciative of the contributions department faculty are making to chemistry and looks forward to learning more about their on-going research projects. She commented that "This is an invigorating department to be a part of, and I look forward to learning and contributing to student services, the study of chemistry, and continuing to foster and be supportive of the collaborative working/learning environment that exists here."

She has a plethora of interests and skills, some of which she anticipates being of use in this department. An avid volunteer, she is most active with the Lincoln Theatre, Skagit Gleaners, RiverSong Farm, and KSVR Radio on a weekly basis. Her interests include native vegetation, organic farming, cooking, travel, European board games, canoeing, radio programming, and reading. She is also the parent to an 18-year-old daughter, Noelle, who is a student at Skagit Valley College. They were both born in Bremerton, and have lived in Washington State their entire lives, residing in Mount Vernon for the past 12 years.



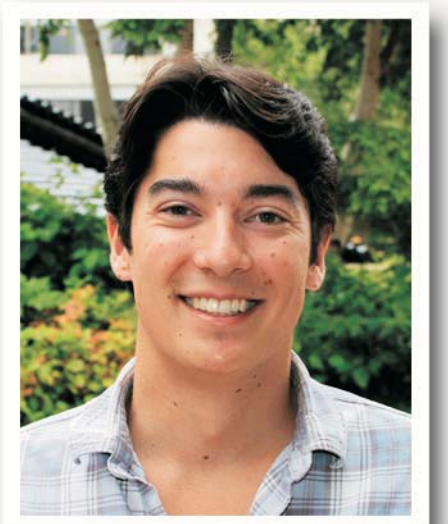
Colin Hanson

Colin was born and raised in Seattle, WA. After high school, he moved to Bellingham to study chemistry at Western Washington University. While pursuing his undergraduate studies, Colin worked at The Market grocery store and was an undergraduate researcher for Prof. Rider. He graduated in fall 2011 with a BS in chemistry.

After graduation Colin initially planned to go to graduate school for a master's in material science. However, in December of 2011 Colin was offered the instrument technician position in the department and gladly accepted. For now Colin has put his plans for graduate school on hold.

During his time off, Colin enjoys hiking, camping, sailing, and brewing his own beer. He is looking forward to his future here at Western and being able to continue to live in the beautiful town of Bellingham.

New Faculty & Staff (cont.)



Anthony St. John

Tony St. John was born and raised (mostly) in Anchorage, AK. During high school, Tony first developed an interest in chemistry thanks to his wonderful advanced placement teacher. This interest only grew as he went on to major in this subject at Whitman College in Walla Walla, WA. It was here that Tony realized that teaching was something that he would love to do. One professor in particular, Allison Calhoun, really stood out as someone who was totally committed to her students' learning. Tony tries to make sure he always keeps this commitment in mind as he now finds himself on the other side of the desk! After Whitman, Tony jumped straight into graduate school and finished his PhD work at the University of Washington in 2011, working jointly with Mike Heinekey and Karen Goldberg.

In his free time Tony enjoys playing old man league ice hockey, although more recently he has been working on his golf game.

WWU Chemistry Department Newsletter 14 was produced by:

Amanda Murphy ..... Coordinator

Amanda Murphy..... Photography

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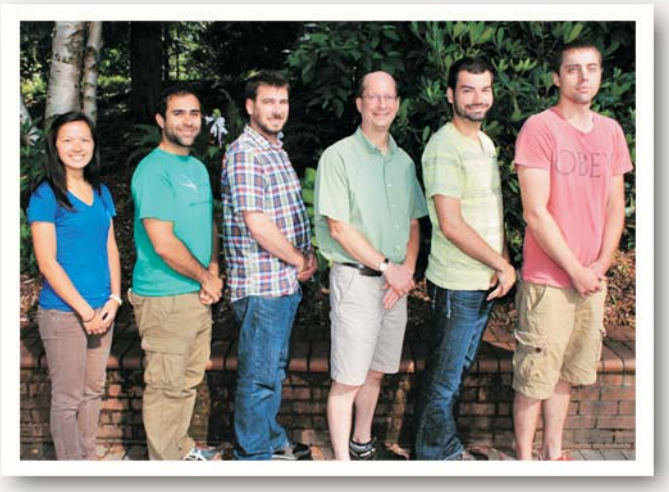
Grant Funding in 2012-13

Congratulations to the following chemistry faculty members who were awarded research grants in 2012-2013. This year our faculty members were particularly successful at landing large awards, garnering almost two million dollars to be spent over the next several years. This funding is critical to the growth of our department, and gives our chemistry students unique opportunities to participate in state-of-the-art research projects. A summary of the projects that received funding is given below.

Mark Bussell

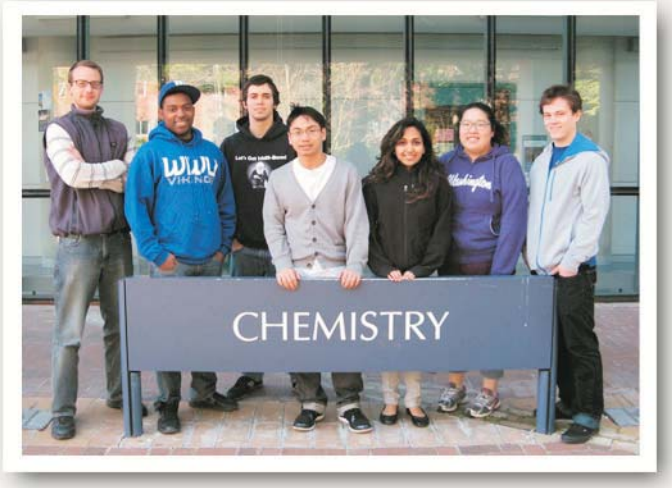


(Left-to-right): Andrea d'Aquino, Bo Carrillo, Rick Bowker, Mark Bussell, Boris Ilic, Sam Danforth

Prof. Mark Bussell was awarded two industry grants in the past year. The first was from Shell Global Solutions, Inc., New Technologies Business ($120k) for work entitled: "Metal Phosphide Materials for Oil Conversion Catalysis." This collaborative project with Shell is focused on developing metal phosphide catalysts and exploring their potential for use in commercial hydrotreating processes for the removal of sulfur and nitrogen impurities from crude oil feedstocks. The second from INVISTA Corporation ($34,690) is a collaborative project that will investigate whether an industrial nickel phosphide byproduct can be used as a template material for preparing nickel phosphide catalysts.

