

UWSP CHEMISTRY NEWSLETTER

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Chair's Corner

I hope this newsletter finds you and your family doing well. This past year has been particularly busy for the university and the Department of Chemistry. In the spring of 2010, the university hired Bernie Patterson to be its new chancellor. Dr. Patterson was previously the Provost at Oklahoma City University. We also have a new Dean of Letters and Sciences, Chris Cirimo. Dr. Cirimo comes to us from SUNY Cortland where he was the chairman of Geological Sciences. UWSP is re-working the General Degree Requirements for students, strengthening the university's assessment program, and developing preliminary plans for a new science building. Chemistry and biology will be the occupants of this new facility.

Last year, the department graduated 22 chemistry majors and 12 biochemistry majors. I am happy to report that our Biochemistry Major (initiated in the fall of 2007) is as popular as expected when it was in the planning stages. Currently there are over 80 declared majors on campus. I continue to be amazed by the success of our graduates at securing jobs, gaining admittance into top chemistry and biochemistry graduate programs, and gaining admittance into professional schools. As an example, the National Science Foundation reports that between 1996 and 2006 thirty-one UWSP alumni earned a Ph.D. in chemistry. This ranks second only to UW-Madison among all of Wisconsin's colleges and universities. I estimate that 22 UWSP alums are currently enrolled in chemistry graduate programs throughout the country. Last year nine of our chemistry graduates were accepted into chemistry graduate

programs, two to pharmacy schools and one to medical school.



Jim Brummer, Chair

The department recently decided to eliminate Chemistry 115 and 116 from its curriculum. We replaced them with a single one-semester, five-credit course titled "Chemistry 117 - General Chemistry Principles." This is an accelerated general chemistry course that is intended for those students who have a particularly strong math and chemistry preparation from high school. Our plan is to offer this course

every fall semester. Steve Wright taught Chem. 117 for the first time this past fall with a class of 72 students. Students completing Chem. 117 will be eligible to take Chem. 325 (Organic Chemistry I) and/or Chem. 248 (Quantitative Analysis) in the spring of their freshman year, thereby making their sophomore year a little less hectic while providing them with the credit flexibility to take an additional advanced chemistry course.

This fall, we welcomed a new tenure-track assistant professor to the department, David Snyder, an analytical chemist with interests pertaining to monitoring air pollutants (metal containing particulates) using mass spectrometry. With the hiring of Snyder, our staff now consists of 15 Ph.D.-trained, tenure-track faculty members. We have been fortunate to have hired five new, high-quality faculty members within the past four years. This fall, we are searching for a new physical chemist with biological research interests.

The past two years have marked an unprecedented level of grant writing in the department. Nathan Bowling, Jason D'Acchioli, Kevin Czerwinski, John Droske, Robin Tanke, Michael Zach and Jim

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Chair's Corner continued...

Lawrence have all received external funding for their research. The UWSP chemistry faculty has brought in over \$2,000,000 in grant dollars since fall 2005. Some of these funds go to supporting student researchers during the summer. We were able to provide stipends to 24 UWSP students to do research in the department during the summers of 2009 and 2010. We were recently informed by the National Science Foundation that two proposals were funded by their Major Research Instrumentation Program. One grant provided \$255,000 for a 400 MHz Nuclear Magnetic Resonance (NMR) Spectrometer. The other provided \$470,000 for a liquid chromatograph with tandem time-of-flight mass spectral detectors. This latter instrument brings new capability to the department including the ability to sequence proteins.

We sadly lost a great friend and colleague 18 months ago. Stephen Bondeson succumbed to a courageous two-year battle with brain cancer. I can't express in words how much I miss Steve. He was a talented, caring and innovative teacher. I had the great privilege of working side-by-side with Steve, an instructor of physical chemistry, on a grant that he, Steve Wright and I secured from the Department of

Education's Fund for the Improvement of Post-secondary Education, and more recently in securing approval from UW System to create the Biochemistry Major. As the Assistant Vice Chancellor for Teaching, Learning and New Programs, he helped me wade through the complicated and sometimes confounding process of creating this new program. Please see the more detailed memorial later in this newsletter. With assistance from our alumni and friends, we plan to establish a scholarship in his name, "The Stephen Bondeson Excellence in Research Scholarship." Information about this scholarship, and how you can help us establish it, can also be found later in this newsletter.

I hope you enjoy this year's newsletter. As always, please contact us with any questions, suggestions, or with an update on your life "post UWSP." Perhaps we can feature you in the *Alumni Update* section of our next newsletter. Please visit our redesigned website (www.uwsp.edu/chemistry) for more information about the UWSP Department of Chemistry.

Jim Brummer



Chemistry Faculty and Staff

DEPARTMENT UPDATE

New Faculty and Staff Members



Jeffrey Buth joined the department as a visiting assistant professor of chemistry in fall 2009. He will continue in this position through the 2010-11 academic year. His position was created by the provost in response to increasing demand for seats in the department's freshman and sophomore level chemistry courses. Jeff's current

plans are to become a professor of chemistry at a smaller private college. His experience at UWSP should prepare him well for such a position. Jeff grew up in the Chicago area and earned a B.S. in Chemistry from Augustana College in 2004. He subsequently earned his Ph.D. in Analytical Chemistry from the University of Minnesota in the summer of 2009. His area of specialization is analytical chemistry, specifically quantifying organic pollutants in environmental matrices and studying the chemical reactivity of organic water pollutants.

