Department of Chemistry

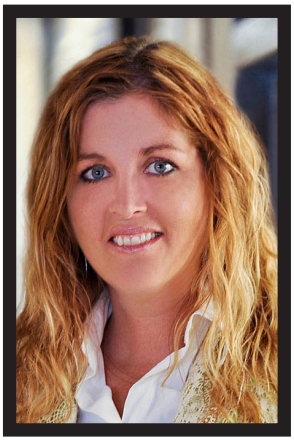
Fumes from the Hood

Fall 2015

Dear Alumni and Friends of OSU Chemistry,

Fall is a time of excitement on the OSU campus – with new students arriving for the first time as well as returning students coming back from their summer adventures. We are proud of the central role that our Department plays on campus. Chemistry maintains the largest PhD program on campus. We are thrilled to welcome another 24 new graduate students to campus this fall from all over the country and the world. In addition, nearly 6 out of every 10 undergraduate students that get ANY undergraduate degree from OSU takes at least one Chemistry course during their time here. Not surprisingly, our Department generates the 3rd largest amount of student credit hours (SCH). We welcome back to campus approximately 200 existing undergraduate majors and 57 entering first year students who have declared Chemistry as their major. Our Department also produces approximately 300 students each year that graduate with a minor in Chemistry. Finally, this past academic year also saw many of our faculty and students receive numerous honors and promotions. Check out our awards and promotions section found on page 13.

I also want to thank our amazing alumni and friends of OSU Chemistry. We truly appreciate all your support – thank you! Without your generosity, we would not be the vibrant Department that we are today. Last year, OSU Chemistry utilized $1.43M in OSU Foundation funds (approximately 15% of the Department's overall, non-research grant operating budget last year) to support all aspects of the Department's mission: to provide scholarships and fellowships for our students, to assist with startup support for new faculty hires, to facilitate graduate student & faculty recruitment, to enable an outside speaker program for researchers throughout the Department, to provide matching funds for equipment purchases and numerous other activities.



Let me take a moment to describe how some recent gifts are making a difference. OSU alumnus and long-time supporter **Tom Webb**, **'68**, has established and recently augmented the Chemistry Instrumentation and Facilities Fund. Tom recognizes how scientific equipment can be incredibly enabling for students and faculty, but that it's not a well-known opportunity to make a gift. This past year, we used some of Tom's gift to purchase a new FT-IR instrument for our Chemistry majors in our upper division teaching labs. Check out the article on page 12 to learn more about Tom. **Dan, '79**, and **Janis Kerrigan** recently established a student internship program. This gift will work in concert with gifts from **David Wong**, **'64**, **Brad Zenger**, and others to provide our students with real world experience and skills in the

A Message from the Chair

industry during their time at OSU. This past summer, our internship program engaged 47 students; which led to 17 students obtaining science positions over the summer, including 7 directly placed through OSU Chemistry's program. The Department established the James D. White Lectureship fund to honor Distinguished Emeritus Professor White. This fund continues to grow through generous gifts from our alumni, friends and faculty. This program recently brought Professor **Paul Wender** (Stanford University) to campus to give an inspiring lecture on the impact organic synthesis can have on combating disease. I want to particularly thank Jim White group alumnus and OSU Grad **MC Kang**, **'84**, whose recent generosity helped to support the 2015 event. Finally, we are thankful for the continued support of the **Bert and Emelyn Christensen** family for endowing the Christensen Professorship in Chemistry. The Department will use this fund to help recruit a talented senior faculty member to OSU to help further strengthen its program in organic chemistry broadly defined.

In addition, many of our alumni and friends help our students through the establishment of scholarships for undergraduates and fellowships for graduate students. These gifts make a major difference in the lives of our students and will inspire the next generation of students to strive to achieve these honors. A detailed list of all awardees this academic year is found on page 13. I would like to specifically call attention to **Kayla Naas**, the inaugural recipient of the **James Ingle** Scholarship. Kayla was pursuing a dual degree in Chemistry and Wood Science and lost several scholarships when she dropped Wood Science to focus on Chemistry. Receiving this scholarship will allow Kayla to decrease her work hours so she can concentrate more on hands-on Chemistry research. I would also like to call attention to **Kyle Almlie**, who not only received a departmental Milton Harris Summer Fellowship, but also, the prestigious Herbert Frolander Outstanding Graduate Teaching Award. Kyle is an amazingly well rounded student, garnering recognition for not only his research, but also for his teaching.

Our alumni are also having a large impact throughout the world. **Karen Wooley**, **'88**, W. T. Doherty-Welch Professor Chair and Distinguished Professor of Chemistry, is one of the leading figures internationally in polymer chemistry. Dr. Wooley will be visiting us in November to present a seminar as part of the Dean's Distinguished Lecture Series. **Luke Lavis**, **'00**, group leader at Howard Hughes Medical Institute, was featured in Chemical & Engineering News recently as one of the "Talented 12" for up & coming chemists. **David Wong**, **'64**, is one of the three scientists credited with discovering the game-changing anti-depressant Prozac at Eli Lilly. **MC Kang**, **'84**, was Senior Vice President of Technology Development for Trimeris where he led the development and commercial launch of Fuzeon for treating HIV. **Mabel Armstrong**, **'59**, who after serving as first female professor and Department Chair at Lane Community College (LCC), and wrote the inspirational book "Women Astronomers: Reaching for the Stars" to help inspire the next generation of female scientists (see page 3). These five are just a small sampling of the scores of alumni we have doing great things – congrats to all of you for all your accomplishments and thank you for making us so proud!

I would love to hear from you. Please do not hesitate to contact me (rich.carter@oregonstate.edu, 541-737-6700) or stop by next time you are in town!

All the best,
Rich G. Carter, Ph.D.

Alumni Spotlight: Mabel Armstrong

Chemistry Almuni **Mabel Armstrong, '59** doesn't remember a time when she wasn't the only female in her classes. When she was younger, she says, she simply "accepted it as the way things were."