John Gilbertson

Assistant Professor John Gilbertson was awarded a prestigious Faculty Early Career Development (CAREER) grant ($470k over 5 years) from the National Science Foundation for work entitled: "Understanding and Utilization of the Secondary Coordination Sphere of Novel Biomimetic Catalysts for Small Molecule Activation." With these funds, Prof. Gilbertson will develop complexes utilizing abundant metals capable of producing useful feedstocks and fuels from CO_2. In addition, he is developing an outreach program that aims to introduce chemistry into the local media by training a generation of 'scientist citizens' to communicate their ideas and engage the public outside the classroom setting.



(Left to right): John Gilbertson, Willie Benjamin, Andrew Breuhaus-Alvarez, Zachary Thammavongsy, Radhika Raj, Yubin Kwon, Darren Veit.

Prof. Gilbertson also received an Undergraduate Research Award ($65k) from the American Chemical Society Petroleum Research Fund (ACS-PRF) for work entitled: "Homogeneous Fischer-Tropsch Catalysts for the Conversion of Syngas Into Higher Order Hydrocarbons." This work aims to develop new catalyst systems to convert readily available carbon monoxide and hydrogen gas (syngas) into chemical feedstocks and fuels to be used as an alternative to petroleum-based products.

Grant Funding in 2012-13 - cont.

Amanda Murphy

Back row (left-to-right): Tyler Albin, Sean Severt, Drew Goodman, Ben Rubin
Front row (left-to-right): Amanda Murphy, Paige Atterberry, Morgan Schurr, Isabella Romero, Emily Lasselle

Assistant professor Amanda Murphy was awarded an ACS-PRF Undergraduate New Investigator award ($50k over 2 years). This grant will fund research into the fundamental relationships between the chemical structure of conducting polymers and their ability to undergo electromechanical actuation (movement under an applied voltage). Conducting polymers offer many advantages over competing piezoelectric or polyelectrolyte materials as conducting polymers are flexible and lightweight, yet require much lower voltages (<5 V) and can generate higher strains. Further development of actuators based on conducting polymers is highly desirable for applications including switches, sensors, soft robotics, artificial muscles and prosthetic devices.

Greg O'Neil

Prof. Greg O'Neil had an extremely profitable year, obtaining both an NIH Academic Research Enhancement Award (AREA) grant ($290k over 3 years) as well as the prestigious NSF-CAREER award ($430k over 5 years).
The grant from NIH will fund a collaborative project with Prof. Jeff Young in the Biology Department at WWU. Prof. O'Neil's research team is working to synthesize simplified archazolid-derived V-ATPase inhibitors that will be evaluated with a plant-based V-ATPase assay developed by the Young group. The archazolids are a family of natural products that display powerful growth inhibitory activity against a number of human cancer cell lines. However, the mechanism by which these compounds achieve their activity is not completely understood. In addition to providing further insights into V-ATPase structure and function, this work has the potential to lead to new approaches for the development of V-ATPase inhibitor drugs to treat various severe diseases including osteoporosis and cancer.

(Left-to-right): Iris Phan, Emily Hunter, Brianne King, Greg O'Neil, Steven Swick, and John Williams

Through his NSF-CAREER funding, Prof. O'Neil will explore the use of b-acyloxysulfones as a general alkene protecting-group strategy, with an emphasis on its use in olefin metathesis to prepare important polyene compounds unobtainable by standard metathesis technology. A particularly attractive target for this chemistry is hydrocracking long-chain alkenone byproducts in biodiesel derived from algae. In addition to exploring this new reaction methodology, Prof. O'Neil has begun to implement a cross-disciplinary synergistic biodiesel experiment involving students at both the high school and college level. He will also incorporate this research into both a "Biofuels" and proposed capstone "Chemistry of Energy" course that are part of a new renewable energy curriculum at WWU.

Grant Funding in 2012-13 - cont.

David Rider

Back row (left-to-right): Micah Stumme-Diers, Blake Cassidy, Kyle Mikkelsen, Patrick Longley, Satu Heiskanen, Ryan Hackler, David Rider, April Fogel
Front row (left-to-right): Diane Perez, Fumitoshi Kato

Assistant Professor David Rider was awarded a Cottrell College Science Award ($35k for 2 years) from the Research Corporation for Science Advancement, to create a high performance catalyst-containing interfacial layer for hydrogen fuel cells. The target interfacial layer consists of a conductive matrix that is densely cross-linked by electrostatic bonding and would therefore function to reduce catalyst NP diffusion and aggregation, and consequently improve the longevity and performance of fuel cell devices.

Prof. Rider was also a key player in securing two grants from the Joint Center for Aerospace Technology Innovation (total $190k). This work is a partnership between Zodiac Cabin and Structures (ZCS) and the Departments of Engineering Technology and Chemistry at Western Washington University. The primary objective of the first research project is to reduce the number of phenolic-composite stowage bin panels that are rejected due to geometric distortion through an understanding of the effect of environmental, formulation, and processing variables on the production of the panels. The second project involves investigating alternative polymers and processing for creating next generation composites for the aerospace industry in Washington.

Lastly, Prof. Rider has been an integral part of a team of Chemistry and Engineering Technology faculty and undergraduates from WWU commissioned by ZCS. The company has provided $112k in summer research stipends and supplies to analyze the manufacturing process of their composite panels to reduce the number of panels that have to be scrapped do excessive warping.

Serge Smirnov

Assistant Professor Serge Smirnov received two awards in the last year. The first was from the NSF ($260k) for work entitled: "Interplay between Epigenetic Methylation and Oxidative Damage: Effects on DNA Stability, Structure and Dynamics." This project will investigate the fundamental biophysics (stability, structure and dynamics) of DNA with a guanine lesion adjacent to a modified cytosine. Modification (oxidation) of guanine is detrimental to the integrity of the genetic information, and if left unrepaired can lead to genome instability and mutations. Such a comprehensive molecular-level study of linked damage and regulatory modifications in DNA will be performed for the first time, pioneering new research in genome stability and regulation.
Serge's second award was from the Ministry of Education and Science of the Russian Federation ($83K), and will fund a joint project with scientists from St. Petersburg State Polytechnic University. Serge's research team plans to undertake a comparative study of the tertiary structure, backbone dynamics, and functional properties of the C-terminal fragments of villin and supervillin with the goal of characterization and a deeper understanding of the molecular mechanisms of these biological molecules.