Gary Lueck joined the department in fall 2009 as a laboratory instructor for 100-level chemistry courses. Gary came to UWSP with a B.S. in Chemistry from the University of Wisconsin-La Crosse (1981) and an M.S. in Natural Resources (water chemistry) from UWSP (1993). Gary has extensive work experience as a groundwater specialist in the Central Wisconsin region and has also worked as a laboratory technician in the Department of Chemistry at the University of Wisconsin-Marathon County (1981-89). Gary and his wife, Diane, live in Friendship, Wis.



David Snyder joined the department this fall as a tenure-track assistant professor of chemistry. David is an analytical chemist. His research focuses on understanding the sources, transport, transformation and fate of atmospheric aerosols and mercury using field-deployable instrumentation, specifically an Aerosol Time-of-Flight Mass

Spectrometer. Sound regulatory policy on metals emissions requires an understanding of the sources of atmospheric metals and their relative impact on air quality; however, few comprehensive methods for observing metals in particulate matter are available. As a graduate student, David was a member of a team that studied some of North America's most polluted atmospheric environments including the Los Angeles Basin, the Mexico City Metropolitan Area, and numerous industrially impacted areas near St. Louis, Detroit, Cleveland, Cincinnati and the Ohio River Valley.

David is a native of Michigan and received his B.S. in Chemical Education from Ferris State University in 2004. He earned his Ph.D. in Environmental Chemistry & Technology (EC&T) at the University of Wisconsin-Madison. David has taught chemistry courses as an adjunct professor of chemistry at Edgewood College, Madison Area Technical College and as a chemistry lecturer at UW-Rock County in Janesville. David's wife, Anne, is a native of Green Bay and so we have once again utilized the "Wisconsin Connection" to land a high-quality faculty member. Despite being a Michigan native, David claims to be a life-long Packers fan.



Lori Lepak joined the research group of Dr. Michael Zach as a post-doctoral research associate in fall 2010. She brings extensive experience in micro- and nanofabrication methods that will complement Zach's expertise. Part of her responsibilities will be to assist in the supervision of several undergraduate research students who

are pursuing different projects. Lori earned a B.A. in Chemistry from Harvard University and a Ph.D. in Physical Chemistry from Cornell University (2010). She is a co-author on twelve publications.



Kasmier (Kaz) Wawrzaszek joined the department as a laboratory instructor in fall 2010. Kaz grew up and graduated from high school in Chippewa Falls, Wis. He earned a B.S. in Biology (chemistry minor) in 2009 from the University of Wisconsin-Stevens Point, graduating summa cum laude. Kaz is teaching lab

sections of Chem. 101 and Chem. 105/106.

Rob Pieper is a postdoctoral research associate working under the direction of John Droske. They, along with John's research students, are developing polymers that may serve as bio-resorbable bone adhesives. Rob's position was provided to the department by the provost in an effort to boost the department's research capabilities. Rob is a UWSP alumnus earning a B.S. in Chemistry (ACS polymer option) in spring 2004. He received a Ph.D. in Polymer Chemistry from the University of North Dakota in 2010. ■

Faculty Profile: Nathan Bowling

Nathan Bowling joined the UWSP Department of Chemistry in fall 2006. Nate is not only excelling as a teacher of general chemistry and organic chemistry, but he has established a vigorous, externally funded research program that is providing outstanding learning opportunities for UWSP students. He earned a B.S. in Chemistry from Valparaiso University and a Ph.D. in Organic Chemistry from the University of Wisconsin-Madison. He was a postdoctoral fellow at the University of Illinois immediately prior to coming to UWSP.

Nate's passion is synthesizing novel organic molecules possessing extended conjugation (see figure). These molecules are capable of binding metal ions through their nitrogen atoms. Such binding has the potential to alter the overall geometry and electronic properties of the systems. "Ultimately, my research group is in the business of making novel molecules" says Bowling. "I love designing molecules that no one else has ever made, or perhaps even thought about. I anticipate our target molecules will have interesting, perhaps unique, electronic properties which may be useful in the development of solar cells, light-emitting diodes or organic transistors. With research, I have an outlet for my creativity and, at the same time, can contribute to scientific knowledge."

Nate accepted a position at UWSP because he desired to teach and perform research with undergraduate students. "UWSP is an excellent venue for purely academic research. The lack of constant pressure for frequent publications and maintaining a continuous influx of grant money, in this environment, allows me to explore those ideas in which I am most interested, rather than those that are most fundable" says Bowling. "I enjoy mentoring undergraduate students and introducing them to the challenges and rewards of research. For some students, participating in research is a life-changing experience as they decide to pursue an advanced degree in chemistry. Students perform about 95 percent of the investigations in

my laboratory. Without their work, these problems would remain unexplored. The students get a real-life, unfiltered view of research. They are not just learning about research; they are *doing* research. In the process, they get to be the first person to ever make some interesting molecules as they apply the knowledge and skills from their organic chemistry courses."