As the oldest of five siblings, she was the first to go to college. She fell in love with chemistry while attending Cottage Grove High School. At first, she said, it was the "neatness of balancing chemical reactions." That concept still intrigues her and she loves seeing her students excited about the same thing.

Mabel obtained her BS in Chemistry from OSU in 1959 and her MS in Biochemistry, also from OSU in 1961. She remembers starting at OSU with barely enough money to cover Fall Quarter. She obtained a job in Ag Chemistry (a department that sadly, no longer exists) working for Virgil Freed and held that job until she finished her MS. During that time, her research was focused on the development of analytical methods for detection and measurement of various herbicides.

During her time at OSU, Mabel also helped form the Student Affiliates of the American Chemical Society, a group now known as the Chem Club. In her day, they were responsible for the installation of a Coke machine in Gilbert Hall and planning a lab wear fashion show. They also organized a question and answer panel to discuss whether to enlist or finish your degree - the war in Vietnam was heating up at that time.

After graduation, Mabel went to the Boyce Thompson Institute in Yonkers, New York, where she worked on the detection and measurement of 2,4-D in milk and plant materials. She left after a single year to marry and move to Eugene, Oregon.

In the early 60's, there was very little work for a chemist in Lane County. So when voters agreed to establish Lane Community College (LCC), she applied to teach chemistry and was one of the first faculty members hired. For over 25 years, she was the only full-time contracted woman on the science staff. She realized for her, that the issue wasn't so much the male dominated work force, it was the lack of colleagues. "Even as department chair, my colleagues were the heads of nursing and home economics," she recounts.

Armstrong said she doesn't think she ever consciously thought about "getting involved in outreach." She became interested in the political side of the Women's Movement, then in that capacity became more sensative to the roadblocks faced by women - especially women in the sciences.

Upon retirement from LCC, Mabel wanted to demonstrate to junior high-aged girls that not only had women always been scientists, but that history was full of great female scientists. With that, Mabel started the Discovering Women in Science Book Series. Starting with Astronomy was a calculated decision based on financial factors and the fact that, "astronomy tends to get more publicity than many other sciences and is more pictoral." Everyone loves looking at the stars. Reaching for the Stars was published in 2008 by Stone Pine Press out of Marcola, Oregon. Mabel is currently working on a book on women chemists.

Keep up with everything happening in the Chemistry Department...
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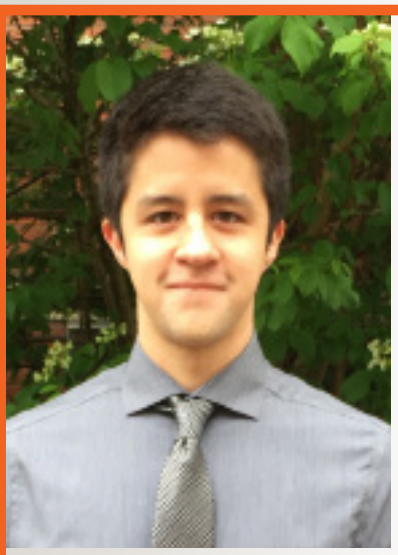


Collin Muniz was born in Tuscaloosa, Alabama, home of The Crimson Tide, but quickly moved to LA and then on to Oregon where he attended Beaverton High School. During his sophomore year at Beaverton High, he took his first chemistry class. He fondly remembers his instructor, Patrick Cripey, performing an acid-base reaction in which he dissolved a penny. He decided then and there, that chemistry was pure magic, a type of magic that he wanted to explore further.

When it came time to apply to colleges, Collin applied to many and did his due diligence in visiting each one. He said it was an easy decision to choose OSU. Upon matriculation, he was originally a Chemical Engineering major, but quickly discovered there wasn't enough chemistry in that major, so he switched to a dual degree in Chemistry and Physics. He says his first professor was also his favorite professor, Dr. May Nyman. He reports greatly enjoying the teaching methods and classes of Dr.'s Daniel Myles and Paul Blakemore as well, but Dr. Nyman was the one who really gave him his start. Shortly after starting her class, Collin went to her office hours and "prodded" her for information about her science. He said, at first, she was slow to open up, not wanting to confuse him, but his excitement for the subject was infectious and she was soon writing structures on the white board and discussing her research with him. Several weeks later, she contacted him and offered him an undergraduate research position with her lab. It was an opportunity he jumped on with great enthusiasm and has never looked back.

Collin plans on attending graduate school in the future: "whichever graduate school," he says, "will help him pursue his dreams to the best of his ability." After that, he wants to find work in a national lab. "I want to work in the sort of environment where there's a lot of pressure to get your final product and where you need to be very innovative to accomplish that," Collin stated. In his free time, he enjoys playing soccer and studying, a fact which he says, makes him boring. We here in the Chemistry Department think that makes him a wonderful new addition to our Undergraduates of the Quarter.

WE'RE PROUD OF YOU!

Alec Kagele was born in Roseburg, Oregon and had never taken a Chemistry class until coming to OSU. He bounced around various Engineering and Science degrees before landing in his first Chemistry class and fell in love. Alec took General Chemistry from Margie Haak, long before she had developed the flip classroom environment. He was not as enamored with Organic Chemistry until he took the final term of the sequence from Dr. Chris Beaudry.

This course led him to doing Undergraduate Research, also in Dr. Beaudry's lab. He has been working there for nearly a year. In addition to his coursework and an additional part time job at Woodstock's Pizza, he works in the Mole Hole, a tutoring center for General Chemistry students and TA's for Paula Weiss and Kristin Ziebart, who teach the 12X level General Chemistry. Alec is an incredibly busy student.

While he's still not completely set on his plans for the future, he's leaning towards a Master's degree and a job in industry. We're proud to have students like Alec Kagele in the Department of Chemistry.

Shan Lansing spent the first 18 years of her life in Grants Pass, Oregon. Being from a small town, she loved the feel of Corvallis, and the community aspects of Oregon State University. She's always known she wanted to be a doctor, but it was her work in Sean Burrows research lab that lead her to focus on oncology. She cites her advisor, Neal Sleszynski, as the reason she got into undergraduate research so early in her education. "I went to meet with him for advising and he asked if I wanted to do research," she stated. "The rest is history."