(Left-to-right): Serge Smirnov, Heather Miears, Joanna Hoppins, Stas Fedechkin, David Gruber

Chemistry Faculty Publications in 2012-2013

Check out the exciting work that has been recently published by the chemistry faculty:
(Note: *WWU undergraduate student co-author, # WWU MS student co-author)

#Bowker, R.H.; *Smith, M.C.; *Carrillo, B.A.; **Bussell, M.E.** "Synthesis and Hydrodesulfurization Properties of Noble Metal Phosphides: Ruthenium and Palladium," Topics in Catalysis 2012, 55, 999-1009.

Prins, R; **Bussell, M.E.** "Metal Phosphides: Preparation, Characterization and Catalytic Reactivity," Catalysis Letters 2012, 142, 1413-1436. (review article)

Savithra, G.H.L.; Muthuswamy, E.; #Bowker, R.H.; *Carrillo, B.A.; **Bussell, M.E.**; Brock, S.L. "Rational Design of Nickel Phosphide Hydrodesulfurization Catalysts: Controlling Particle Size and Preventing Sintering," Chem. Mater. 2013, 25, 825-833.

Savithra, G.H.L.; #Bowker, R.H.; *Carrillo, B.A.; **Bussell, M.E.**; Brock, S.L. "Mesoporous Matrix Encapsulation for the Synthesis of Monodisperse Pd5P2 Nanoparticle Hydrodesulfurization Catalysts," ACS Appl. Mater. Interfaces 2013, 5, 5403-5407.

Qian, X.M.; **Emory, S.R.**; Nie, S. "Anchoring molecular chromophores to colloidal gold nanocrystals: surface-enhanced Raman evidence for strong electronic coupling and irreversible structural locking," J. Am. Chem. Soc. 2012, 134, 2000.

#Thammanogsy, Z.; *Breuhuas-Alvarez, A.G.; #LeDoux, M.; Seda, T.; Zakharov, L.N.; **Gilbertson, J.D.** "Pyridinediimine Iron Dicarbonyl Complexes with Pendant Lewis Bases and Lewis Acids Located in the Secondary Coordination Sphere." Eur. J. Inorg. Chem. 2013, 4008-4015. Invited Article for Special Cluster Issue on Small Molecule Activation.

#Thammanogsy, Z.; Seda, T.; Zakharov, L.N.; Kaminsky, W.; **Gilbertson, J.D.** "Ligand-Based Reduction of CO2 and Subsequent Relaese of CO on Iron(II)." Inorg. Chem. 2012, 51, 9168–9170.

#Romero, I.; *Schurr, M.; *Kotlik, M.; *Lally, J.; **Murphy, A.R.** "Enhancing the Interface in Silk-Polypyrrole Composites Through Chemical Modification of Silk Fibroin." ACS Appl. Mater. Interfaces, 2013, 5, 553-564.

#Medina, C.R.; *Carter, K.P.; *Miller, M.M.; Clark, T.B.; **O'Neil, G.W.** "Stereocontrolled Synthesis of 1,3-Diols from Enones: Cooperative Lewis-Base Mediated Intramolecular Hydrosilylations," J. Org. Chem. 2013, in press.

*Schaefer, S.L.; *Roberts, C.L.; *Volz, E.O.; *Grasso, M.R.; **O'Neil, G.W.** "Selective formation of non-conjugated olefins by samarium(II)-mediated elimination/isomerization of allylic benzoates," Tetrahedron Lett. 2013, in press.

O'Neil, G.W.; *Drake, N.D.; *Storvick, J.M. "Addition/elimination reactions of ethylsulfonyl pyridines: stereoselective synthesis of vinylpyridine allylic alcohols." Tetrahedron Lett. 2013, 54, 715-717.

O'Neil, G.W.; Carmichael, C.A.; Goepfert, T.J.; Fulton, J.M.; Knothe, G.; Lau, C.P-L. Lindell, S. R.; Mohammady, N.G-E.; Van Mooy, B.A.S.; Reddy, C.M. "Beyond Fatty Acid Methyl Esters: Expanding the Renewable Carbon Profile with Alkenones from Isochrysis sp." Energy Fuels, 2012, 26, 2434–2441.

McDowall, S.; #Butler, T.; *Bain, E.; *Scharnhorst, K.; **Patrick, D.L.** "Comprehensive analysis of escape-cone losses from luminescent waveguides," Appl. Opt. 2013, 52,1230.

#Shaw, D.W.; #Bufkin, K.; *Baronov, A.A.; Johnson, B.L.; **Patrick, D.L.** "Organic-Vapor-Liquid-Solid Deposition with an Impinging Gas Jet," J. Appl. Phys. 2012, 111, 074907.

*Knowles, K.R.; *Hanson, C.C.; *Fogel, A.L.; *Warhol, B.; **Rider, D.A.** "Layer-by-Layer Assembled Multilayers of Polyethylenimine-Stabilized Platinum Nanoparticles and PEDOT:PSS as Anodes for the Methanol Oxidation Reaction," ACS Appl. Mater. Interfaces, 2012, 4, 3575-3583.

*Kato, F.; **Rider, D.A.**; "Inorganic and Organometallic Polymers", Annu. Rep. Prog. Chem., Sect. A: Inorg. Chem., 2013.

#Fedechkin, S.O.; #Brockerman, J.; Luna, E.J.; Lobanov, M.Y.; Galzitskaya, O.V.; **Smirnov, S.L.** "An N-terminal, 830 residues intrinsically disordered region of the cytoskeleton-regulatory protein supervillin contains Myosin II- and F-actin-binding sites." J. Biomol. Struct. Dyn. 2012, 1-10.

#Walter, J.D.; #Werther, R.A.; *Polozova, M.S.; Pohlman, J.; Healey, J.F.; Meeks, S.L.; Lollar, P.; **Spiegel, P.C.** "Characterization and Solution Structure of the Factor VIII C2 Domain in a Ternary Complex with Classical and Non-classical Inhibitor Antibodies," J. Biol. Chem. 2013, 288, 9905-9914.