Nate Bowling (in blue lab coat) and his research students

According to Nate, "The biggest challenge in creating novel molecules is identifying/characterizing them. Nuclear Magnetic Resonance spectroscopy is vital for this purpose. During summer research, our most productive time, we might take twenty NMR spectra in a given day. Often, routine characterization with our low-resolution, low sensitivity 200MHz spectrometer does not

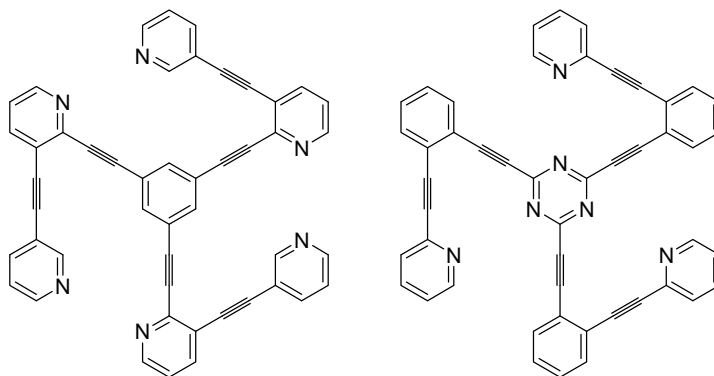
offer confident identification of a molecule. The arrival of our new 400MHz instrument, along with our electrospray mass spectrometer, should solve most of these problems."

During his five years at UWSP, Nate has mentored more than twenty research students. Several of these students have presented their work at on-campus and/or off-campus symposia. He was able to secure funding to provide stipends to eight students in the summer of 2009

and again in 2010. He has been very successful at securing funds to support his research group's efforts. He has written successful external grants to the Research Corporation, the American Chemical Society, and the Wisconsin System's Applied Research Grant Program. He has also been very successful at securing funds via internal

grants. Nate played a key role in writing the grants to the National Science Foundation that resulted in the purchase of a new Bruker 400MHz NMR spectrometer and an Agilent Liquid Chromatograph with Tandem Time-Of-Flight Mass Spectrometer Detectors (LCMS).

Nate, his wife, Juli, and their two-year old son, Henry, reside in Polonia, Wis. He enjoys hanging out with his family and has recently taken up the game of golf. ■



DEPARTMENT UPDATE

New Instrument Acquisitions

The Department of Chemistry received great news in early December when informed by the National Science Foundation that two grant proposals were funded through their Major Research Instrumentation Program. One grant (\$255,000) allowed us to acquire a new 400 MHz nuclear magnetic resonance (NMR) spectrometer while the other (\$470,000) was used to acquire a liquid chromatograph with mass spectrometer detection (LCMS). In addition, John Droske and Don Guay (Paper Science & Engineering) recently collaborated on the acquisition of a Gel Permeation Chromatograph (GPC). This instrument was purchased with funds provided by the Wisconsin Institute for Sustainable Technologies (WIST) and WiSys.

The NMR proposal was written by a committee composed of Jim Brummer, Nate Bowling, John Droske and Robert Badger. The proposal included research descriptions provided by Robin Tanke, Kevin Czerwinski, Jason D'Acchioli and Mike Zach. The new 400 MHz NMR will allow users to collect routine ^1H , ^{13}C , ^{31}P , ^{15}N , and ^{19}F at higher sensitivity and resolution than afforded by our current 200 MHz spectrometer (acquired in 1988). It will also be easier to collect multi-dimensional spectra. Its auto-sampling accessory will allow for widespread use of the instrument not only by UWSP students in their courses and research, but also by students at UW-Marathon County and UW-Marshfield/Wood County who can access the

instrument remotely.

The LCMS proposal was written by Jim Lawrence with research descriptions provided by Nate Bowling, John Droske and Don Guay. It will allow users to separate mixtures of high molecular weight components and then mass analyze them. It is capable of detecting particle masses up to 20,000 amu with a resolution of 1 ppm. It is particularly well suited for analyzing transition metal complexes, proteins, enzymes and low-molecular-weight natural and synthetic polymers. It also brings us the capability of sequencing the amino acid residues of proteins and enzymes. The LCMS will be used by students in Chem. 329 (Advanced Synthesis Laboratory), Chem. 365 (Biochemistry), Chem. 446 (Instrumental Analysis), Chem. 478 (Polymer Laboratory), and in research.

The GPC resides in the Polymer Laboratory. It consists of a gel permeation chromatograph column (size exclusion chromatography) as the "front end" with three detector options: (1) laser light scattering, (2) viscometry, and (3) refractive index. Together, these options allow for the determination of the true molecular weight of oligomer and polymer samples ranging from less than 1000 amu to more than 1,000,000 amu. It will be used for characterization of a wide variety of samples, including those from Professor Guay's biofuels projects and Professor Droske's biomedical polymers project. ■



From left: Badger, Bowling, Droske and Brummer with new NMR



Jim Lawrence (right) with students, Charles Determan and Erin Kennedy with LCMS



From left: Rob Pieper, John Droske, Kelly Fitzgerald and Dean Pawlish with new GPC

UWSP Chemistry Outreach Activities

The UWSP Chemistry Department continues to participate in outreach activities in order to share the wonders of chemistry with others and to introduce students to our department.

