

Department of Chemistry

# Fumes from the Hood

Summer 2018



Oregon State  
University

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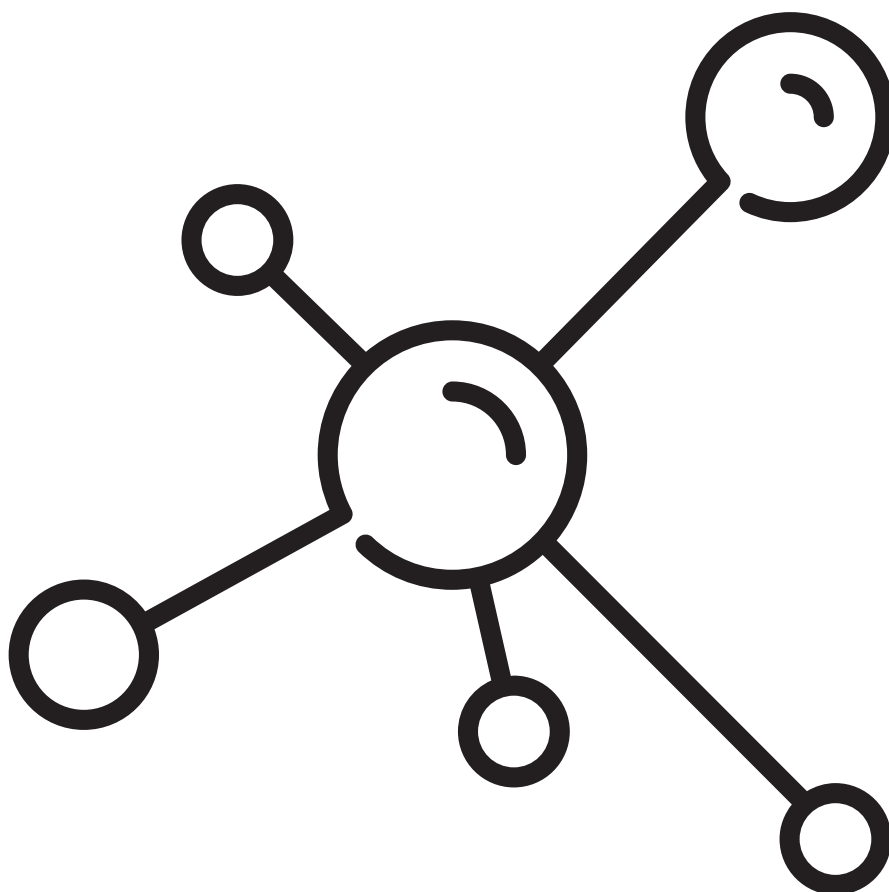


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# A MESSAGE: FROM THE DEPARTMENT HEAD

Hi all, I hope you are all having a nice break and a great summer! As you'll see in the following pages, there have been some major happenings at OSU Chemistry in the past few months.

If you are local, a quick stroll around our Gilbert complex will make it clear that we're in the middle of some major building renovations. Both large auditoria in Gilbert and the 2nd floor of the Gilbert addition are closed off while being remodeled. Rusty Root kindly provides the details on pages 4 and 8. And after a noisy and dusty Summer and Fall, we can look forward to reoccupying some new and improved spaces next year.

This past Spring was a time for celebrating our students' and faculty's achievements (see pages Honor Roll, Awardees). There's a lot of success detailed on those pages, I'll note that Chemistry won both College of Science Loyd Carter teaching awards in 2018 (Daniel Myles and David Ji). Our Department had the honor of awarding an unprecedented number of degrees to a large and successful class, with 49 Bachelors, 6 Masters and 26 Doctoral students earning Chemistry degrees during the academic year. There was also time for our department members, and all of Corvallis, to participate in some Chemistry fun (check out the CIA Party pics on page 12).

Our faculty are here because of their exceptional chemical insights, or passion for teaching chemistry. But some could have taken other career paths. Hollywood, perhaps? Take a few minutes to read on page 6 how Chong Fang's research group is producing molecular movies using a table-top ultrahigh spatiotemporal resolution technique called FSRs. It's also a real pleasure to see the interdisciplinary interest and applications of their cutting-edge spectroscopy.

And please also join me in welcoming our newest instructor, Lou Wojcinski, who will begin at OSU in September. Lou comes to us from Kansas State University and will focus, at least initially, on general chemistry instruction.

Regards,  
Mike



## Ode to Physical Chemistry

By Eli Schaffer

A wavefunction breaks darkness like a lantern in the night,  
A torch ensconced in shadows raising a russet dawn,  
Unseen but radiant,  
We hear an electron flicker across the echo of a dying photon,  
As it rotates to the rhythm of an azure planet spinning in black space,  
And oscillates in harmony with an old man's laugh,  
To the beat of a particle ringing against the walls of a flashing discotheque.

Quantum theory is like a steaming beaker bubbling over with jazz from outer space,  
Frothing with mystery and dripping with biological application;  
Imagine illuminating the bonds of a compound,  
By igniting alpha and beta spin systems generated by distinct nuclei,  
To match the energy gaps of resonant magnetic fields.

A new universe bursts with microstates,  
Energy arrangements that dazzle the eye and tickle the tongue,  
As they rock and roll under one dominant thermodynamic symphony,  
Emerging in a macroscopic tapestry across an ocean of discrete values.

An ensemble of molecules casts clay like an artist carving a sculpture,  
Every piece giving birth to one instantaneous average.  
Boltzmann distributions rumble back and forth like waves tearing through sand,  
Searching for riddles lost in forgotten dreams,  
A statistical model ready - yeah, ready - to hit the dance floor.