2011 / 2012 Chemistry Awards

Outstanding Chemistry Department Graduate
Michael Pegis

Sea Bong Chang Memorial Biochemistry Award
Levi Vincent

Hypercube Scholar
Tristan Butler

Outstanding Analytical Student
Oliver Swart

Outstanding Organic Series Student
Sara Schaaefer

CRC Press Freshman Chemistry Award
Han Cao

ACTS Award
Charles Grant

Back Row (left to ight): Oliver Swart, Han Cao, Levi Vincent
Front Row (left to right): Sara Schaefer, Charles Grant, Michael Pegis

2012 / 2013 Scholarship Recipients

Back Row(left to right): Stephan Irby, Nicole Koeppen, Alicia Mangubat, Luciana Prada, Tyler Albin
Front (left to right): Anne d'Aquino, Rebecca Cragerud, Morgan Schurr, Michelle Wuerth

Knapman Chemistry Scholarship
Morgan Schurr
Tyler Albin

Barbara French Duzan Biotechnology
Rebecca Cragerud
Anne d'Aquino

Ruth Watts Female Research Scientist
Michelle Wuerth

Jerry Price/Nancy Sherer Scholarship
Nicole Koeppen

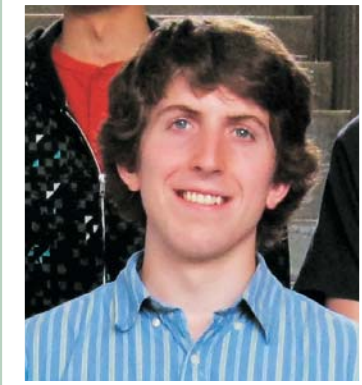
Verna A. Price Chemistry Scholarship
Alicia Mangubat

WWU Chemistry Scholarship
Tyler Albin
Steven Swick
Stefan Irby

Lowell Eddy Memorial Fellowship
Morgan Schurr

Hach Scholarship
Stephan Irby
Michelle Marsura

CST Presidential Scholar and Outstanding Chemistry Graduate for 2012



Michael Pegis

In 2012 Michael Pegis received the prestigious Presidential Scholar Award representing the College of Science and Technology (CST). This is given to one graduate from each college within WWU for their exceptional scholarship and service to the university as well as the community. Michael was an exceptional student, graduating with a GPA of 3.73 while earning a BS degree in chemistry. Michael was the lead chemistry tutor at the WWU Tutoring Center and initiated a new study group program for students taking organic chemistry. He also served as a volunteer private tutor for low-income students, with the goal of helping those with financial difficulties to stay in college. He also conducted research on learning styles and incorporated his findings into the center's tutor-training programs. Michael was an outstanding scholar, performing research with Prof. John Gilbertson for two years. His work involved the utilization of cellulosic biomass, which has been targeted as a key part of the renewable energy portfolio for meeting future U.S. energy demand while lowering our dependence on fossil fuels and meeting goals for reducing gases that contribute to global warming. He received the Jerry Price/Nancy Sherer Scholarship during his junior year and the Verna Alexander-Price Scholarship as a senior, both for displaying exemplary potential leadership in the scientific community. In addition, he was awarded a CST Olsen Scholarship and also a Paul Woodring Scholarship. The latter is given to students most likely to make a contribution to mankind through their liberal arts education. Michael's poster was chosen as one of the best undergraduate posters at WWU's Scholars Week 2011. Michael wrote an honors thesis, which was presented to the Chemistry Department in spring 2012. Michael is currently pursuing his PhD in chemistry at the University of Washington working with Prof. James Mayer on the oxygen reduction reaction.

Class of 2011 / 2012

Congratulations to our graduation class of 2011/12.

BS Chemistry and ACS Certification

Drew Bauman
Leah Bergquist
Kaitlyn Bowman
Bo Carrillo
Eric Chan
Brandon Crockett
Charles Grant
Daniel Hausler
Kyle Hubach
Alvin Jeffers
Kyle Keehnel
Mikhail Konev
Lauren Landis
Benjamin Lehman
Dylan Macy
Gabriel Matson
Kyle Mikkelsen
Brandon Morris
Kelly Peck
Michael Pegis
Zachary Primley
Ariel Roberts
Sean Ronan
Joshua Sears
Elisabeth Shantz-Kreutzkamp
Patrick Shelton
Kevin Smith
Erasmus Volz

BA Chemistry

Matthew Chow
Brittany Corley
Kari Edwards
Bethany Lyons
Joshua Simmons (BAE)
Ramachandran Venkatachalam

MS Chemistry

Jacob Brockerman
Tristan Butler
Rachel Werther

BS Biochemistry

Ryan Brevik
Anna Chlebowski
Matthew Cook
Erik Evans
Seth Jones
Brianne King
Casey Medina
Janette Myers
Leanne Sebren
Ian Smith
Dylan Stanfield
Jennifer Storvick
Levi Vincent

2012 / 2013 Chemistry Awards

Outstanding Chemistry Department Graduate
Nicole Koeppen

Sea Bong Chang Memorial Biochemistry Award
Michelle Wuerth

Presidential Scholar Award
Nicole Koeppen

Hypercube Scholar
Darren Veit

Outstanding Analytical Student
Sean Severt

Outstanding Organic Series Student
Travis Roark

Outstanding Inorganic Series Student
Boris Ilic

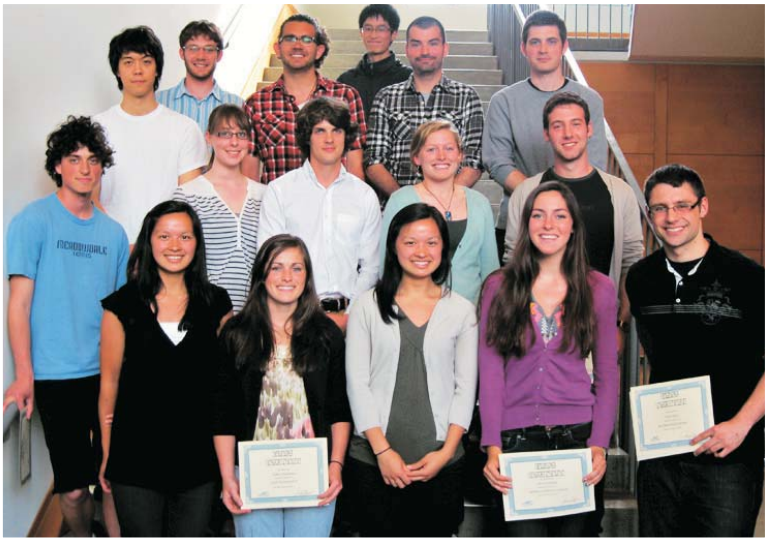
CRC Press Freshman Chemistry Award
Natasha Siepser

Outstanding Graduate Teaching Assitant
Elizabeth Wellner

ACTS Award
Nicole Koeppen
Morghan Schurr

Back Row (left to ight): Sean Severt, Boris Ilic
Middle Row (left to right): Nicole Koeppen, Elizabeth Wellner, Darren Veit
Front Row (left to right): Morgan Schurr, Michelle Wuerth, Natasha Siepser, Travis Roark