In fall 2009, the department participated in the first STEM (Science, Technology, Engineering and Mathematics) Day for 10th and 11th grade high school students. Jim Lawrence gave a talk about the value of chemistry and biochemistry degrees. Jim Lawrence, Jason D'Acchioli, Shuhua Ma, Robin Tanke and several UWSP students presented workshops "From Chemiluminescence to Fireworks, How do Atoms, Molecules and Materials Absorb and Emit Light?" and "From Soap to Salad Dressing to Cold Packs: What are the Advantages (or Disadvantages) of Mixing Chemicals?" Mike Zach and about fifteen UWSP students staffed an exhibition booth that featured earrings and key chains; students watched as dull gray titanium metal turned colorful by an oxidation process. At this event about 75 students walked away with earrings or a key chain. Shuhua Ma and Jim Brummer also produced a poster that highlights the careers of many of our chemistry and biochemistry alumni. (Thanks for keeping in touch!) Cristina Altobelli helped organize a thank-you breakfast for our student volunteers.

The Women and Science Program for middle school girls continues to attract more than 400 girls from all over the state every February. In spring 2009, Robin Tanke and several UWSP students introduced 40 girls to the influence that light has on chemical reactions by exploring the 1840's method for making blueprints and by extracting chlorophyll from spinach. In 2010, 500 girls made marbled note cards and observing that some things mix and others do not.

Mike Zach gives four presentations each year to College Days for Kids. This presentation, titled "Hydrogen – The Science behind the Boom", reaches 160 kids per year. Mike is also presenting "Technology – Will you be just part of the problem or do you want to be part of the solution?" This talk focuses on the environmental costs to manufacture and dispose of consumer electronics. During the presentation, participants beat apart cell phones with

hammers and dismantle them with screwdrivers and pliers. They look at the components under a microscope and discuss how LCD screens batteries, and a few other electronic components work. In addition, the computer chip manufacturing process, including the energy consumed and waste generated, is discussed. Mike's discussion of this process highlights the advantages of his nanowire research. He finds this talk relevant to many 7th to 8th graders who



Gary Shulfer demonstrating a fluorescing spiral

have already consumed up to five cell phones! Mike Zach has also been an advocate for undergraduate education to law makers, policy makers and business groups in Madison and Washington, DC.

The Chemistry Olympiad is sponsored by the ACS Local Section and hosted by Paul Hladky of the chemistry department. In 2008, 74 students from five high schools took the local screening exam (at their school), and eight students were invited to take the national exam (at UWSP). In 2009, 91 students from six high schools took the local exam and five invited students came to take the national exam at UWSP.

Gary Shulfer continues to present chemistry demonstration programs at schools and other venues, such as the Wausau Relay-for Life. He and Margaret

O'Connor also support the outreach programs of others.

Emeritus faculty Marv Lang and Don Showalter continue numerous outreach programs in the name of UWSP chemistry. A few highlights include: Marv participating as Santa Claus in Professor Bassam Shkhashiri's 40th Public Television production of "Once a Christmas Cheery in the Lab of Shkhashiri," Marv and Don presenting an invited plenary address and a chemical demonstration program for the Midwestern Two-Year College Chemistry Consortium (2YC₃) Conference and Marv and Don presenting "Is It Chemical Magic or Magical Chemistry?" at the 238th National Meeting of the American Chemical Society's High School Day Program in Washington, DC. Marv also presented "Have You Reviewed Your Obituary Recently" at the American Chemical Society's national meeting in Salt Lake City recognizing Helen M. Free's contributions to chemistry. ■

IN MEMORIAM

Saying Goodbye to a Friend and Colleague



Stephen R. Bondeson, professor of chemistry and a member of the Department of Chemistry since 1980, passed away on April 20, 2009, at his home in Stevens Point, following a courageous two-year battle with brain cancer. He lived his last two years as he did his entire life, maintaining his characteristic positive attitude that was sustained through his family and faith.

Services were held at Woodlands Church on April 24. Words cannot express how much Steve meant to his colleagues in the Department of Chemistry and how much we miss him.

Steve was both a professor in the Department of Chemistry and one of our alumni. Born in Zion, Illinois in 1952, he graduated from Westfield High School in 1970, and then earned a B.S. in Chemistry in 1974 with a minor in mathematics at UWSP. C. Marvin Lang was responsible for awakening a life-long love of research as his undergraduate research adviser. He began a research focus of mathematical modeling of solids in his studies and research at his next two schools. Steve earned a Ph.D. in Physical Chemistry at Duke University in 1978, and then spent the next two years as a post-doctoral research associate at Princeton University before coming back to UWSP as an assistant professor in 1980. He spent two summers in research at Argonne National Laboratory, and during his time at UWSP, mentored many undergraduate research students. In 1994, Steve collaborated with Robert Badger on an NSF grant (Instrument and Laboratory Improvement Program) titled "An Undergraduate Laboratory for Computational Chemistry" that allowed the department to purchase computers and software for performing molecular calculations at various levels of sophistication. This grant brought new capabilities to UWSP and marked the beginning of our Chemistry Computer Laboratory (A-113 Science) that continues to exist today. The newly acquired

computer power also allowed Steve to pursue a new line of research, the dynamics of protein folding. Steve's love of research and the success of his projects were recognized in 1983 with the UWSP Scholarship Award.