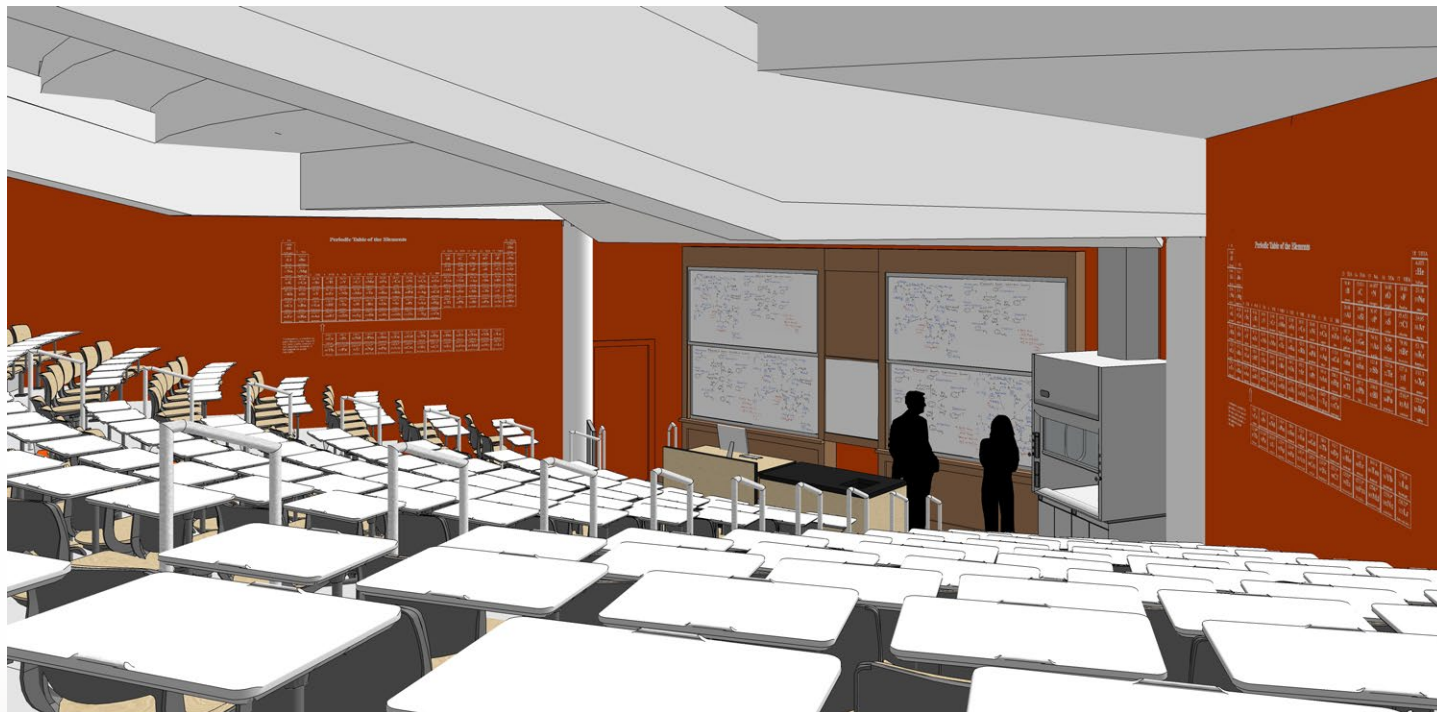
And so here we are with the keys to the world,  
What is that glimmer in nothingness?  
What is that dazzling light in silent space?  
A perplexingly dense enigma that takes flight in chaotic wind,  
Over a forest canopy scattering sunbeams across a maze,  
Welcome, welcome - ha - to the journey without end.

Copyright Eli Schaffer 2018.

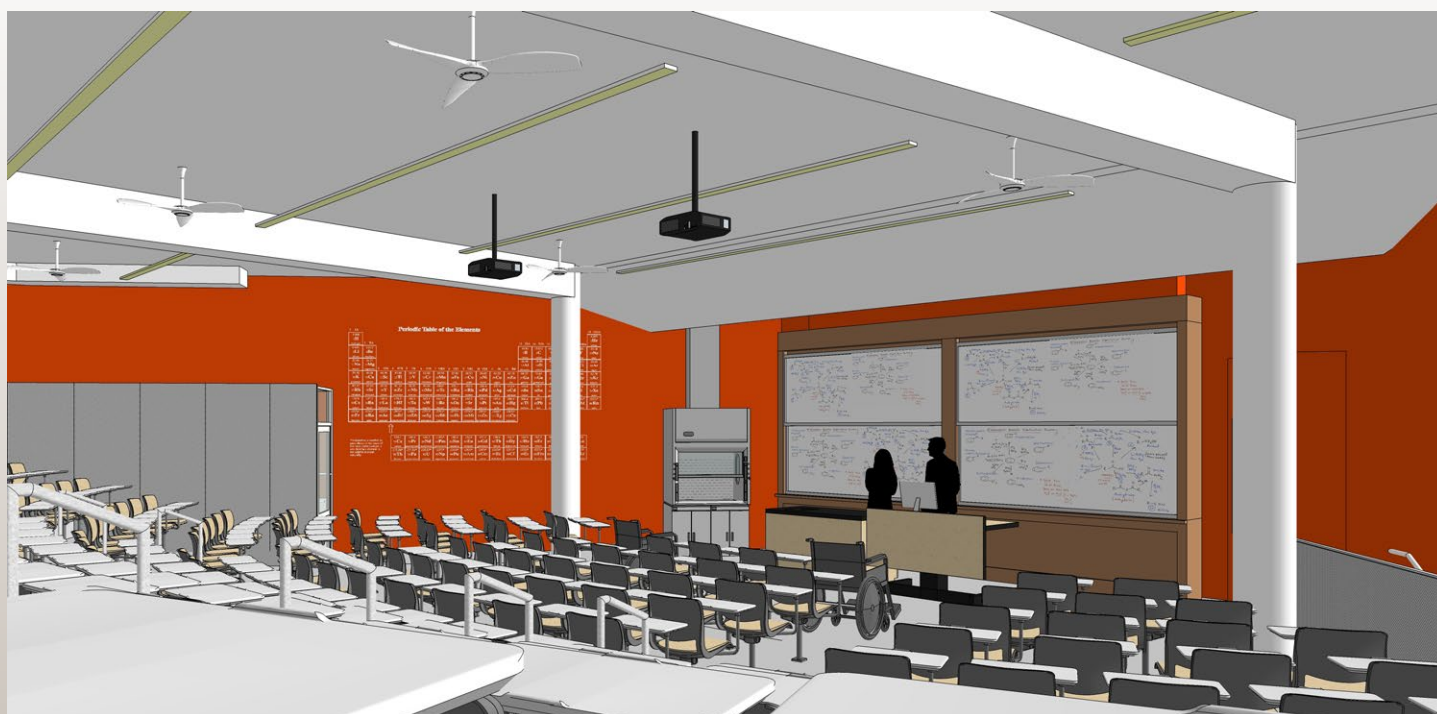
# LONG PAST DUE: RENOVATIONS HAPPENING NOW

By: Rusty Root, Building Manager

Noise, Odors, and Dust!!!! What is going on in Gilbert Hall and Gilbert Addition??? I believe we all know the cause: The Chemistry Buildings' major renovation have begun. These renovations are to upgrade both lecture halls in Gilbert Hall and the second floor-teaching lab in Gilbert Addition.