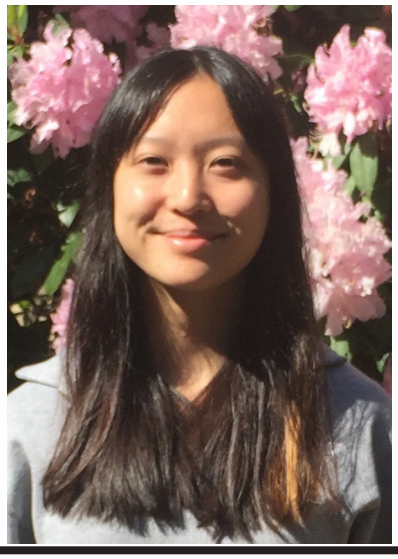
Shan said she's always been a detail-oriented person, so analytical chemistry was definitely the right area for her, stating that the precision of micro pipetting and various other fine detail work really appealed to her. Her favorite class was Quantitative Analysis, but favorite professors, she said, was a harder question to answer. She finally settled on Philip Watson and Paul Blakemore, stating, "I feel bad, picking favorites; I really haven't had a bad [Professor] here."

Shan is the current Social Chair for Sigma Delta Omega, the science sorority here on campus. In her spare time, she likes to swim and is training for some marathons next summer. Shan has an older brother and an older sister and is pretty sure her parents send her grade reports in a mass email because they're so proud of her accomplishments: as are we. Students like Shan are the reason we do what we do, and we're proud to have her in our department.

Jamy Lee was born and raised in Tigard, Oregon. She attended Tigard High School, home of the Tigard Tigers, and credits her Chemistry teacher, Mr. Massey with why she chose chemistry for her college major. "He just kept telling me all the cool things I could do and that I could definitely get a job in the field."

She chose Oregon State University because of the low tuition rates and the proximity to her hometown. Her brother also attended OSU, so she said, "at least I knew someone." She said when she started, she was really bored with General Chemistry because she'd seen it all in high school, so she went to see her advisor, Dr. Neal Sleszynski. Not only did he talk her into taking CH 324, Quantitative Analysis, a class she maintains to this day as one of her favorite college experiences, but he also introduced her to undergraduate research.

Jamy was awarded the URISC (Undergraduate Research, Innovation, Scholarship and Creativity) Start for the summer of her freshman year and took that opportunity to start undergraduate research with Dr. Vince Remcho. The summer of her sophomore year, she participated in the Center for Sustainable Materials Chemistry's Undergraduate Research Program at UC Davis. While there, she worked with Dr. Kacey analyzing aluminum and gallium clusters; Jamy said, "it was really cool." The summer of her junior year, she was back in Dr. Remcho's lab working in conjunction with the Sure Science program and focusing on different research topics.



In her spare time, Jamy is the Academic Success Officer for the science sorority, Sigma Delta Omega, the Vice President of the Chemistry Club and a member of the College of Science Student Advisory Council (COSSAC). Their focus this year has been to integrate more graduate student involvement, mainly by helping the Chemistry Undergraduate Mentoring and Empowerment (ChUME) group reach more undergraduates. She is also a member of several cooking clubs: "Most of my activities outside chemistry involve food."

Jamy has already been accepted to the University of Illinois where she will be working on her PhD is Analytical Chemistry. She hopes to work in industry doing pharmaceutical chemistry research. She says she's a little nervous about leaving Oregon for the first time, but excited about the opportunity to work for such a great program. We're proud to have students like Jamy in our department and wish her all the luck in her future endeavors.

FOCUS ON DOLGOS RESEARCH GROUP

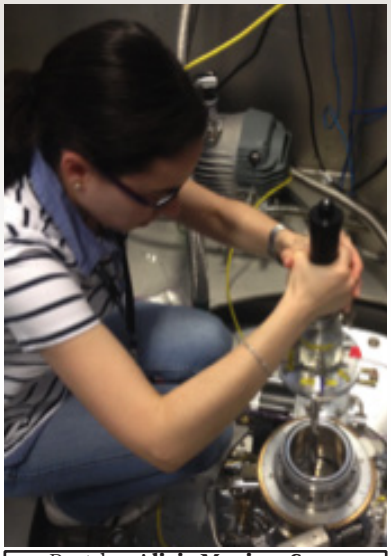
By: Michelle Dolgos

Graduate student **Ryan McQuade** aligning a sample at the APS

Assistant Professor, Michelle Dolgos' research interests lie in the synthesis and characterization of advanced functional oxides for electronic applications. Her group is working on a variety of materials, but our main focus is 1) bulk and thin film piezoelectrics, 2) novel multiferroics, and 3) amorphous and nanocrystalline solution processed thin films. Our goal is to synthesize new materials and understand their structure-property relationships so that we can fine tune these compounds to achieve the desired properties for specific applications.

We have had a tremendously productive spring and summer. The highlights of the year have been our trips to the Advanced Photon Source and the Spallation Neutron Source of Argonne National Lab and Oak Ridge National Lab. These user facilities award time on specific instruments based on submitted proposals. We were fortunate enough to have proposals accepted at each location for a study on the local structural features of lead-free piezoelectric ceramics and another study on the structural transformation of doped ionic conductors. While at the experiment, we worked around the clock to collect diffraction data that provides information about the structure of our materials, often times as a function of temperature. It was sometimes tiring, but at the same time very satisfying as we watched the data being collected in real time with the relaxing sound of the vacuum pumps in the background.