Steve was not only recognized as a researcher, but as an outstanding teacher, and he was awarded the UWSP Excellence in Teaching Award in 1997. He taught general chemistry, quantitative analysis and physical chemistry. Love of research and love of teaching combined and in 1998, he and James Brummer and Steve Wright were awarded a grant from the NSF (Fund for the Improvement of Post Secondary Education) to explore new strategies for teaching general chemistry. The grant was titled "The Data Driven Classroom - A New Paradigm for Teaching General Chemistry." Steve also developed the department's first assessment program.

Steve's primary focus throughout his career of improving the teaching and learning environment at UWSP eventually moved him out of the Science Building and into the offices of Old Main and university administration. He served as director of Grant Support Services, director of Personnel, and in fall 2004 became UWSP's first associate vice chancellor of Teaching, Learning, and Academic Programs. In this position, he worked closely with the departments of biology and chemistry and facilitated the creation of the new biochemistry major. This program is in its third year and twelve majors graduated in 2009-10.

Steve retired in February 2009, and his university colleagues honored him with a reception in the Founders Room in Old Main organized by Academic Affairs. Two weeks later, his chemistry department colleagues (active and retired) honored him with a dinner in the Alumni Room of the Dreyfus University Center. Jim Brummer, John Droske, Steve Wright and Marv Lang recounted experiences and memories of Steve's time in the department, both as an undergraduate student and professor. Steve's entire family—his wife, Ginny, and his sons David, John and wife JennaRose, and Dan (currently a chemistry major at UWSP)—were in attendance. It was truly a special evening. ■

The Stephen Bondeson Excellence in Research Scholarship

The Department of Chemistry is seeking a lead donor to honor Stephen Bondeson and create a new student scholarship. The *Stephen Bondeson Excellence in Research Scholarship* will be awarded to a junior-level chemistry or biochemistry major who excels in the classroom and the research laboratory and who intends to pursue graduate studies in science. Steve was a positive influence on so many students, faculty and staff members, and friends at UWSP and in Central Wisconsin. Our goal is to establish and award an annual scholarship in tribute to his many contributions to UWSP and to promote his passion for teaching and learning that occurs in the classroom and research laboratory.

Perhaps you or someone you know feels strongly about this opportunity to help our students in memory of Steve, and can help create this tribute to Steve. For additional information, please contact Mark Williams in the L&S Dean's office at 715-346-4211 or e-mail mark.williams@uwsp.edu. Thank you for your consideration of this special opportunity to remember Steve.

FACULTY HONORS & AWARDS

Two UWSP Chemistry Faculty Members receive ACS Recognition

A current and an emeritus UWSP chemistry faculty member were recently recognized by the American Chemical Society (ACS) for their long-time and outstanding service to the organization. This service has not only been of much value to the chemistry community but has also brought great recognition to the department of chemistry.

Professor John Droske was named a Division of Polymer Chemistry Fellow. He received the award at a ceremony during the National ACS Meeting in San Francisco, Calif., in May of 2010. This award was presented to Droske in recognition of his outstanding achievements and contributions to polymer science and the profession. Since 1989, Droske has served on the Executive Board of the ACS Polymer Chemistry (POLY) and Polymeric Materials Science and Engineering (PMSE) Divisions. He is a



founding member of the Intersociety Polymer Education Task Force and its long-time Director (1989- present). He is the Founder and Director of the POLYED National Information Center for Polymer Education. This Center has been housed in the UWSP Department of Chemistry since 1989. POLYED is the joint education committee of POLY and PMSE, and these ACS Divisions provide funding for operating the Center. Dr. Droske has been the co-Chair of POLYED since 1991. He was the driving force behind the creation of the "polymer option" chemistry majors that are

offered by the department. On top of all this, he is an outstanding teacher of chemistry and leads an externally funded research program that is currently comprised of six undergraduate chemistry majors and a post-doctoral research fellow.

UWSP Emeritus Chemistry Professor and Honorary Associate **C. Marvin Lang** was named an ACS Fellow at the National ACS Meeting in Boston in August of 2010. The



Fellows Program was created in 2008 with the intent of honoring ACS members who have demonstrated excellence in their contributions to the chemical sciences and in service to the ACS and greater chemistry community. Dr. Lang is among a select company of only 355 Fellows selected from a membership of nearly 162,000.