Gilbert 124 Mock-up (final decisions did not include a fume hood)



Gilbert 224, with wheelchair lift and fume hood



Work began immediately after Spring Finals Week and is scheduled to continue through Fall term 2018 with plans to utilize the renovated spaces Winter Term 2019. With business as usual still happening in Gilbert Hall, the contractors were nice enough to erect a temporary wall around the entrances of the lecture halls to help minimize dust and noise.

Renovations began with Plumbers and Electricians coming in to disconnected Electrical service, Water supplies, Drains, Compressed Air Supply, and Gas Supplies. The Abatement team was next, charged with removal, and proper disposal of, materials and painted surfaces that contained asbestos and lead.



Gilbert 124 in mid-demolition

The next step was to start demolition. In Gilbert Hall this meant basically gutting the entire space: desks, lecture podium, lights, ceiling tiles, and even the concrete aisle way steps. In the Teaching Lab, GBad 209, removal of the Fume



GBAD 209 with the Fume Hoods removed

Continued on page 8

# DECODING THE MAGIC OF CHEMISTRY: BY TAKING MOLECULAR MOVIES

**By: Chong Fang, Associate Professor**

The first question I typically get from people interested in my research program at OSU Chemistry is “What do you do”? I take that as a great sign beyond a formal greeting like “How do you do” because now I have an opportunity to introduce our research laboratory and findings to a larger audience. As a physical chemist and chemical physicist working at the interface of chemical, physical, biological, materials, and optical sciences, I have led a young and energetic research group in an exciting quest to take molecular movies during a wide range of chemical reactions and light-induced processes, including solution precursors that can turn into high-quality metal oxide thin films<sup>1</sup>, photoacids that can push away a proton even in strong acids like perchloric acid (HClO<sub>4</sub>)<sup>2</sup>, fluorescent protein based calcium ion (Ca<sup>2+</sup>) biosensors that change color from green to blue upon Ca<sup>2+</sup> binding<sup>3</sup>, and engineered fluorescent proteins that undergo color change from green to red after light irradiation.<sup>4</sup> Our overarching research theme is the elucidation of structural dynamics that power the macroscopic functionality at the molecular level, which essentially echoes the famous 1963 quote from American physicist Richard Feynman, the beloved Nobel Laureate in Physics (1965) for his development of quantum electrodynamics, “Everything that living things do can be understood in terms of the jiggling and wiggling of atoms”.

Since Fall 2011, due to the unique experimental capabilities that we have developed in the Linus Pauling Science Center (LPSC) at OSU Chemistry with talented postdoctoral scholars like Dr. Weimin Liu (he

became an Assistant Professor in School of Physical Science and Technology at ShanghaiTech University in 2016), and the newly minted Dr. Liangdong Zhu and Dr. Longteng Tang, we have pushed the research boundaries for femtosecond stimulated Raman spectroscopy (FSRS) both in methodology and applications. Typically, Raman scattering signals are very weak and do not work well for fluorescent molecules because the fluorescence background overwhelms the Raman signal. In FSRS, we can actually tune the incident laser pulses to not only collect stimulated Raman signals in the phase-matching direction (instead of 360° all around) with sufficient signal-to-noise ratios<sup>5</sup>, but also take advantage of the fluorescence transition energy gap to achieve the pre-resonance enhancement effect<sup>6</sup>. This type of laser pulse wavelength tunability can be accomplished via the noncollinear optical parametric amplifiers (NOPAs, see Figure 1a for a part of our setup in action) involving nonlinear thin crystals, mirrors, lenses, and delay stages, which advances the conventional FSRS technology into a more versatile and powerful toolset to capture the structural snapshots during a transient process, especially during a photochemical reaction when the reactant turns into a product starting from time zero of light irradiation<sup>7,8</sup>. Relevant processes are implicated in human vision, light harvesting, luminescence and generally any kind of light-matter interactions.

You may ask why it matters to elucidate the initial molecular dances on ultrafast timescales. To start, a typical chemical bond like a carbonyl group (C=O) vibrates with a period of ~20 femtoseconds or 20 fs (1 fs is a billionth of a millionth of a second).

In order to record atomic motions on their intrinsic timescales, we need to use a “camera” fast enough to collect those images, and the “stop-action photography” approach is made possible by the precisely controlled laser pulse train that consists of the fs actinic pump, picosecond (ps, 1 ps=1,000 fs) Raman pump, and fs Raman probe. By inducing a sophisticated sequence of electronic and vibrational transitions between the quantized energy levels of the molecular system of interest, we first disperse the time-resolved FSRS signal in space using a reflective grating, then image onto a multi-array CCD camera at a series of preset time points (controlled by a motorized linear translation stage). Using such a tunable FSRS setup, we have revealed the working mechanisms of functional molecular machines like photoacids, fluorescent proteins, calcium biosensors, metal-organic complexes in solution (Figure 1b) and the list goes on. We have had the pleasure to collaborate with leading scientists and engineers in both the materials and biological fields across the world<sup>1-3,8</sup>, and most recently, we have started an NSF-funded project to delineate the green-to-red photoconversion in a new fluorescent protein called LEA from the Wachter Group at Arizona State University<sup>4</sup>. There are so many intriguing problems out there worth exploring, and since we have tracked the light-induced proton motions in water<sup>6</sup>, the tunable FSRS approach has found its niche<sup>8</sup>. Curiosity remains the best teacher, and since everything has a beginning, the early stages of molecular transformation may hold the key to a mechanistic understanding and rational design of macroscopic functions. In the near future, we will have more exciting research stories to share!