Now that we have collected the data, we are working on creating structural models which will then be correlated to the physical properties. In one of our current projects, we are investigating a system that defies conventional thinking about piezoelectric materials. Each specific group of materials has a composition range called the morphotropic phase boundary (MPB) where the piezoelectric response is significantly enhanced. Traditionally, the MPB lies between two compositions with polar structures which have an electric dipole. However, the material we are studying has an MPB between a polar and a non-polar phase, so there is no electric dipole in the second phase. While this is not an entirely new phenomenon, it is rare to find in the literature. Even the known systems are largely ignored and not considered in new materials design despite their promising properties. Our work on the structural and physical characteristics of this type of MPB will allow for a greater understanding of this often overlooked family of materials. This research will transform the field by opening up a new and broader way to approach the design of new materials as it will infinitely expand the phase space in which to explore for novel high performing piezoelectric materials. We are looking forward to further developing our hypotheses and sharing our results with the piezoelectric and solid state chemistry communities.



Postdoc **Alicia Manjon-Sanz** inserting a sample into POWGEN at the SNS

Faculty Awards - **Mas Subramanian** gave a series of lectures on his blue pigment discovery at various public institutions– including at OMSI & his work was featured in the Oregonian. **Richard Nafshun** won the 2015 E. Ann Nalley Northwest Region Award for Volunteer Service to the ACS (for his long time service to the American Chemical Society) and 2015 Pounding the Pavement award from OSU Advantage Accelerator (for his entrepreneurial activities through startup company Northwest Labs). **Staci Simonich** won the '15 Presidents Commission on the Status of Women University Mentoring & Professional Development Award. **Vince Remcho** was recognized by Oregon Academy of Science as the 2015 Oregon Scientist of the Year & was inducted into the National Academy for the Advancement of Science. **Chong Fang** received a 2015 NSF CAREER Award, was the 2015 Phi Kappa Phi Emerging Scholar award winner and won the inaugural International Robin Hochstrasser Young Investigator Award. **Judy Giordan** received the 2015 Humboldt Alumni Award for Innovative Networking Initiatives. **May Nyman** published a paper (Continued on page 10...)

GUIDED-INQUIRY LABS: A NEW APPROACH

By: Michael Burand

Laboratory students have always followed our procedures, done exactly what we told them to do and subsequently got good scores. The problem, however, was that afterwards students often still had no real idea of the basic concepts we were trying to get them to understand. This wasn't anything the students were doing wrong—it was an issue with our pedagogy. The 2014–2015 academic year marked the first in which our entire CH 26x laboratory sequence used the guided-inquiry format. We are very excited about how well it went, and we are working to make additions and improvements. This requires getting input from TAs, LPSC Issue Room staff, and students. So, what exactly are guided-inquiry laboratory projects? Well, they are definitely not a step-by-step procedure of exactly what to do in the laboratory. Rather, a goal is provided and students are tasked to get there without explicit instructions, although they definitely get background information and guidance from their TA. This is much more akin to what happens in an actual research environment.

> "I began to think more deeply about the fundamental science that my students were trying to probe experimentally. I attributed this to my students asking more "why" questions. -- Maduka Ogba (GTA)"

Conversations with TAs and students have consistently indicated that the students not only attain a far better understanding of the chemistry concepts, but many feel they retain the information longer under our guided-inquiry pedagogy. Although students seem unanimous in their belief that the guided-inquiry format requires more effort, overall their response has been positive about their laboratory experiences. This student feedback has been reassuring. This past year, there were several instances where students asked if their group could come into the laboratory later, outside of their scheduled time, to put in additional work on their projects. Seeing this level of enthusiasm and engagement was definitely encouraging—this is not a request usually made when we taught under the old model. On another note, grade averages have stayed about the same. This is good news, because it clearly shows that students can be just as successful (with respect to their course grade) with the guided-inquiry format, even though we no longer provide step-by-step instructions. And although students don't get those instructions, there are many more possibilities as to how the laboratory requirement can be met—oftentimes several different approaches can work. Knowing that there isn't necessarily one "right" way to do the laboratory takes a lot of pressure off the students since they are graded more on the process, not the end result.

> "The new format allows students more freedom to learn and fosters their confidence as scientists, preparing them for real scientific problems that won't have an instruction manual. -- Bella Giampaoli (GTA)"

A favorite lab is one in which students are tasked to find the types of dyes and their concentrations in a sample of Gatorade, with the ultimate goal of regenerating the color profile from stock dyes in the laboratory. Students are given background information on Beer's law and dilution and shown how to use the spectrophotometers in the laboratory. From there, they need to develop their own procedures. It can be very gratifying for a laboratory group when they are able to use their data to make a mixture that exactly matches the color of the Gatorade sample.

It's also important to us that our TAs are onboard with teaching this format. After all, they are the ones who actually deliver the content. We're currently working up data from a survey of TAs we recently conducted, and the data show that overwhelmingly TAs feel that the guided-inquiry method is better for both themselves and their students.

Finally, a huge thank you to Professor Michelle Driessen at the University of Minnesota for all her advice that helped us get started with incorporating guided-inquiry laboratories here at OSU.

JIM WHITE
80 YEARS OF BIRTHDAYS...

by: Luanne Johnson

Professor **James D. White**, the man, the myth, the legend. With over 55 years of science experience under his belt, he's forgotten more about Chemistry than some of us will ever know. He received his B.A from Cambridge University in 1959, his M.Sc. from the University of British Columbia in 1961 and his PhD from MIT in 1965, working with Dr. George Buchi.

He started his professional career at Harvard University in 1965 and moved to Oregon State University in 1971. He gained Distinguished Professor status in 1992 and retired in 2003. In his 32 years at Oregon State, Dr. White mentored several undergraduates, graduated 7 MS students, 64 PhD students and trained 94 postdocs. He's written over 250 publications and holds five patents, but he doesn't seem to be stopping there.

He is the extremely deserving winner of numerous awards, including, but not limited to, being named a Fellow of the American Chemical Society in 2011, the Oregon Academy of Sciences Outstanding Scientist Award in 2006, the Medical Research Foundation of Oregon Discovery Award in 2004 and the Arthur C Cope Senior Scholar Award from the American Chemical Society in 2003. His list of professional activities is as impressive as his list of awards. Even well into retirement, Dr. White continues to work away at the science he loves.