During his 40+ years as an active classroom teacher, and continuing after his retirement in 2006, Dr. Lang's principal research focus has been to bring the wonder and importance of chemistry to the public at large, and to young people in particular. He has performed more than 800 chemical demonstration shows and given an enormous number of talks worldwide in order to accomplish this goal. Dr. Lang has also been very active in the ACS as councilor to the Central Wisconsin Local Section for a total of 29 years, as chairman of three national-level committees of the Society, and as a member of the ACS Board of Directors for two three-year terms. ■

Mike Zach receives CAREER National Science Foundation Award

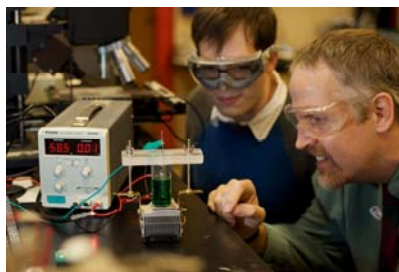
Michael Zach, assistant professor of chemistry and guest faculty researcher with Argonne National Laboratory, was recently awarded a prestigious National Science Foundation (NSF) CAREER Award to support his teaching and research. The title of his grant application was "Electroplate and Lift Lithography: Easily Making Patterned Nanowires Using Non-Sacrificial Templates." Mike's grant was for \$401,442 over five years. The award is being augmented by \$38,000 from the College of Letters and Science and with matching funds of \$165,672 from WiSys.

Chemistry Department Chair James Brummer notes that "CAREER Awards are rarely received by faculty members at undergraduate science departments and so this is truly a great honor for Mike and recognizes his active, creative and important research program. This award will allow Mike to advance his research projects and provide outstanding learning opportunities to UWSP students."

According to Mike, his NSF CAREER Award will "fund student research in developing a new paradigm for

nano-manufacturing called *electroplate and lift lithography*.

This new process for making patterned nanowires is being done at an undergraduate-only institution with the help of



Mike Zach (right) with student Tyler Shogren

Argonne National Laboratory facilities. It educates and inspires undergraduates who would otherwise not be exposed to high-tech, cutting-edge nano-manufacturing. Among other things, the CAREER Award will fund student research stipends, a post-doctoral research associate, and travel to Argonne National Laboratory's Center for Nanoscale Research. It will also fund a chemical composition analysis instrument for the scanning electron microscope that

is housed in UWSP's Biology Department. This grant will be used by researchers in biology, geology, physics, art and chemistry."

"It is my goal to move this theory into practice with the end goal of developing applications for a variety of private sectors from medicine to clothing. The key is to provide the right set of conditions for self-assembly of nanowires using low-energy methods rather than using more traditional brute

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FACULTY HONORS & AWARDS

force methods for manufacturing. My research targets new ways to produce patterned nanowires that can then be grown into circuits and components for manufacturing materials with vastly improved material properties. There are many ways to make large quantities of nanowires, but most techniques result in large numbers of tangled masses of wires. By dramatically improving the ease of creating specific shapes and types of nanowires, we can then apply that knowledge to numerous economic sectors, including healthcare, electronics and manufacturing.”

Mike graduated from UWSP in 1997 with a B.S. in Chemistry. He received his master's and doctoral degrees from University of California-Irvine. During this time, his

research was featured on the cover of *Science Magazine*. From 2002 to 2004, Mike was a Miller Postdoctoral Fellow at the University of California, Berkeley. Part of his time at Berkeley included a one-year joint appointment with the NASA/Ames Research Center. Immediately prior to arriving at UWSP, Zach worked in Argonne's Materials Science Division as the 2004 Glenn Seaborg Postdoctoral Fellow. Mike has won several awards including the National Merck Fellowship Award (2001), an R&D 100 Award (2006) for his discovery of ultrafast hydrogen sensors, and the WiSys Innovation Scholar Award (2008). Mike, his wife, Karen, and daughter Lauren reside in Stevens Point. ■

STUDENT HONORS & AWARDS

Biochemistry Major wins Goldwater National Science Scholarship

Ms. Alina Ott won a prestigious, federally funded Goldwater Scholarship. She is the eighth Goldwater Scholar from UWSP since 2004. Two previous winners also were chemistry majors (Erin Hanlin - 2007, Brennan Walder - 2008). Alina graduated from Mount Horeb High School. She is a junior biology and biochemistry double major. Goldwater Scholarships are awarded each year to undergraduate students with exceptional potential for a career in science. It carries a stipend of \$7500 a year for one or two years. The application requires an extensive research proposal. Alina's was on using soybean seed-color genes for breeding new varieties. Students must be nominated by their university to apply. The scholarship is open to students at all colleges and universities in the U.S., so the competition is extremely intense. It is considered the premier undergraduate science scholarship of its kind. This year, there were 278 winners nationwide from 1111 nominees submitted from over 400 schools. Applicants included majors in mathematics, natural science, engineering and computer science from the most prestigious schools in



the U.S.

Alina does her research in soybean genetics with Devinder Sandhu of the UWSP Biology Department. Her research problem is to see if it is possible to link soybean seed color with soybean traits that are valuable for creating hardier and more productive plants. Because the genes that control seed color in soybeans are not simple, her project has been a difficult one, but has now been solved and should save tremendous effort and hours for plant breeders. Alina is not a newcomer to research. She spent a summer in a National Science Foundation (NSF) undergraduate research program at UW-Oshkosh, studying photosynthesis in blue-green algae. She has already presented her work at a number of research meetings, and she and Devinder Sandhu are in the process of submitting her research for publication. Her plan is to go on to a Ph.D. program in molecular biology and afterwards join a teaching university where she can teach and inspire undergraduate students like herself to do research and help them begin new careers in science. ■

Scholarship winners announced



Nick Walters

The Roland Trytten Scholarship is awarded each fall semester to outstanding incoming freshmen who intend to major in chemistry. These scholarships are worth \$4,000 over the course of a student's tenure at UWSP. They were established in 1996 in honor of Roland Trytten, the longtime chair of the chemistry department. In 2009 the department awarded scholarships to **Nick Walters** and **Kayla Skotzke**.