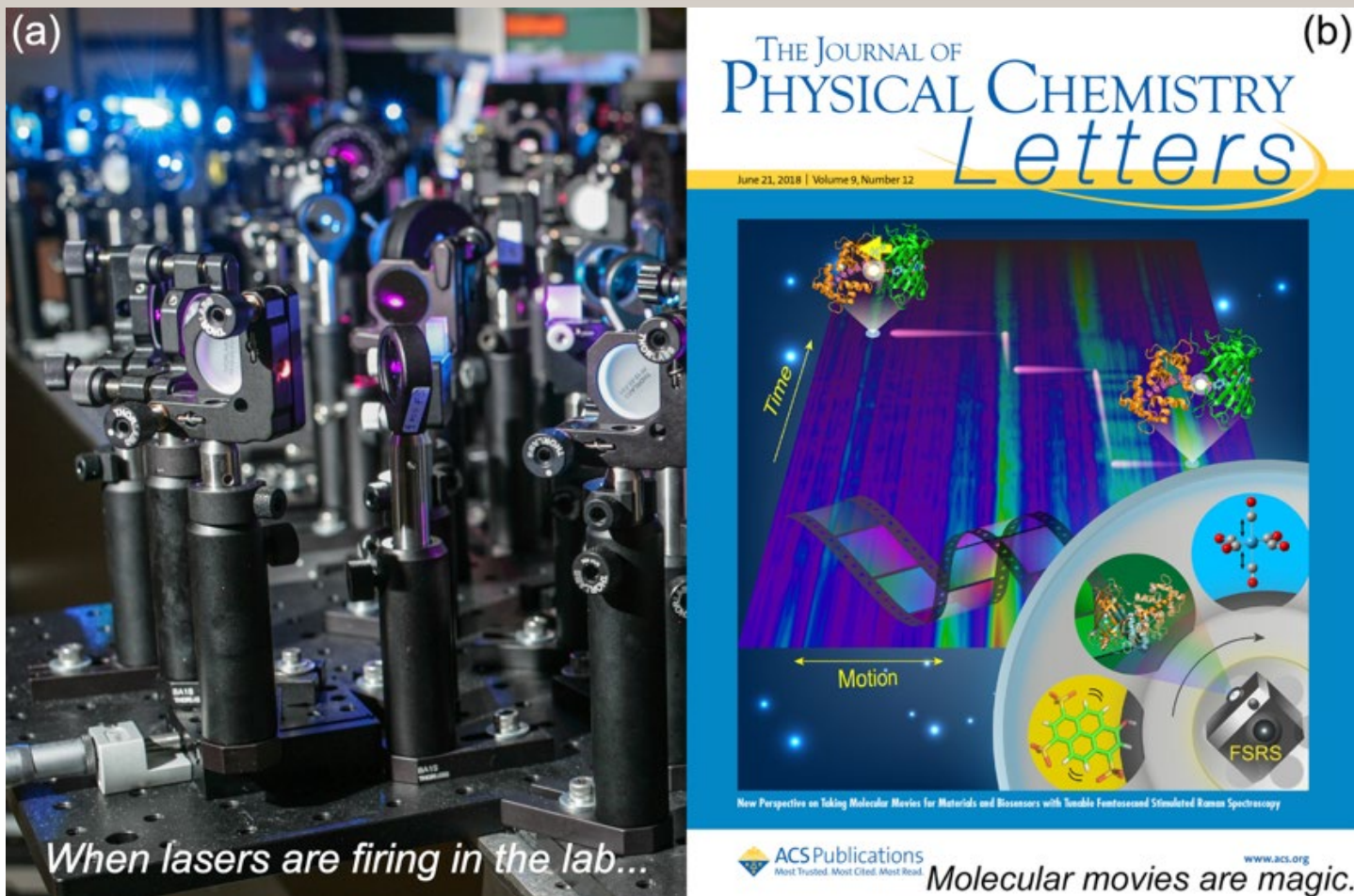


Figure 1. The ultrafast Raman spectroscopy laboratory in the OSU Linus Pauling Science Center enables the illumination of structural dynamics at the molecular level. (a) The high-quality optics and optomechanical components achieve light conversion on a 24/7 air-float optical table so a wide variety of photosensitive materials and molecular systems in chemical, physical, energy, and biological sciences can be investigated. Postdocs and graduate students can receive training with a home-built setup that provides great tunability. (b) A recent journal Cover showcases the type of molecular movies being produced from our femtosecond stimulated Raman spectroscopy (FSRS) setup with broad wavelength tunability of all the incident laser pulses<sup>8</sup>. The correlation between time and atomic motions during an excited state proton transfer reaction inside a fluorescent protein based calcium ion biosensor is illustrated above our experimental 2D spectrum of the green intensimetric G-GECO1.1 biosensor (engineered by our collaborator, the Campbell Group at the University of Alberta in Canada). Cover graphic from The Journal of Physical Chemistry Letters, Volume 9, Issue 12 on June 21, 2018, published by the American Chemical Society.

- (1) Wang, W.; Liu, W.; Chang, I.-Y.; Wills, L. A.; Zakharov, L. N.; Boettcher, S. W.; Cheong, P. H.-Y.; Fang, C.; Keszler, D. A. Electrolytic Synthesis of Aqueous Aluminum Nanoclusters and in situ Characterization by Femtosecond Raman Spectroscopy & Computations. *Proc. Natl. Acad. Sci. U. S. A.* 2013, 110, 18397-18401.
- (2) Chen, C.; Liu, W.; Baranov, M. S.; Baleeva, N. S.; Yampolsky, I. V.; Zhu, L.; Wang, Y.; Shamir, A.; Solntsev, K. M.; Fang, C. Unveiling Structural Motions of a Highly Fluorescent Superphotoacid by Locking and Fluorinating the GFP Chromophore in Solution. *J. Phys. Chem. Lett.* 2017, 8, 5921-5928.
- (3) Oscar, B. G.; Liu, W.; Zhao, Y.; Tang, L.; Wang, Y.; Campbell, R. E.; Fang, C. Excited-State Structural Dynamics of a Dual-Emission Calmodulin-Green Fluorescent Protein Sensor for Calcium Ion Imaging. *Proc. Natl. Acad. Sci. U. S. A.* 2014, 111, 10191-10196.
- (4) Kim, H.; Zou, T.; Modi, C.; Dörner, K.; Grunkemeyer, T. J.; Chen, L.; Fromme, R.; Matz, M. V.; Ozkan, S. B.; Wachter, R. M. A Hinge Migration Mechanism Unlocks the Evolution of Green-to-Red Photoconversion in GFP-like Proteins. *Structure* 2015, 23, 34-43.
- (5) Dietze, D. R.; Mathies, R. A. Femtosecond Stimulated Raman Spectroscopy. *ChemPhysChem* 2016, 17, 1224-1251.
- (6) Liu, W.; Wang, Y.; Tang, L.; Oscar, B. G.; Zhu, L.; Fang, C. Panoramic Portrait of Primary Molecular Events Preceding Excited State Proton Transfer in Water. *Chem. Sci.* 2016, 7, 5484-5494.
- (7) Zhu, L.; Liu, W.; Fang, C. A Versatile Femtosecond Stimulated Raman Spectroscopy Setup with Tunable Pulses in the Visible to Near Infrared. *Appl. Phys. Lett.* 2014, 105, 041106.
- (8) Fang, C.; Tang, L.; Oscar, B. G.; Chen, C. Capturing Structural Snapshots During Photochemical Reactions with Ultrafast Raman Spectroscopy: From Materials Transformation to Biosensor Responses. *J. Phys. Chem. Lett.* 2018, 9, 3253-3263.

**Continued from page 5**

hoods, some of the ventilation ducts, as well as some of the light fixtures. GBad's demolition is pretty much complete.