The George Buchi Lecture Series was started in honor of Dr. White's mentor and PhD advisor, Dr. George Buchi. In 2011, this lecture series was renamed to The Jim White Honorary Symposium. This year just happened to coincide with Dr. White's 80th birthday. In recognition of this milestone, we decided to invite back all of Dr. White's graduated students and postdocs as well as throwing him a birthday party during the symposium.

The welcome reception was

Spotlight on White Lab Alumni, MC Kang

MC Kang grew up the youngest of five children in post-war South Korea. He received his BS degree in chemistry from Sogang University in Seoul, Korea, followed by a PhD in organic chemistry from OSU with Dr. White. He completed a postdoctoral fellowship in synthetic organic chemistry at Harvard University. He was the director of chemical development at GSK, then moved on to Trimeris where he served as a senior vice president that maintained responsibility for the worldwide development of the Fuzeon, a new class of HIV fusion inhibitors. Most recently, he founded a biotch company, Kainos Medicine, in Korea, and has workes as co-CEO for 6 years. He currently lives on a lavender farm in Washington State with his wife, Kay, who is a writer and social worker. His son lives in New York as a writer and his daughter lives in Seattle as a surgeon.

> A lot of people will say no in your future professional life, but it's your judgement that always counts the most.
>
> --MC Kang

When asked if Dr. Kang had a message he'd like us to pass on to Dr. White, he replied, "Dear Jim- it is hard to believe it has been more than 35 years since I first met you as a graduate student. It was wonderful to read the review article of boromycin synthesis on the cover of the recent issue of Organic and Biomolecure Chemistry (December 2014). Very few chemists have achieved such a comprehensive and varied assortment of synthesis of natural products. Your contributions to the synthetic organic chemistry have been greatly appreciated. Best wishes to you and Happy 80th birthday!"

held at the CH2M Hill Alumni Center and was well attended. Many of Dr. White's students returned (as well as a good potion of his postdocs) to help celebrate this life accomplishment with their mentor. Many of the current faculty and students were in attendance as well to help Jim celebrate. Among the mingling and merriment, was a slideshow of favorite memories from students working in the lab along-side Dr. White and reminiscing about days gone by, learning the art of the trade. In addition, the reception was a great place to welcome Dr. **Paul Wender**, from Stanford University, this year's guest speaker for the Jim White Honorary Symposium.

Paul Wender received his BS from Wilkes College in 1969 and his PhD from Yale University in 1973. "His research involves studies in chemistry, biology, medicine and materials science. He is affiliated with the Medical School, Imaging Center, Chemical Biology Program and Molecular Therapeutics Program. A special emphasis is placed on training and research in synthesis, inventing new reactions and the use of synthesis to address problems of significance in biology and medicine including the eradication of HIV/AIDS, overcoming resistant forms of cancer and treating cognitive disorders like Alzheimer's disease." (web.stanford.edu/group/pawender/about-professor-wender.html)

Dr. Wender presented his seminar the next day, to a packed house at the LaSells Stewart Center. It was standing room only for people who wanted to hear about, "The Chemistry-Medicine Continuum: Toward Therapies for HIV/AIDS Eradication, Cancer & Alzheimer's Disease."

After the seminar, attendees mingled with Dr. Wender and Dr. White, enjoying a lite buffet and conversation with these amazing scientists.

All-in-all, everyone had a great time, learned a lot, and enjoyed the Symposium. We call this year's event a great success.

Spotlight on White Lab Alumni, Pavel Nagorny

Pavel Nagorny first became interested in chemistry when he was in middle school. He was simultaniously fascinated by the hands on experimental aspects as well as the theoretical pieces of the topic. He remembers being excited to start his career at OSU because it gave him the ability to continue with a subject he loved. Pavel said his favorite class when he was in school, was a computational chemistry class he took with Dr. Kevin Gable. He also mentioned greatly enjoying his thermodynamics course and his Physical Chemistry courses.

> "I don't think I would be able to give past-me advice on the future... I probably wouldn't have listened to myself anyway. -- Pavel Nagorny

Pavel continued on to Graduate School after getting his BS because he just didn't want to stop doing Chemistry. His current research, taking place at the University of Michigan focuses on the synthesis of natural products and carbohydrates. His group especially focuses on more expedited ways of making steroids that can help treat heart disease. They are also developing new tools to synthesize carbohydrate based antibiotics for the treatment of various infectious diseases. Pavel describes himself as a Natural Products Medicinal Chemist.

When asked about his reaction upon being selected to be the first featured Chemistry Alumni Seminar Series Speaker, he said he was delighted. Pavel informed us that he felt it was a great idea to start up the Amluni Seminar Series and he's looking forward to seeing who else will be joining the ranks of invited speakers in the future. As for being the first, "well, it was a real honor."

... AND 55+ YEARS OF SCIENCE

CIA (CHEMISTRY IS AWESOME) PARTY 2015

CIA stands for Chemistry is Awesome, because it is. For the second year in a row, the Chemistry Department has thrown its annual CIA (Chemistry is Awesome) Party, to help change the perception that Chemistry is boring and that Chemists are as well. Any student who has ever taken a Chemistry class at OSU along with present faculty, staff and science teachers from the local community are invited to attend this event and get a first hand look at how Chemistry is Awesome, right in their own back yard.

The 2nd Annual CIA (Chemistry is Awesome) Party was held Wednesday, June 3, 2015 in the courtyard between Gilbert Hall and GBAD. It boasted the traditional dunk tank, hands on demos and food donated from community eateries. This year was expanded to include information booths from industry leaders such as Beet, CSMC, and Valliscor, and a poster session conducted by the Chemistry Undergraduate Mentoring and Empowerment (ChUME) group.

Benny Beaver was on hand for pictures with the crowd and to cheer the dunk tank volunteers. Students from Dr. **Mas Subramanian**'s lab conducted demos with his now famous Blue Pigment, including some on-the-go manicures. Other demos included Color Chromotography, Making Slime, and Bubbles in Dry Ice, all thanks to **Margie Haak**, general chemistry instructor.