2013 / 2014 Scholarship Recipients



Back Row(left to right): Noah Schorr, Stephan Irby, Han Cao, Boris Ilic, David Row
Middle Row (left to right): Steven Swick, Cadence Luchsinger, Joseph Gish, Sara Schaefer, Tamir Bresler
Front Row (left to right): Danny Harbeson, Andrea d'Aquino, Lesley Anderson, Anne d'Aquino, Kira Podolsky, Tyler Albin

Knapman Chemistry Scholarship
Han Cao
Tyler Albin

Barbara French Duzan Biotechnology
Andrea d'Aquino
Anne d'Aquino
R. David Row
Stephan Irby

Ruth Watts Female Research Scientist
Sara Schaefer

Jerry Price/Nancy Sherer Scholarship
Steven Swick

Verna A. Price Chemistry Scholarship
Cadence Luchsinger

WWU Chemistry Scholarship
Joseph Gish
Jillian Adams

Lowell Eddy Memorial Fellowship
Noah Schurr

Hach Scholarship
Stephan Irby
Kelsey Anderson

Rathmann Foundation Scholarship
Tamir Bresler

Phillips 66 Summer Research Fellowships
Tyler Albin
Danny Harbeson
Boris Ilic
R. David Row

Denice (Ambrose) Hougen Undergraduate Scholarship
Kira Podolsky

CST Presidential Scholar

Morgan Schurr

The Presidential Scholar Award representing the College of Science and Technology went to Morgan Schurr in 2013, which was the second year in a row that a chemistry student earned this award. Morgan excelled in her academic pursuits, graduating with a 3.98 GPA while majoring in biochemistry with a Spanish minor. She was also very involved with the Honors Program, serving on the Honors Board for 2 years. Morgan was an active member of Prof. Murphy's research group for almost three years, working to synthesize and characterize hydrogels made from silk fibroin with applications to controlled drug delivery and biosensing. She presented her work at several regional conferences, and co-authored a manuscript published in 2013 in the peer-reviewed journal ACS Applied Materials and Interfaces. This year, Morgan was one of four seniors to complete an honors research thesis in chemistry. She was a very active member of the Chemistry Club, and served as co-president for the last year. Her work, in part, has led the Chem Club to receive the coveted Outstanding Student Chapter Award from the American Chemical Society for the last two years. She also served as a teaching assistant and laboratory prepper for both general and organic chemistry laboratory courses, and was both a volunteer and paid tutor for students taking chemistry courses at WWU. Not surprisingly, she has received numerous awards and scholarships including Outstanding General Chemistry Student (2010), the Lowell Eddy summer research fellowship (2012), the Advancing Chemistry Through Service (ACTS) Award (2013), and the 2-year Knapman Scholarship (2011-13). Morgan will attend medical school at St. Louis University in the fall of 2013. She is passionate about eventually starting a medical practice that serves underrepresented populations.

Outstanding Chemistry Graduate 2013

Nicole Koeppen

Nicole Koeppen was selected by the faculty to receive the department's 2012-13 Outstanding Graduate Award. Nicole came to Western in 2009 from Redmond, WA. She immediately distinguished herself in the classroom and joined Prof. Steven Emory's research group in the spring of 2010. Nicole has worked on a very challenging project to develop a system to detect circulating tumor cells in the blood stream. Components of this project have included the synthesis of silver and gold nanoparticles and the construction of a photon correlation spectroscopy system. She presented her research findings at numerous meetings including the Spring 2012 National Meeting of the American Chemical Society in San Diego. The research group is currently in the process of preparing a manuscript for submission for publication in Analytical Chemistry.

Nicole also distinguished herself as an outstanding citizen of the department. This was best exemplified by her role as co-president of Western's Student Chapter of the American Chemical Society. The chapter has received two consecutive Outstanding Chapter Awards from the ACS, in part due to Nicole's leadership over the past three years. Nicole has also worked as a lab assistant, officer worker, and tutor for the department. "Western is truly blessed with wonderful students," said Prof. Emory. "Nicole is wonderful in that she combines her excellence in scholarship with a servant's spirit. She has been a great role model for students, and she will really be missed."

This summer, Nicole enrolled as a graduate student at the University of Illinois at Urbana-Champaign. She joined Prof. Benjamin McCall's research team whose research focus is in the emerging field of astrochemistry. The group is developing new spectroscopic methods for the study of molecular ions of astronomical importance.

Class of 2012 / 2013

Congratulations to our graduation class of 2012/13.

MS Chemistry

Casey Medina
Isabella Romero
Zachary Thammavongsy

BS Chemistry and ACS Certification

Whitney Andrews
Alexandr Baronov
Blake Cassidy
Joshua Corliss
Aaron Culler
Monika Grasso
Cecile Grubb
Matthew Jensen
Fumitoshi Kato
Nicole Koeppen
Emily Lasselle
Matias Morel
Kelsey Scharnhorst
Richard Veit
Brian Warhol

BA Chemistry

Tanner Boyle
Keith Ferris
Madelyn Hillier
James Innes
Michelle Marsura (BAE)

BS Biochemistry

Caileen Brison
Christopher Carter
Rebecca Cragerud
Zachariah Cranny
Nathan Drake
William George
Jesse Gortner
Kevin Kinloch
Nicholas Macklin
Alicia Mangubat
Cameron Moak
Travis Nelson
Morgan Schurr
David Sparkman-Yager
Jonathan Sudduth
Oliver Swart
Michelle Wuerth

Thank You to Chemistry Department Donors

We wish to extend a special thank you to the following alumni and friends of the department who donated to the following Chemistry Department Western Foundation funds from May 2012 to June 2013. Donations are crucial to the department, and support a variety of activities including scholarship matching, academic awards, undergraduate research projects, department seminar program, and events for department majors and alumni.

If you would like to make a gift, please visit the website: www.foundation.wwu.edu or call (360) 650-3274.