Nick is a graduate of Appleton West High School, earning a GPA of 3.90/4.00. Besides excelling academically, he was a member of the tennis team for three years,

participated in a travelling musical group called the *Concert*, and was a tutor for freshman algebra students. Nick also worked 15-20 hours per week as a bagger/cashier at a local grocery store.



Kayla Skotzke

Kayla is a graduate of Phillips High School, earning a GPA of 3.70/4.00. She participated in many extra-curricular activities including being a member of the varsity soccer, basketball and volleyball teams. She served as captain of the latter two teams her senior year. Kayla was also a member of the choir, chamber choir, and

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STUDENT HONORS & AWARDS

served as Class Secretary during 2005-06. She was a volunteer for several community organizations and charity fundraising events including being a participant in FBLA sponsored volunteer programs.



Tracey Oudenhoven

In 2010, **Tracey Oudenhoven** (chemistry major, Stevens Point, Wis.) received the **Thalacker-Trytten Scholarship**. This is a \$2,400 scholarship awarded to a single junior or senior level student each year. It is provided for by an endowment established by Dr. Victor P. Thalacker, an alumnus of the UWSP Department of Chemistry. It was created in appreciation of the education he received at UWSP and in memory of Dr. Roland Trytten who served as an instructor and mentor for

Victor during his undergraduate education. Chemistry, math, and physics majors with a GPA of 3.5 or above are eligible for this award. Tracey is the president of the American Chemical Society Student Affiliates (ACS-SA) and has been doing research under the mentorship of Dr. Jason D'Acchioli the past two years. She presented her work at the National ACS Meeting in San Francisco, Calif., in May of 2010. She is a co-author on a paper that was published in the journal *Organometallics*. Last summer, Tracey participated in a National Science Foundation sponsored Research Experience for Undergraduate Program at the University of California-Irvine. Tracey plans on pursuing a Ph.D. in physical chemistry. The recipient of the scholarship in 2009 was Justin Perket (chemistry/physics major, Port Washington, Wis.).■

Tracey has been doing research for four years under the direction and Jason D'Acchioli. Their efforts have been partly funded by the **Helen and Philip Marshall Fund** whose purpose is to support research efforts of chemistry faculty members at UWSP. Tracey and Jason's research collaboration is one example among many of the Marshall Fund facilitating faculty and student success.

The Department of Chemistry awards several other scholarships and awards each year. The 2009 and 2010 recipients are listed below. Congratulations to all our scholarship winners!

- **Gilbert J. Kaczmarek Scholarship:** **Danielle Hamm** (2010, biochemistry, Owen, Wis.); **Justin Perket** (2009, chemistry/physics, Port Washington, Wis.).
- **Peter Fuqua Memorial Scholarship:** **Jay Raval** (2010, chemistry, Neenah, Wis.); **Justin Perket** (2009).
- **Wisconsin Chemistry Student Scholarship:** **Tracey Oudenhoven** (2010, chemistry, Stevens Point, Wis.); **Steven Sill** (2009, chemistry, Cable, Wis.).
- **Robert Weaver Biochemistry Award:** **Amber Kuklinski** (2010, biochemistry, Rosholt, Wis.); **Kyle Curran** (2009, biochemistry/biology, Madison, Wis.).
- **Carolyn Megal Award:** **Tracey Oudenhoven** (2010); **Amanda Nevins** (2009, chemistry, Rhineland, Wis.).
- **Culver-Rogers Award:** **Michael Braunsky** (2009, chemistry/biology, Stevens Point, Wis.).
- **Larry Kallander Award in Physical Chemistry:** **Randall Siedschlag** (2010, chemistry, Wautoma, Wis.); **Jason Levendoski** (2009, chemistry, Stoddard, Wis.).
- **Larry Kallander Award in Inorganic Chemistry:** **Russell Winkel** (2010, chemistry, Cedarburg, Wis.); **Amanda Sopa** (2009, chemistry, Waupaca, Wis.).
- **Gilbert Faust Freshman Award:** **Kayla Skotzke** (2010, chemistry, Phillips, Wis.); **Adam Koopmann** (2009, chemistry/math, Saukville, Wis.).
- **Gilbert Faust Sophomore Award:** **Ryan Bemke** (2010, chemistry/biology, Custer, Wis.); **Eric Terrell** (2009, chemistry, Stevens Point, Wis.).