In Gilbert, it has taken a little longer than planned due to the stadium seating and the floor not being level. This meant that all the waste material had to be carried, by hand, down the seating 'steps' out the door and up/down the exit stairs.

The Lab Prep room behind Gilbert 124 has been stripped



Gilbert 026 - Lab Prep Room

The gating items are: The new Fume hoods for GBAD 209 and GILB 224; the new chiller for the upgraded Air Conditioning in GBAD; the Seat/Desks for both Lecture Halls. All of these items are ordered or very close to being ordered.

Overall, besides the inconvenience and pollution the project is moving along well. We're only a month into this six month project, but we're hoping to maintain our forward momentum.

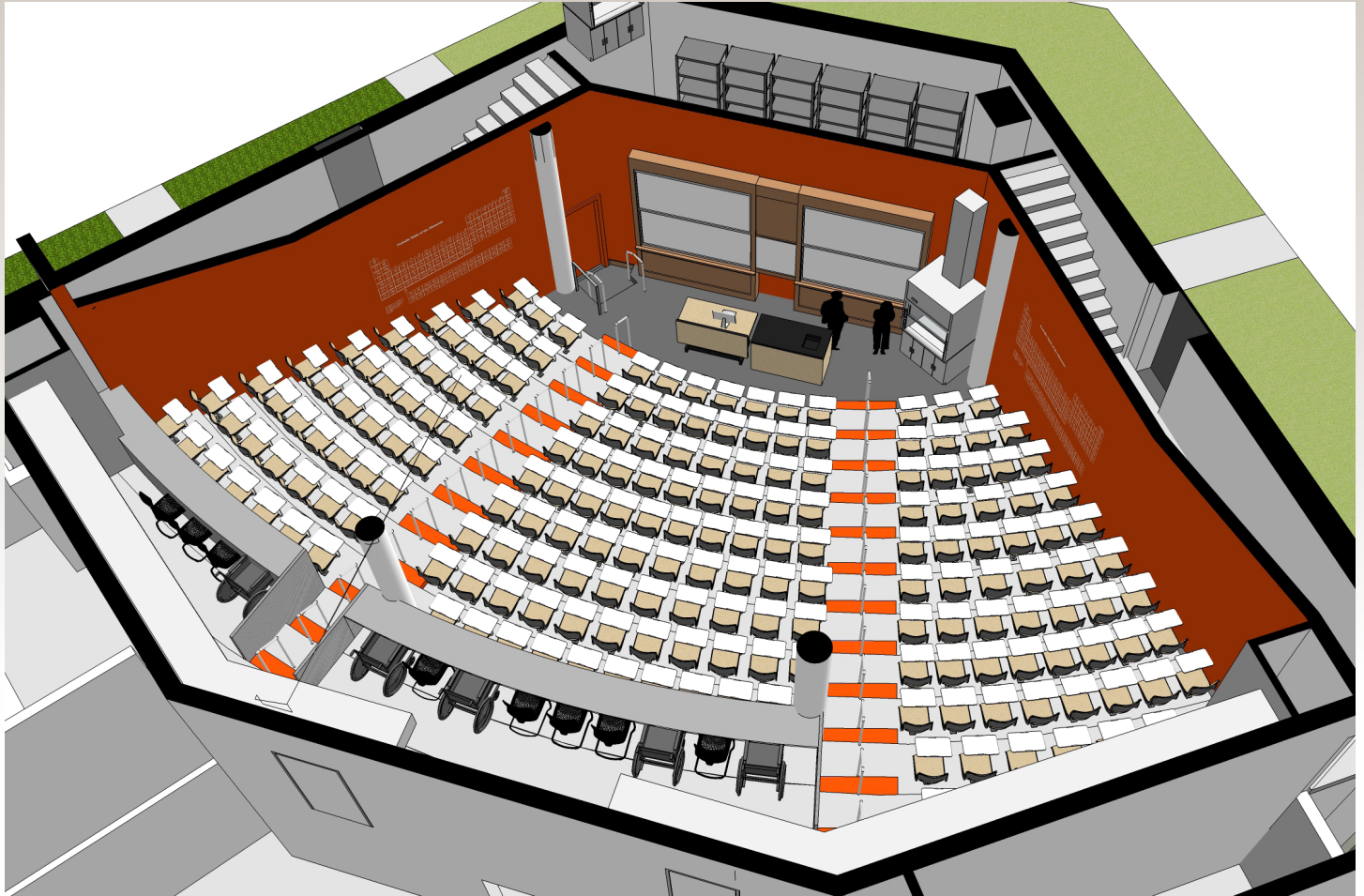


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Want to keep up with everything happening in the department? Check out our **social media!**







Architectural renderings of finished renovations for Gilbert 124 and the outside of Gilbert 224



# UNDERGRADUATES: OF THE QUARTER - WINTER 2018

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By Connor Jensen

Jonathan Lopez Arana has been named the winter 2018 Undergraduate of the Quarter and we couldn't be happier for him. Jonathan was born and raised in Hillsboro Oregon, where he went

to Hillsboro High School, and enjoyed the chemistry learned in his physics classes.

When Jonathan first applied to OSU he originally decided on engineering because of the quality the OSU College of Engineering. He switched to Chemistry after enjoying a class taken from **Margie Haak**. He has since served as a TA for **Paula Weiss**.

Post-graduation Jonathan plans to teach for multiple years, but eventually go back to school to get into educational administration and become a principal. Jonathan is planning on getting an ESOL endorsement so he can teach non-English students, and plans to teach wherever he is most needed, but would prefer to stay in Oregon if possible.

In his spare time Jonathan likes to play sports at Dixon and is part of an intermural sports flag football and basketball team. He also enjoys going to elementary schools and helping with the science and engineering nights that Margie Haak leads.

Jonathan's favorite movie is Boys in the Hood, and his favorite food is a quesadilla because it's quick and simple. He also loves his mother's tamales.

Jonathan's being the first person in his family to go to college, and planning to become a principal in order to help children, are examples of what makes our department so great. We wish him well in the future and in whatever path he chooses to follow.

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By Connor Jensen

Molly Austin has been named one of the Winter 2018 Undergraduates of the Quarter and we couldn't be happier for her.

Molly was born in Iowa City, Iowa and moved to Oregon when she was 11 years old. She went to Lake Oswego High School and inherited her love of chemistry from her parents.

Molly enjoys the fundamental nature of chemistry and its ability to explain essential functions of other science disciplines. Molly always knew she wanted to be a chemistry major at Oregon State University, choosing the location to be near family and for the beauty that Oregon possesses.