Chemistry Fund Donors

Gary and Poppy Arvan
Brent Barber
Sophia Zervas-Berg and Arvid Berg
John and Gayle Bittinger
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Ylisabyth Bradshaw and Peter Conrad
Jeff Bullock
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Gary and Heather Burtch
Lyndie Callahan
Michael Carpenter
Laura Cazares
Jesse and Gloria Close
Brandon Crockett
Ann Dagle
Melissa Eiene
Arleen Fisher
Sherry Funston
Lee and Diane Glinn
Charles Grant
Richard and Grace Hanson
Eric and Merle Hamada (match from Boeing)
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Derek Harwell
J.C. and Mary Hickman
Eric and Kristen Hill
Thomas and Cynthia Hinds
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Meredith Kauffman
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Adam Kopysc
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John and Heloise Logan
Dean and Renee Matson
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Sean Parris
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Len and Lisette Pugsley
Richard Price
Catherine Radzewich
Scot and Donna Rassat
Michael Ray
Emmett Richards
Brian and Kathy Riley
Justin Roche & Kirstin Wallin
Mark and Martha Sadler
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Robert and Gennine Scuderi
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Jennie and Michael Sheaffer
Brian and Alison Skoczenski
Daniel Smith
Phillip A. Squier
Megan and Perry Stanfield (match from Wells Fargo)
Forrest Stewart
Karen Halley & Eugene Stirchek
Timothy Tuura
Alan and Junell Whitford
Kelly Wu
Sophia Zervas-Berg (match from Boeing)

Thank You to Chemistry Department Donors

Eddy Memorial Chemistry Fellowship

Bill and Trudy Kindler

Knapman Scholarship Endowment

Janet & Bob Harris

Hach Science Education Scholarships

American Chemical Society - Puget Sound

PLK Organic Endowment

George and the late Carolyn Kriz
Jim and Catherine Vyvyan
Donald and Neva Pavia

Phillips 66 Summer Research Fellowships

Phillips 66 - Ferndale Refinery

Ruth Watts Scholarship Endowment

Mary Jane and Richard Vetter

Denice (Ambrose) Hougen Chemistry Endowment

Charlene Ambrose
Craige Ambrose
Joyce Ambrose
Mark Bussell and Kristi Lemm
Steven Gammon
Jeff Hougen
Joe Hougen
Charlie Maliszewski & Heidi Mosbarger
Keith McCrea
Ruth and Clark McCrea
Amanda Murphy and John Antos
Renee Murray
David and Bahareh Patrick
Geraldine Prody
Karen and Lane Richards
Sal and Judy Russo
Paul Spiegel
Kenneth and Swanny Strand
William and Barbara Webb
Marilyn Wegley
Steven Weisman
John and Kathryn Whitmer
Fraser Wilkinson

WWU Chemistry Club Continues Tradition of High Standards

Western Washington University's Student Chapter of the American Chemical Society (a.k.a. Chem Club) received another Outstanding Chapter Award from the ACS for the 2011-12 academic year. This is the second year in a row that the chapter has received this prestigious award. Of the more than 1,000 student chapters of the ACS, less than 50 were recognized with Outstanding Chapter Awards. This also marks the 10th straight year that the Chem Club has been recognized for its efforts. In addition to the Outstanding Chapter Award, the Chem Club received an ACS Green Chemistry Award from the national ACS. The Chemistry Department would like to thank the faculty co-advisers for the Chem Club, Professors Steven Emory and Betsy Raymond, for all of their hard work and dedication to the club.

The Outstanding Chapter Award is based on such criteria as community service, professional development events, research, and involvement with ACS regional and national meetings. The Chem Club regularly performs demonstration programs and hands-on activities at several local schools, including science show kick-offs and student mentoring programs. Prof. Emory made the following statement: "The chapter has really developed a strong outreach component to local schools. Over the years, we have become much more efficient in our efforts and as such can now reach out to more schools. I am continually amazed at the enthusiasm and level of involvement our students bring to these service opportunities. The students are ambassadors of science and chemistry. They are making a real impact in the community, and it is nice to see their efforts being recognized by the ACS."

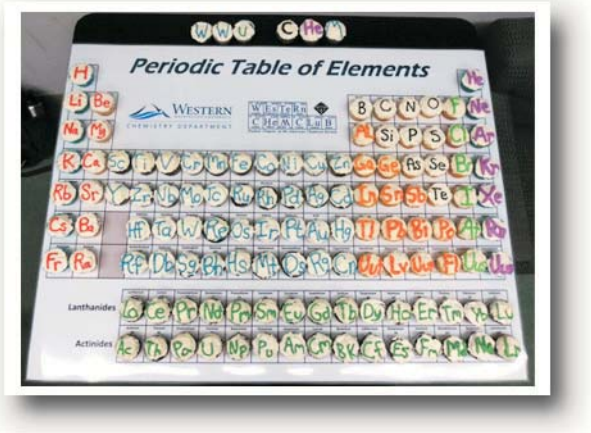
The award also recognizes the social and professional development activities the Chem Club has sponsored. Social activities such as the chemistry bowl-off, chemistry trivia challenge, periodic table of cupcakes, and the annual picnic are often highlights of the year. In addition, this year the chapter focused on professional development opportunities for the students by organizing a statement of purpose workshop as well as its annual graduate school discussion panel ("The Who, What, When, Where, How, and Why of Graduate School"). A major goal is to increase such activities in the upcoming year. "Professional development is an essential component of a student's education," said Prof. Raymond. "Many of our students are first-generation college students, so they may not have had a mentor in their life that could help them learn some of the finer points that can be very helpful in launching a professional career. The workshops are another way to reach out to more of our students."

Nicole Koeppen (chemistry major from Redmond, WA) and Morgan Schurr (biochemistry major from Portland, OR) were co-presidents of the 2011-12 Chem Club. The Outstanding Chapter Award stems from the Chem Club's submission of the student chapter annual activity report, which Nicole and Morgan helped prepare. Morgan and Nicole are both outstanding scholars and leaders who are examples of our very best students. The accomplishments of both women are further highlighted in the Awards section of the newsletter.

The award-winning chapters were recognized in the November/December issue of inChemistry magazine (www.acs.org/inchemistry) and were formally acknowledged at the ACS Student Chapter Award Ceremony during the ACS National Meeting in New Orleans this past spring.

For additional information and photos, we encourage you to visit the WWU Department of Chemistry Facebook page at: www.facebook.com/wwuchem . There is a link on the page if you would like to financially contribute to support the Chem Club's efforts.

If you have any questions or suggestions, please feel free to contact Chem Club faculty co-advisors: Prof. Raymond (Elizabeth.Raymond@wwu.edu) or Prof. Emory (Steven.Emory@wwu.edu).



Chemistry Picnic at Fairhaven Park

Scholars Week Colloquium

Since the last newsletter, we have had two Scholars Week celebrations that highlight the research activities happening across the WWU campus. Each year a campus-wide poster session and banquet are held for all of the student researchers and their mentors. The Chemistry Department also organizes its own 'Scholars Day', and invites a notable scientist to spend two days interacting with faculty and students, culminating in a keynote address. These activities are made possible by the Pavia-Lampman-Kriz Chemistry Endowment and The Western Foundation Chemistry Fund.