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For information on creating a scholarship or leaving a legacy, please contact
Mark Williams at 715-346-4211 or mark.williams@uwsp.edu

ALUMNI UPDATE

David Zoromski (B.S. Chemistry, 1969): In March 1970, David began work as a chemist with the Wisconsin Department of Agriculture in the General Laboratory Division in Madison. In 1976, David was promoted to a senior chemist position with the Animal Health Laboratory and promoted to chemist supervisor in 1978. In 2000, the laboratory became part of the University of Wisconsin System and was moved to a new laboratory on the Madison campus in 2006. He just entered his 40th year as a chemist serving the state of Wisconsin.

Brian Miller (B.S. Chemistry, 1980): After graduating from UWSP, Brian was commissioned in the Navy. He eventually returned home to earn an M.S. Degree in Meteorology and Physical Oceanography from the Naval Postgraduate School. He is currently employed by the National Weather Service in Brownsville, Texas, as a lead meteorologist. Brian still has family in Stevens Point and enjoys returning to visit as often as possible, but mostly when the weather is warm. He is currently working on an M.B.A. degree through the University of Texas.

David Sevenich (B.S. Chemistry, 1984): David earned his Ph.D. in Analytical Chemistry from the University of Iowa (1990) where he helped to develop on-line, mid-infrared spectroscopic methods for real-time determination of sample mixtures. He accepted a position with DuPont (La Porte, Texas) in 1989 as a process analytical chemist supporting the manufacture of a broad portfolio of products including insecticides, fungicides, herbicides, industrial chemicals and polymers. In 2002, David accepted a position as a senior research scientist with Pioneer Hi-Bred International (Urbandale, Iowa). David, his wife of 25 years, Donna, and children, James and Claire, reside in Johnston, Iowa, a suburb of Des Moines.

Steve Verhey (B.S. Chemistry, 1996): Steve graduated with an M.S. in Chemistry from Michigan Tech University in 2000. He continued his education at MTU and earned a Ph.D. in Forest Science (wood preservation emphasis) in 2002. From 2002 to 2004, he worked as a research assistant professor at MTU. In June 2004, Steve accepted the position of technical manager at TECO, which is based in Sun Prairie, Wis., with labs in Eugene, Ore., and Shreveport, La. TECO is a small company of 30 employees. Their primary business is certification and testing services for manufacturers of wood-based products intended for structural use. Steve and his wife, Jodi, were married in 2006 and their first child (a boy) was born in July of 2008.

Jeff Slusarski (B.S. Chemistry, 1999): Jeff began his career with a small, privately owned company called Pacur in Oshkosh, Wis., as a process engineer. Pacur extrudes PETG sheet for use in custom and OEM thermoforming applications. The heart of the business is for rigid thermoformed medical packaging trays. In 2005, Jeff completed an M.B.A. degree. Most recently, Pacur acquired the assets of a former customer, Dynamic Drinkware (DD),

due to bankruptcy, and Jeff has been heavily involved in the effort to get the company established.

Adam Scheuer (B.S. Chemistry - Polymer Option, 1999): Adam spent five years in the Polymer Science and Engineering Graduate Program at the University of Southern Mississippi, earning his Ph.D. in 2004. He is currently a Senior Research Chemist for Ashland Performance Materials Inc. in Columbus, OH. His current responsibilities include project development and management in the transportation/marine areas within the composites polymers division. Adam and his wife, Jill, reside in Worthington, OH.

Michael Van Linn (B.S. Chemistry and Biology, 2004): Mike enrolled in the Chemistry Graduate Program at UW-Milwaukee and received a Ph.D. in Organic Chemistry in December of 2009. Mike is currently a postdoctoral fellow at Drexel University College of Medicine in Philadelphia, Pa., where he is designing and synthesizing photo-sensitive "caged" compounds to study calcium signaling in vivo. Mike was married in September of 2008 to his wife, Lesley.

Amanda Case (Wruck) (B.S. Chemistry, 2005): Amanda is currently a fifth-year physical chemistry doctoral student at the University of Wisconsin-Madison. Her research group studies chemical reaction dynamics, particularly the role that vibrational excitations play in the course of chemical reactions. Her project focuses on unimolecular reactions of isolated molecules in a molecular beam. Amanda is considering a career as a teacher/researcher in academia or working in a national lab where she could pursue her own research. Amanda manages to make the 2+ hour drive home to Wausau, Wis., almost every weekend to see her husband, Joel.

Kyle Korinek (B.S. Chemistry, 2006): In August of 2006, Kyle was hired as a science teacher at Reedsville High School (enrollment 276) in Reedsville, Wis., where he teaches chemistry, advanced chemistry and physical science classes. He is also the head football coach. Kyle will soon start work towards a master's degree in administration. Kyle, and his wife, Anna, have been doing a lot of traveling the past couple years including visits to Ireland, Peru and Pictured Rocks along Lake Superior.

Becky Peterson (B.S. Chemistry and French, 2007): Becky works for the pharmaceutical company Bristol-Myers Squibb in Pennington, N.J. Her official title is Assistant Research Scientist II. Her job entails running reactions, isolating compounds, purifying products (mostly by flash column chromatography and preparatory HPLC), and characterizing products (LCMS, HPLC, NMR, IR). It also requires her to analyze spectra, keep accurate notebook records with characterization data, search the literature for reactions/procedures, and attend group meetings. ■



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May 2010 Graduates