Her freshman year, Molly applied for the URSA Grant which allowed

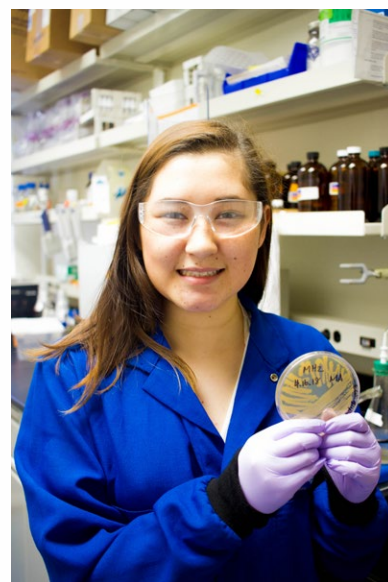
her to interview for various research positions. She chose to work in Dr. **Sandra Loesgen's** lab. Molly's research involves natural product discovery, where she works on bacterial strains from the mucus of juvenile Pacific fish. Extracted metabolites are isolated, identified, and tested against pathogens, such as MRSA, and cancer cell lines.

Post-graduation, Molly plans to go medical school or physician's assistant school.

In her spare time, she likes to play volleyball, do ceramics, and participate in the EPIC campus ministry and leadership.

Her favorite TV show is Avatar: The Last Airbender, and favorite her food is chocolate.

Students like Molly Austin are a huge part of what makes our department so great. We wish her well in all her future endeavors.





# UNDERGRADUATES: OF THE QUARTER - SPRING 2018

Jason Srey has been named one of the Spring 2018 Undergraduates of the Quarter, and we couldn't be more pleased.

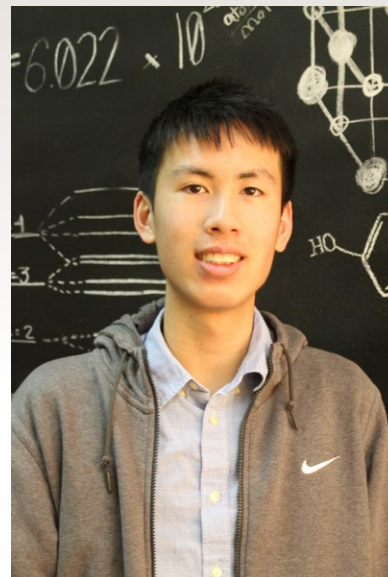
Jason was born in Chicago, Illinois, but spent most of his life in Clackamas. He attended Clackamas High School.

Jason chose chemistry because he wanted to learn more about how atoms and molecules react. His curiosity was piqued when his 7th grade science teacher made a gummy bear explode in a test tube. Jason was also often sick throughout his childhood and spent a lot of time in doctor's offices and pharmacies. This exposure to the world of medicine along with the introduction to chemistry during 7th grade science class first attracted him to chemistry.

He wants to be in the medical field because of how large of a role it played in his childhood and because it is related to his favorite subject. He researched the world of pharmacy and decided that was where he wanted to go in life, and is using chemistry as a basis for achieving that goal.

Jason currently performs research for Dr. **Sandra Loesgen**, and focuses on discovering new antibiotics or anti-cancer compounds by feeding synthetic compounds to fungal cultures as precursors. He has been there since mid fall term, and credits his introduction to research to Dr. **Neal Sleszynski** who helped him initially contact three professors who are doing work in areas of interest.

In his spare time Jason likes to listen to, and perform music. He has practiced the violin for five years and taught himself to play the piano through online tutorials in his spare time. He likes all genres of music besides classical, and his favorite movie is Titanic.



Eric Qian has been named one of the Spring 2018 Undergraduates of the Quarter and we couldn't be happier for him.

Eric has been living in Corvallis since he was 4 years old and his love of the town helped contribute to his choice to stay local for college. He went to Crescent Valley High School, a school he enjoyed due to the passion the teachers had as well as the school's

dedication to the arts which helped him develop an interest in creating jewelry.

When entering college, Eric's original plan was to be a pre-med student. He quickly discovered a love of materials science and decided he would focus on chemistry instead of becoming a doctor.

It was through joining Dr. **Michelle Dolgos'** lab that he realized how much he enjoyed the chemistry side of his

research, focusing on finding new and optimized ways to generate electricity.

Eric recently graduated, but took a short break from research to write his honors thesis, which focuses on the study of Aurivillius phases. His main focus was on ferroelectric and piezoelectric properties and trying to find a new material that is as effective as Lead Zirconium Titanate (PZT) yet wasn't toxic or lead-based. Eric believes that the material chemistries' focus towards environmentally friendly and green materials is very noble and focused most of his time there.

Eric plans to take a year off before Graduate School to relax. His main hopes are to get back into playing music because he is a musician at heart, being able to play piano, clarinet, tenor sax, and the organ. He also has an extensive list of nonfiction books he has been meaning to work his way through, including *Stuff Matters*, a book on materials that shaped human history.

The highest ambitions in Eric's educational career is to gain a PhD and become a professor himself because of his love of teaching and conducting research. He believes it would be very fun to have a research group of his own in order to pass down his insights and spark the interests of future generations.

# CIA (CHEMISTRY IS AWESOME): FIVE YEARS OF SUCCESS

By: Luanne Johnson

The 5th Annual CIA (Chemistry is Awesome) Party was held this year on Wednesday, June 7, 2018, and was, yet again, another huge success. Attendance was around 650 students, faculty and community members, who all enjoyed nachos, music and games along with Chemistry demos of Dr. **Mas Subramanian's**, now world famous #YInMnBlue, as well as T-shirt tie dying with the ACS Chemistry Club, Chromotography with Chemistry Instructor **Margie Haak** and this year, the addition of CIA themed slime making.

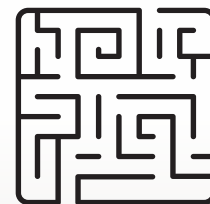
The press kits were as usual, our biggest success of the evening. Mike McNally of the Corvallis Gazette-Times was so impressed with the hands-on demo included in this year's kits that he returned to the Chemistry Department to perform the demo with us. Under the watchful guidance of Chemistry Instructor, **Cassie Siler**, Mr. McNally donned his Personal Protective Equipment and mixed the baking soda and vinegar provided. Dr. Siler explained the science behind the reaction and Mr. McNally promised to take the second sample back to his office to shock and amaze his co-workers.

A new game was unveiled this year as well. Built by Chemistry Student Worker **Jake Bigelow**, a CIA/Chemistry themed Ladder Ball structure was this year's new draw. Complete with bolos made from Erlenmeyer  
F l a s k

shaped stress balls. Game winners were given raffle tickets to win a chance at the numerous prizes, generously donated by local community businesses.