Paul Mauer, an alternative, folk, indie rock musician out of Longview, Washington responded to our ad and was chosen to provide the live music. His mix of soothing, yet upbeat tunes was a good backdrop for the party atmosphere.

The prizewheel was a big success this year, with most of the participants vying for either the brand new CIA logo T-shirt, or the free lab coat. A raffle was also added to this years agenda, with prizes donated from local businesses. As per the normal, the big draw though was the dunk tank. Staffed with the ever present Chemistry Department Chair, Dr. **Rich Carter**, Chemistry for Engineers Instructor, **Chris Knutson**, Chemstores Manager, **Paul Weatherford** and a slew of other Chemistry faculty, staff and students, fun was had by all. Although, we were repeatedly informed that the water was still too cold.

The carnival face board, designed by our very own Graduate Coordinator, **Sarah Burton**, was a huge hit with the visiting kids and even some of the college students. We'll be adding an additional board next year for group photos, so stay tuned to see what we come up with.

And we'd like to send a huge thank you to all the eateries that donated to the party. Without them, we never would have had the party we wanted.

Attended by aproximately 500 students and community educators, this year was viewed as yet another rousing success. Keep watch on our Social Media pages for information on next year's CIA (Chemistry is Awesome) Party and contact us if you'd like to get involved.

(Continued from page 6...) on her work in the prestigious journal Science. **Daniel Myles** received the Fall 2014 Professor of the Term by the Panhellenic Executive Council of OSU. **Doug Keszler** and The Center for Sustainable Chemistry (CSMC) were featured on NSF's Science Nation and the story was picked up by PBS.

Student Awards - Grad Students **Maduka Ogba**, and **Daniel McCauley-Walden** were awarded OSU Graduate Student Travel Awards this academic year. **Kyle Almlie** received the 2015 Herbert Frolander Outstanding Graduate Teaching Award. **Brittney Robinson** was featured in Nuclear News. **Lindsey Wills** received the (Continued on page 13...)

CHUME: EMPOWERING UNDERGRADUATES THROUGH RESEARCH

ChUME (Chemistry Undergraduate Mentorship and Empowerment Initiative) is an organization that was founded by six chemistry grad students and one post-doc in Fall 2013, under the auspices of the NSF (NSF-CAREER CHE-1352663 & NSF-CCI Phase 2 Center for Sustainable Materials Chemistry CHE1265956). Our mission is to foster long-lasting professional relationships between undergraduate and graduate chemistry students. In support of this mission, we host seminars, socials, and professional development workshops to assist undergraduate chemistry students in their success here at OSU and beyond. Moreover, this organization provides a platform for graduate students to exert leadership and citizenship. ChUME(Chemistry Undergraduate Mentorship and Empowerment Initiative) is dedicated to helping you find a professional mentor and empowering you with the tools necessary to stay on top of your field.

ChUME offers the following types of activities to its mentors: Undergraduate Professional Development Workshops, Undergraduate Research Poster Sessions, LSAMP Bridge, COS Welcome Back Booth, and Socials.

The ultimate goals for ChUME are to:

1. ensure that all undergraduate chemistry students and researchers are connected to graduate student who will mentor them to be succesful in their academic and professional goals.
2. Create a 100% success rate in ensuring that all of our undergraduate mentees seeking research and internship opportunities succesfully acquire these opportunities.
3. Continue our mission to engage undergraduate chemistry students and research with dialogue on how we as chemists impact the broader community.
4. Expand our inaugural ChUME Undergraduate Poster Session to an Undergraduate Symposium. We want to give undergraduate chemistry researchers the opportunity to present their research in both a poster and oral format to a broad audience and receive feedback from peers and faculty. We wish to sponsor the students who are judged by advanced doctoral students, post-doctoral scholars and faculty, as most outstanding in this Symposium to the ACS National Meeting every year.

At the second annual CIA (Chemistry is Awesome) Party, ChUME held their first ever undergraduate poster session. Faculty members and ChUME representatives judged the student posters based on layout, the science, organization and overall appearance. The winners were:

1st Place

Matthew Clark

Major: Chemistry - Materials Science Option
Minor: Physics
Poster Topic: The research which we have been working on is in the area of lead free microelectronic materials, primarily with a complex known as KNN or sodium potassium niobate. Our research differs from that done on KNN in the past in that the synthesis technique which we are attempting to apply is via a liquid or aqueous route rather than a solid state process. The advantages of this technique are ease of scalability and more importantly, sustainability. Continued research in this area is incredibly important as a lead free alternative is becoming ever more important as legislation against lead in electronics continues to be implemented worldwide.

2nd Place

Shan Lansing

Major: Chemistry & Biohealth Science
Poster Topic: miRNA are short strands of RNA that have been shown to regulate oncogenes and tumor-suppressing genes. Being able to detect small amounts of miRNA will enable clinicians to diagnose cancer at a cellular level. The Burrows Research Group has developed a biosensor that can detect miRNA at picomolar concentration, but the biosensor is not yet perfect. I presented on multiple parameters that can be manipulated to make the biosensor function optimally.

NEW FACES IN THE DEPARTMENT

Greta Kvinnesland

ECampus Coordinator

Greta Kvinnesland is excited to join OSU as the Chemistry Department's Ecampus Coordinator. In addition to a B.A. in English and an Master of Fine Arts in Creative Writing, she has a professional background in writing and marketing. She plans to use these skills to help promote the virtual growth and recognition of the department.

Greta hails from southeast Pennsylvania and her move to Oregon last year was her 2nd time ever on the West Coast. She has two brothers, and is about to become an aunt. Her biggest dream right now is to own a Bernese Mountain Dog.

In her spare time, she likes to torture herself by trail-running, rock-climbing, and trying to write fiction.