In 2012, the Chemistry Department keynote speaker was Prof. Harry F. Noller, who is currently the Robert Louis Sinsheimer Professor of Molecular Biology and the Director of the Center for Molecular Biology of RNA at the University of California, Santa Cruz. His keynote address was entitled "How the Ribosome Moves and Why: Investigations of Nature's Soft Machine." Prof. Noller has been studying the structure and function of the ribosome since 1966, and has made several key contributions to this field including elucidating the first x-ray crystal structure of the complete ribosome. Undergraduate students Michael Pegis, Anna Chlebowski, Casey Medina and Kevin Smith also gave their Honors oral presentations at the symposium.

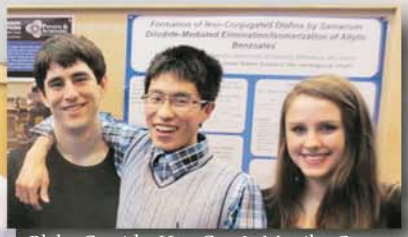
In 2013, Prof. Joseph Francisco was chosen as the keynote speaker for both the Chemistry Department and the campus-wide banquet. He is the William E. Moore Distinguished Professor of Chemistry at Purdue University. As a researcher, Francisco has made important contributions in many areas of atmospheric chemistry. His research has revolutionized our understanding of chemical processes in the atmosphere. For the chemistry symposium, Prof. Francisco presented a talk entitled: "Challenging What We Think We Know: The Influence of Hydrogen Bonding Interactions on Atmospheric Chemical Processes." This year we also had four women complete an Honors Thesis. Nicole Koeppen, Alicia Mangubat, Morgan Schurr, and Michelle Wuerth all gave oral presentations at the symposium. This year, the Scholars Week celebration ended with a bang, as the 'The Legendary Chucklenuts', comprised of several chemistry faculty and staff members, graciously agreed to put on a show on the loading dock of our building.

Participation in the campus-wide poster session has continued to rise every year, where 55 out of 155 posters presented were authored by chemistry students in 2013 (up from 44 out of 146 in 2011). Several students from chemistry also received "Best Poster" awards from Sigma Xi, as highlighted below. As a testament to our strong research program, this year 9 out of the 20 university-wide awards (16 undergrad, 4 grad) were given to chemistry students.

Scholar's Week Banquet

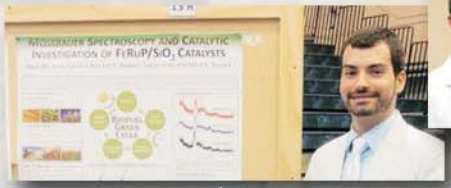
Scholars Week Colloquium

Alicia Mangubat & Casey Medina

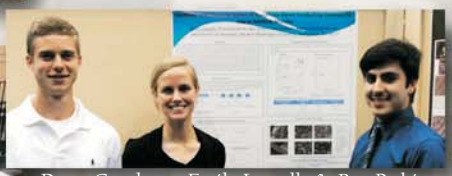


Blake Cassidy, Han Cao & Monika Grasso

Elizabeth Wellner & Joe Francisco



Boris Ilic



Drew Goodman, Emily Lasselle & Ben Rubin

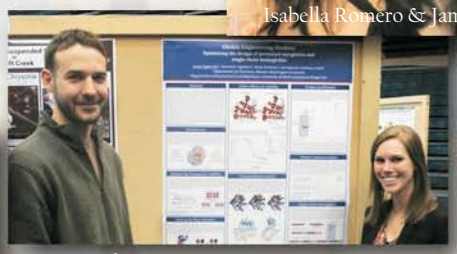
Mitchell Wuerth, Morgan Schurr, Joe Francisco, Alicia Mangubat & Nicole Koeppen

Kyle Mikkelson & Polly Berserth

Darren Veit

Isabella Romero & Jamie Apperson

Jim Vyvyan, Joe Francisco, George Kriz, Don Pavia & Gary Lampman



John Antos & Jamie Apperson

Ryan Hackler & Cecile Grubb

Fumi Kato & David Rider

The Legendary Chucklenuts featuring Spencer Anthony-Cahill, John Antos, Scott Wilkinson, Dan Van Pelt & Justin Walter

Steve Emory & Betsy Raymond

Scholars Week Colloquium - cont.

Graduate Poster Awards in 2012:

Tristan Butler, "The Effect of Oriented Fluorophores on Light Trapping Efficiency in Luminescent Solar Concentrators." Advisor: David Patrick

Isabella Romero, "Silk-Based Conducting Polymer Composite Electrodes as Electromechanical Actuators." Advisor: Amanda Murphy

Undergraduate Poster Awards in 2012:

Alex Baronov, "Organic-Vapor-Liquid-Solid Deposition." Advisor: David Patrick

April Fogel, "Layer-by-Layer Assembled Nanoparticle Catalyst Multilayers for Proton Exchange Membrane Fuel Cells." Advisor: David Rider

Alicia Mangubat, "Development of a Surface-Enhanced Raman Scattering Based Optical Sensors." Advisor: Steven Emory

Morgan Schurr, "Biocompatible Silk-Conducting Polymer Composite Electrodes and Actuators." Advisor: Amanda Murphy

Tyko Shoji, "Solid State Lighting via Hybrid Light-Emitting Electrochemical Cells." Advisor: Janelle Leger

Graduate Poster Awards in 2013

Jamie Apperson "Globin Engineering Studies: Optimizing the Design of Permuted Myoglobin and Single-Chain Hemoglobin." Advisor: Spencer Anthony-Cahill

Isabella Romero, "Silk-Based Conducting Polymer Composite Electrodes and Their Use as Electromechanical Actuators." Advisor: Amanda Murphy

Zachary Thammavongsy, "Synthesis and Activity of Redox-Active Pyridine Diimine Fe Complexes: New Insights towards the Breakdown of Carbon Dioxide." Advisor: John Gilbertson

Undergraduate Poster Awards in 2013:

Tyler Albin, "Synthesis and Characterization of Silk-Peptide Functionalized Thiophene Derivatives for Use in Biomedical Applications." Advisor: Amanda Murphy

Alex Baronov, "Organic Vapor-Liquid-Solid Deposition for Growth of Molecular Crystalline Films." Advisor: David Patrick

Tamir Bresler, "Analysis of Structural Requirements for Nucleophiles in Sortase-Mediated Transpeptidation." Advisor: John Antos

Caileen Brison and Kira Podolsky, "Characterization and Structural Studies of the Porcine C2 Domain of Blood Coagulation Factor VIII." Advisor: Clint Spiegel

Blake Cassidy and Benjamin Morgan, "Fabrication and Characterization of Bimetallic Nanoparticle Fuel Cell Catalysts Using Self-Assembled Block Copolymer Templates." Advisor: David Rider

Boris Ilic, "Mössbauer Spectroscopy and Catalytic Investigation of Iron-Ruthenium Phosphide Catalysts." Advisor: Mark Bussell

Summer Research Program at WWU

Our summer research program continues to grow and strengthen each year, in part due to the hard work of our faculty to bring in external grant funds (see article on page 8). In summer 2013, over 50 chemistry students received summer stipends for research! The stipends were funded through faculty grants, or internal fellowship awards from Phillips 66, the Lowell Eddy Memorial Fellowship, the Denice Hougen Undergraduate Fellowship and the M. J. Murdock Charitable Trust (administered through a grant to AMSEC).