The nachos were a success again this year, working around dietary restrictions, but not nearly as huge a success as the Liquid Nitrogen Ice Cream. Graduate Student, **Swagata Dey** and Undergraduate **Josef Vincent** mixed up batch after batch, explaining the science behind the reaction as they went to impressed onlookers who then got to sample the experiment. An opportunity, someone explained jokingly, that is very rare in the Chemistry department.

All-in-all, the organizers are very happy with the outcome of the event and are already planning the expansions for next year. If you're interested in helping out with the CIA Party, sponsoring a game build, or just want more information, you can contact [luanne.johnson@oregonstate.edu](mailto:luanne.johnson@oregonstate.edu). We look forward to seeing you next year!



Pictures (L-R):

1. CIA Attendees enjoying nachos in the shade.
2. Tie dying CIA/ACS T-shirts with the Chemistry Club.
3. Hands-on demos in action





# HONOR ROLL STUDENTS:

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## Fall 2017

Aldous, Tanner  
 Baer, Ian  
 Bemis, David  
 Bloom, Madeline  
 Brown, Jessica  
 Callaghan, Kristen  
 Cavanagh, Joseph  
 Cayton, Devin  
 Chen, Anqi  
 Cleary, Lauren  
 Coddington, Nathan  
 Day, Blake  
 Downey, Quinn  
 Fried, Zachary  
 Gonzales, Seth  
 Hoag, Morgan  
 Hochstetler, Cory  
 Hoodenpyle, Elizabeth  
 Huggins, Nicholas  
 Hunter, Kye  
 Kutnerian, Amy  
 La Juenesse, Jesse  
 Lee-Rouille, Taylor  
 Liu-May, Rachel  
 Lopez-Arana, Jonathan  
 Marshall, Stephanie  
 Matlapudi, Susmitha  
 Minter Andrew  
 Nagasaka, Cocoro  
 Oldfield, Mathew  
 Palmiter, James  
 Qian, Eric  
 Rear, Henry  
 Reynolds, Tyelor  
 Saman, Brittany  
 Schineller, Hannah  
 Shupe, Hannah  
 Snyder, Nathaniel  
 Srey, Jason  
 Thompson-Hernandez, Ian  
 Tomlinson, Kiara  
 Unitan, Lindsay  
 Vasquez, Alena  
 Viramontes Jr. Jaime  
 Walls, William  
 Weeks, Emma  
 Whited, Rylee  
 Wise, Henry  
 Young, Ilsa

## Winter 2018

Aldous, Tanner  
 Alghumiz, Nasser  
 Austin, Molly  
 Ayres, Coby  
 Barnard, Breanna  
 Bemis, David  
 Bloom, Madeline  
 Bravo, Kali  
 Brown, Jessica  
 Browne, Makenna  
 Callaghan, Kirsten  
 Chen, Kathryn  
 Cleary, Lauren  
 Coddington, Nathan  
 Day, Blake  
 Downey, Quinn  
 Duda, Stephen  
 Eckhardt, Emily  
 Fuller, Duncan  
 Garcia, Jeffrey  
 Gonzales, Seth  
 Haggerty, Caoilinn

Hargrave, Haily  
 Herb, Jackson  
 Hoag, Morgan  
 Huffman, Lucy  
 Huggins, Nicholas  
 Hummingbird, Eshe  
 Hunter, Kye  
 Kinch, Samuel  
 La Juenesse, Jesse  
 Lachino-Sonato, Maria  
 Lee-Rouille, Taylor  
 Liu-May, Rachel  
 Lopez-Arana, Jonathan  
 Makuch, Benjamin  
 Marshall, Stephanie  
 Nagasaka, Cocoro  
 Nguyen, Dominic  
 North, Jacob  
 Oldfield, Mathew  
 Palmiter, James  
 Purcell, Andrew  
 Qi, Yitong  
 Qian, Eric  
 Ray, Mariya

Rear, Henry  
 Reeder, Eryn  
 Renken, Scott  
 Reynolds, Tyelor  
 Saman, Brittany  
 Shupe, Hannah  
 Silvestre Pattarasirin, Juan  
 Srey, Jason  
 Svadlenak, Scott  
 Tanoeyadi, Samuel  
 Thompson-Hernandez, Ian  
 Tsutsui, Mikayla  
 Unitan, Lindsay  
 Valdez, Teresa  
 Vasquez, Alena  
 Vergis, John  
 Walls, William  
 Weeks, Emma  
 Westlake, Rebecca  
 Whited, Rylee  
 Wise, Henry  
 Yang, Jasmin  
 Yi, Heidi  
 Young, Dylan



## Spring 2018

Al Rahbi, Rahma  
 Aldous, Tanner  
 Alghumiz, Nasser  
 Austin, Molly  
 Ayres, Coby  
 Bailey, Conner  
 Bemis, David  
 Bloom, Madeline  
 Brown, Jessica  
 Browne, Makenna  
 Cayton, Devin  
 Chen, Kathryn  
 Cleary, Lauren  
 Conroy, Jocelyn  
 Cyganiak, Nora  
 Downey, Quinn  
 Eckhardt, Emily  
 Fantoni, Costanza  
 Frank, Andrew  
 Fuller, Duncan

Garcia, Jeffrey  
 Haggerty, Caoilinn  
 Hargrave, Haily  
 Herb, Jackson  
 Huggins, Nicholas  
 Hummingbird, Eshe  
 Hunter, Kye  
 Kinch, Samuel  
 Koga, Kenneth  
 La Juenesse, Jesse  
 Marshall, Stephanie  
 Nagasaka, Cocoro  
 Nguyen, Dominic  
 North, Jacob  
 Ocel, Duncan  
 Oldfield, Mathew  
 Pearson, Ashley  
 Qi, Yitong  
 Ray, Mariya  
 Rear, Henry  
 Reeder, Eryn  
 Renken, Scott

Reynolds, Tyelor  
 Richards, Maxson  
 Scheleen, Erik  
 Seevers, Travis  
 Shupe, Hannah  
 Silvestre Pattarasirin, Juan  
 Smith, Hannah  
 Srey, Jason  
 Svadlenak, Scott  
 Thompson-Hernandez, Ian  
 Tsutsui, Mikayla  
 Unitan, Lindsay  
 Vergis, John  
 Walls, William  
 Weeks, Emma  
 Westlake, Rebecca  
 Wolff, Samue  
 Yang, Jasmin  
 Yi, Heidi  
 Young, Dylan