Anita Bracha

Undergraduate Coordinator

Anita Bracha joined the Department of Chemistry in May 2015 as the Undergraduate Coordinator. She works part time for the department, primarily helping students to obtain course overrides. Originally from Italy, Anita grew up in Ohio and later moved to Michigan to sell chemistry analyzers, during which time she met her husband Shay. Never having been on the west coast, when the opportunity arose to move to Oregon, they took it. Anita and Shay have lived in Corvallis now for five years and have an eight-month-old son named Nadav. Anita no longer remembers her hobbies, but she does enjoy taking long naps while her son is in daycare. On occasion she will venture outdoors with their not-dog-friendly dog Sienna. Stop by the office, preferably with a cappuccino, and say hi!

Dr. **Thomas Webb, '68** is not a name you'll see on a new building wing, or outside a newly renovated lecture hall, but he has been an amazing friend and benefactor to the Department of Chemistry. Over the years, he has invested a substantial amount of time, energy and philanthropy in order to ensure that students have the instrumentation required to get hands-on skills in the lab.

"Providing support for chemistry instrumentation is unglamorous but necessary," he says. Without new instrumentation, students will be severely hampered in their education and unable to compete for top jobs in their field. Tom is an inspiration to other donors as they consider the most meaningful ways to make a positive impact on the department.

The proceeds from Dr. Webb's latest donations were used to purchase a new IR Spectroscope for the learning labs for use with Infrared Spectroscopy study.

Dr. Webb also frequently visits us here in the department. He has been known to drop in for lunches with the Head, and the Dean and to join in the coffee hour with the group of Emeritus Professors that gather on Fridays. He always makes a batch of his Tobasco Fudge for our Departmental Holiday Party and it never lasts through the event.

Department Head, **Rich Carter** said, "It's always a pleasure to see Tom. He's great to talk with and such an inspiration to the department and his colleagues. Without his generosity, we wouldn't be able to offer our students the competative education they deserve." We'd like to take this opportunity to express our heartfelt gratitude to Dr. Webb for all that he does for and with the Department. Without his generosity, we wouldn't be producing the amazing students we are.

HONORS AND AWARDS

Peter B. Culter Memorial Scholarships were awarded to: **Eaton Fong**, **Anthony Heatherly** and **Thomas Ketsdever**.

Carroll DeKock Scholarships were presented to **Amy Albrecht**, **Mesa Walker** and **Tianqi Zhang**.

The Linda May Oleson Scholarship for Excellence in Chemistry was awarded to **John Hergert**.

The Colleen Spurgeon Scholarship was received by **Blake Erickson**.

This year's ACS-Hach Teacher Scholarship recipients are: **Gillian Downey**, **Dang Nguyen**, **Alexandra Malone**, and **Rachel Wold**.

The Keith McKennon Research Scholarship was presented to **Cassandra Lew**.

2015 CRC Award winners are **Jonathan Su** and **Arielle Frasher-Slavin**.

Nicholas Diaz-Hui was awarded the PLU Award.

This year's Analytical Chemistry Award was presented to **Shan Lansing**.

The Inorganic Chemistry Award for 2015 was presented to **Marshall Allen**.

Jamy Lee was presented with the American Institute of Chemists Award.

Philip Nguyen was this year's recipient of the Hypercube Award.

The Merck Award for 2015 was presented to **Mark Delgado**.

The NL Tartar Summer Research Projects were awarded to **Donovan Adpressa**, **Andrew Ferreira**, **Daniel McCauley-Walden**, **Ross Overacker** and **Kevin Snyder**.

Kyle Almlie, **Clement Bommier**, **Subir Goswami**, **Jonathan King**, **Ryan McQuade** and **Harrison Neal** all received Milton Harris Summer Fellowships.

Dorothy and Ramon Barnes Graduate Fellowship Recipients are: **Elena Medina**, **Omid Sadeghi**, **Dylan Sures** and **Longteng Tang**.

Fereshteh Zandkarimi was this year's recipient of the Johnson/Dandeneau/Barnes Fellowship.

The Hedberg/Barnes Fellowship was awarded to **Yunteng He**.

The Ingram Award was presented to **Cheng Chen**.

Dylan Fast was the 2015 recipient of the **Benedict Award**.

The 2015 Shoemaker Award was presented to: **Naga Veerasamy** and **Peng Zhao**.

TA Awards for the 2014-15 Academic Year were awarded to: **Chandima Bandara**, **Bella Giampaoli**, **Kevin Snyder**, **Hanyang Zhang**, **Amilya Liyanage**, **Ismael Rodriguez Perez**, **Wesley Surta**, **Rachel Wold**, **Colin Harthcock**, **Andy Ford**, **Zoe Zhu** and **Subir Goswami**.

(Continued from page 10...) OSU Lottery Scholarship. Leah Chibwe received the 2015 Graduate Student Award in Environmental Chemistry from the American Chemical Society. Krista Barzen-Hanson was awarded a 2015 NSF Graduate Research Fellowship Program (GRFP) Fellowship.

Promotion - **Chris Beaudry** was promoted to Associate Professor with tenure. Chris's research focuses on the synthesis of natural products with conformational chirality and the use of radical reactions for alkaloid synthesis. His work is supported through a grant from the National Science Foundation. In addition, Chris has established several collaborations with other researchers utilizing his synthetic skills to answer additional scientific questions.

Paul Ha-Yeon Cheong was promoted to Associate Professor with tenure. His research applies state-of-the-art computational tools towards the efficient elucidation of mechanisms and factors that control the reactivity and selectivity of complex modern synthetic organic reactions. In addition, his group is part of the Center for Substainable Materials Chemistry and uses their computational expertise to provide a fundamental understanding of aqueous metal hydroxide clusters. His research is supported by multiple grants from the National Science Foundation.

Jeff Morre was promoted to Faculty Research Assistant II. Jeff is the heart and soul of the OSU Mass Spectrometry facility on campus. The OSU Mass Spec facility has grown significantly over the past 5-10 years and Jeff has been one of the key people ensuring the day-to-day operations run smoothly.

Jeffrey Walker was promoted to Senior Instructor II. Jeff's teaching efforts are focused in teaching non-majors organic chemistry – including creating an on-line, non-majors Organic Chemistry sequence. Jeff's leadership and partnership with Instructional Faculty member **Jeff Gautschi** was instrumental in the establishment of an organic chemistry offering at the new Cascades campus in Bend, OR.