In addition, we have continued to host 10 students a year in our NSF-funded Research Experience for Undergraduates (REU) program. This program is intended to provide undergraduate students from community colleges and small universities with an authentic research experience that is not available at their home institutions. Greg O'Neil and Clint Spiegel have continued to serve as the program coordinators, and should be commended for their efforts in recruiting, organizing training and development activities for the students, and organizing a symposium at the end of the summer. The 2012 symposium featured talks from invited speakers Michael Fleischauer (National Institute for Nanotechnology, Edmonton, AB), Paul Hanson (University of Kansas), and Lawrence McIntosh (University of British Columbia). Exciting work was also presented in the 2013 symposium by William Dichtel (Cornell University), Joseph Mougous (University of Washington), and Mark MacLachlan (University of British Columbia).

2012 REU Research Symposium

2012 Summer Research Students and Mentors

2013 REU Research Symposium

Conference Attendance

ACS Puget Sound Section, Undergraduate Symposium, Seattle University, 2012

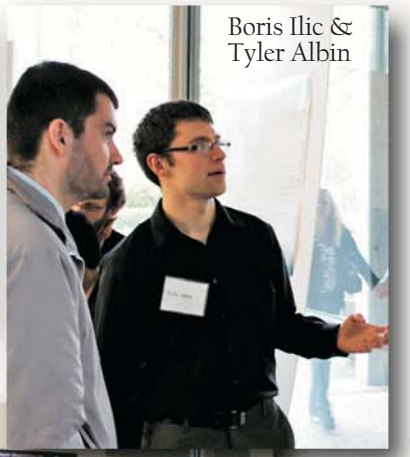
Presentations given by:
Michael Pegis, Kevin Smith, Heidi Dimmitt, Colin Hanson, Nicole Koeppen, Leah Bergquist, Andrew Breuhaus, Brandon Crockett, Anna Chlebowski, Matthew Jensen, Nicholas Regis, Nicole Koeppen, Adam Jansons, Mikhail Konev, Patrick Shelton, Thomas Eivers, Morgan Schurr, Isabella Romero, Ben Lehman, Jake Flood, Alicia Mangubat, Elizabeth Wellner, Hannah Sturtevant, Cameron Moak, Richard Bowker, Bo Carrillo, Kyle Mikkelsen, Darren Veit

Faculty attending: David Rider, Steven Emory, Jim Vyvyan

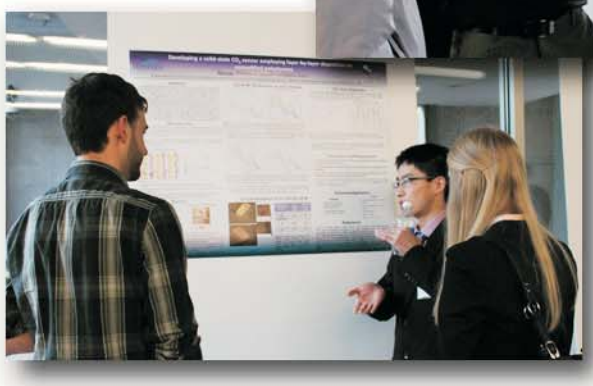
Morgan Schurr & David Rider

ACS Puget Sound Section, Undergraduate Symposium, Seattle Pacific University, 2013

Front row (left-to-right): Benjamin Morgan, Noah Schorr, Jen Stiles, Don Valentine, Anzhela Storozhenko, Morgan Schurr, Tyler Albin, Cecile Grubb, Ryan Hackler, Whitney Andrews, Blake Cassidy, Drew Goodman, Sean Severt
Back row: Han Cao, John Antos, Tomasso Vanelli, David Rider, Tamir Bresler, Matias Morel, Ben Rubin



Boris Ilic & Tyler Albin

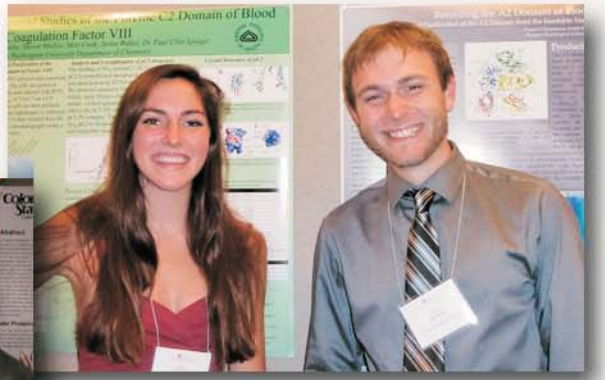


John Antos, Han Cao & Morgan Schurr

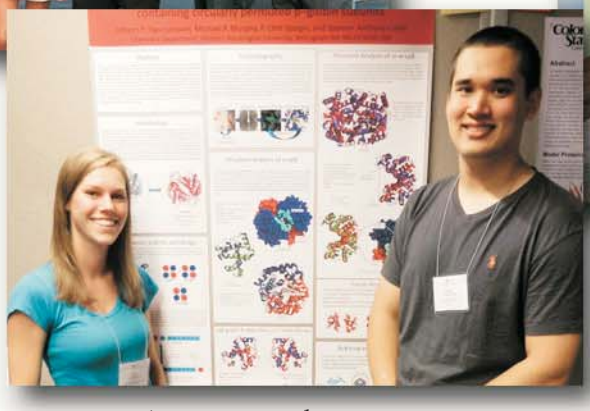
Conference Attendance

Protein Society Symposium, Boston 2013

Jamie Apperson, Kira Podolsky, Johan Sigurjonsson, Wes Christensen & David Gruber



Kira Podolsky & Wes Christansen



Jamie Apperson & Johan Sigurjonsson

Zach Thammavongsy

ACS Meeting, New Orleans 2013

Alicia Mangubat, Emily Lasselle & Celia Whelan

Emily Lasselle & Alicia Mangubat