Paula Weiss was promoted to Senior Instructor I. Paula is principally teaching in our non-science major General Chemistry sequence both on-campus and on-line. She has focused her pedigological efforts on improving student success in her courses – including through an innovative CH 199 course which seeks to break the cycle of students struggling in the classroom due to poor study skills.

2014-2015 HONOR ROLL

Fall 2014

Amy Albrecht
Ali Alrubh
Dacota Backus
Amberlie Barnard
Scott Best
Caitlyn Buswell
Jared Cayton
Kathryn Chen
Abigail Chitwood
Tora Cobb
Lissa Davis
Mark Delgado
Nicholas Diaz-Hui
Gillian Downey
Brandice Durfee
Blake Erickson
Eaton Fong
Brian Gatimu
Althea Hinds Cook
Maria Jolley
Joeun Kim
Reid Kinser
Joseph Kohan
Regina Kurpova
Derek Lafave
Shan Lansing
Jeffrey Laskos
Cassandra Lew
Rachel Liu-May
Benjamin Marble
Kota Muto
Chen Ng
Dang Nguyen
Dakota O-Neil
Michael Osborn
James Palmiter
Thu Pham
Kristin Potter
Eric Qian
Jacob Ramsey
Jamie Rebman
Collin Ruark
Ashraf Samhan
Jason Sandwisch
Ryan Stiegler
Kenneth Stout
Jake Turner
Daisuke Umezawa
Alexandria Van Scoyk
Mesa Walker
Tianqi Zhang

Winter 2015

Amy Albrecht
Marshall Allen
Austin Angle
Savinda Aponso
Scott Best
Corinne Brucks
Jared Cayton
Kathryn Chen
Abigail Chitwood
Tora Cobb
Sergiu Coporan
Lauren Covey
Lissa DAvis
Jacob Del Savio
Mark Delgado
Andrea Domen
Gillian Downey
Amanda Duong
Brandice Durfee
Blake Erickson
Darlene Focht
Eaton Fong
John Hergert
Althea Hinds Cook
Maria Jolley
Joeun Kim
Reid Kinser
Laura Klaus
Cassandra Lew
Rachel Liu-May
Alexandra Malone
Chiara Marzi
Dang Nguyen
Mathew Oldfield
James Palmiter
Thu Pham
Kristin Potter
Philip Prater
Rex Putnam
Nathan Raleigh
Collin Ruark
Ashraf Samhan
Jason Sandwisch
Trevor Shear
Kenneth Stout
Yekaterina Toporkova
Jake Turner
Mesa Walker
Yan Yu
Tianqi Zhang
Alexander Zuk

Spring 2015

Benjamin Abram
Amy Albrecht
Amberlie Barnard
Abby Brown
Corinne Brucks
Kathryn Chen
Abigail Chitwood
Tora Cobb
Sergiu Coporan
Lauren Covey
Shannon Davis
Nicholas Diaz-Hui
Andrea Donen
Gillian Downey
Amanda Duong
Brandice Durfee
Blake Erickson
Darlene Focht
Tranton Gallagher
Franklin Giannone
Haily Hargrave
John Hergert
Thomas Ketsdever
Joeun Kim
Reid Kinser
Shan Lansing
Jamy lee
Taylor Lee-Rouille
Cassandra Lew
Rachel Liu-May
Sarah Lund
Chaira Marzi
Collin Muniz
Chen Xian Ng
Dang Nguyen
Mathew Oldfield
Dakota O'Neil
Michael Osborn
James Palmiter
Lars Paulson
Thu Pham
Ryan Pimentel
Garrett Platt
Joel Pommerenck
Kristin Potter
Collin Raurk
Christofer Saksti
Ashraf Samhan
Jason Sandwisch
Trevor Shear
Kenneth Stout
Mesa Walker
Samuel Walters
Yan Yu
Tianqi Zhang
Alexander Zuk

Class of 2015

Ashley Anderson, BS
Austin Angle, BS
Anna Carlos Flores, BS
Lauren Covey, BS
Mark Delgado, BS
William Denton, BS
Jarrett Dunagen, BS
Brandice Durfee, BS
Elizabeth Gass, BS
Stephanie Gonzales, BS
Timothy Hemphill, BS
Chris Heron, BS
Kristen Holmes, BS
Brittany Johnston, BS
Maria Jolley, BS
Hui Jeong Ju, BS
Jeffrey Laskos, BS
Jamy Lee, BS
Thomas Luong, BS
Daniel Mathis, BS
Arica Nassar, BS
Deirdre Newton, BS
Chen Xian Ng, BS
Kyoo Park, BS
Ania Pavitt, BS
Garrett Platt, BS
Rex Putnam, BS
David Raines, BS

Brian Riggs, BS
Preston Roach, BS
Dylan Roberts, BS
Allie Schultz, BS
Brendan Tschuy, BS
Daisuke Umezawa, BS
Alexandria Van Scoyk, BS
Ly Thao Vu, BS
Michael Walters, BS
Patrick Winczewski, BS
Embarek Al Wedi, PhD
Brent Allred, PhD
Maureen Caupp, MS
Fangyuan Han, PhD
Ryne Johnston, PhD
Scott Lafontaine, MS
Geneva Laurita-Plankis, PhD
Melissa Mc Intosh, MS
Ievgen Motorykin, PhD
Oleksii Motorykin, PhD
Thomas Mustard, PhD
Mrinmoy Saha, PhD
Liang Wang, MS
David Schiedler, PhD
Longteng Tang, MS
Shin-Cheng Tzeng, PhD
Jessica Vellucci, PhD
Liang Wang, MS

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153 Gilbert Hall
Corvallis, OR 97331

A "life-income gift" guarantees an income stream for life. Additional benefits may include:

- Increase your income (a portion may even be tax-free)
- Receive an immediate charitable deduction
- Reduce capital gains taxes if the gift is funded with appreciated property or securities
- Reduce estate tax

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