# DEPARTMENTAL AWARDS

Careers in Chemistry Award: **Mariya Ray**

Peter B Culter Memorial Scholarship: **Jonathan Lopez-Arana, William Walls, Hannah Smith**

Carroll DeKock Scholarship: **Rylee Whited, Lindsay Unitan**

Linda May Oleson Scholarship for Excellence in Chemistry: **Jasmin Yang, Constanza Fantoni**

Colleen Spurgeon Scholarship: **Brittany Saman, Makenna Browne**

ACS-Hach Teaching Scholarships: **Mathew Oldfield, Taylor Lee-Rouille, Kirar Tomlinson, Nicholas Huggins**

Keith McKennon Undergraduate Research Scholarship: **Joseph Hebert, Kenneth Koga, Travis Seevers, Rebecca Foster, Joshua Johnson**

James D, Ingle Chemistry Scholarship: **Kaitlyn Ash**

CRC Award: **Madison Cowles, Olivia Ozguc**

PLU Award: **Joseph Vincent**

Top Physical Chemistry Award: **Joseph Kim**

Top Analytical Chemistry Award: **Joseph Kincaid**

ACS Inorganic Chemistry Award: **Blake Day**

ACS Organic Chemistry Award: **Alena Vasquez**

American Institute of Chemists Award: **Kenneth Stout**

Hypercube Award: **Devin Cayton**

Merck Award: **Nathan Coddington**

WIC Culture of Writing Award: **Seth Gonzales**

Lab TA Awards (Fall 2017):

- **Kevin Chen** - CH 324,

- **Markas Grove** - CH 261,
- **Clinton Knaus** - CH 337,
- **Zhifei Li** - CH 261

Lab TA Awards (Winter 2018):

- **Alyssa Johnson** - CH 262,
- **Mykhalo Yatskin** - CH 262,
- **Brett Duell** - CH 205,
- **Daniel McCauley-Walden** - CH 122

Lab TA Awards (Spring 2018):

- **Elizabeth Converse** - CH 263H,
- **Taylor Lee-Rouille** - CH 263,
- **Gary Points** - CH 463,
- **Tom Rowe** - CH 123

Department of Chemistry Graduate Fellowship: **Alyssa Johnson, Nadeeshani Jayathilake, Paige Mandelare**

NL Tartar Summer Research Project: **Alexander Bruekner, Ankan Ghosh, George Neuhaus, Xuan Ju**

Milton Harris Graduate Fellowship: **Dan Leonard, Danielle Hutchison, Karoly Kozma, Tom Rowe, Wei Xu**

Dorothy and Ramon Barnes Graduate Fellowship: **Kuan-Jen Chen, Partha Sheet, Sean Tachibana, Zhifeng Song**

Bruce Graham Memorial Scholarship: **Miles Taylor**

Arnold Johnson Jr. Graduate Fellowship: **Lei Lei**

Dandeneau Family Graduate Fellowship: **Lei Lei**

Ken and Lise Hedberg Fellowship Fund: **Lei Lei**

Dr. Sheng Chung Fang Fellowship: **Lixia Zhou, Yuzhong Yao**

Ingram Award: **Gary Points**

Benedict Award: **Jeng Jiang**

Whiteley Graduate Fellowship for Materials Science: **Max Wallace**

Shoemaker Fellowship: **Xin Li**

**Donovon Adpressa** was the recipient of OSU's Internal Competition for the 2018 CGS/ProQuest Distinguished Dissertation Award

**Ana Arteaga** was awarded a SACNAS Travel Award to participate in The National Diversity in STEM Conference 2018 in San Antonio, TX

**Yana Isaichykava** was accepted into the 20th National School of Neutron & X-ray Scattering at Argonne & Oakridge National Labs

**Ismael Rodriguez Perez** was awarded the prestigious Linus Pauling Distinguished Postdoctoral Fellowship at PNNL

**Dr Daniel Myles** was awarded the 2018 Loyd Carter Undergraduate Teaching Award

**Dr David Ji** was awarded the 2018 Loyd Carter Graduate Teaching Award

**Dr Paul Ha-Yeon Cheong** was a guest speaker at the 2018 Early Career Investigator Workshop

**Dr Walt Loveland** was elected as a 2018 American Chemical Society (ACS) Fellow

**Paige Mandelare** received the Lynn Brady Travel award from the ASP (American Society of Pharmacognosy)

**George N. Neuhaus** got the ASP student Travel award as well as giving a seminar at the 'Chirality' conference in June 2018 at Princeton with a \$500 stipend from Merck and the organizers.

**Elizabeth Kaweesa-Namagoba** attended the 2018 Harvard Medical School's Biomedical Science Career Conference 2018 in April, supported by Chemistry (\$250 Gould-Nambiar travel award), Office of Institutional Diversity travel award (\$1228); Graduate school ambassador program (\$200)



# CHEMISTRY CLASS OF 2018

Adpressa, Donovan (PhD)  
 Almlie, Christopher (PhD)  
 Amador, Jennie (PhD)  
 Bluhm, Annie (MS)  
 Brumsted, Corey (PhD)  
 Celik, Cem (MS)  
 Chen, Cheng (MS)  
 Decker, Shawn (PhD)  
 Ferreira, Andrew (PhD)  
 Giampaoli, Gabriella (PhD)  
 Gouliouk, Vasily (PhD)  
 Hames, Amber (PhD)  
 King, Jonathan (PhD)

Li, Zhifei (PhD)  
 Mansergh, Ryan (PhD)  
 McCauley-Walden, Daniel (PhD)  
 Mudalige, Heshani (MS)  
 Neal, Harrison (PhD)  
 Oscar, Breland (PhD)  
 Park, Deok Hie (PhD)  
 Rodriguez Perez, Ismael (PhD)  
 Sadeghihosseinabadi, Omid (PhD)  
 Sures, Dylan (PhD)  
 Surta, Todd (PhD)  
 Tang, Longteng (PhD)  
 Titaley, Ivan (PhD)

Trine, Lisandra (MS)  
 Tu, Jianzhou (MS)  
 Ummadi, Ganesh (PhD)  
 Waldenmaier, Pieter (PhD)  
 Wang, Xingfeng (PhD)  
 Wang, Yanli (PhD)  
 Wills, Lindsay (PhD)  
 Yao, Liangyu (PhD)  
 Yu, Huang (PhD)  
 Zandkarimi, Fereshteh (PhD)  
 Zhang, Hanyang (PhD)



Abbey, Tye (AdvCh)  
 Allen, Marshall (Mat Sci)  
 Bierman, Jeffrey (AdvCh)  
 Brewer, Ben (Bus)  
 Brown, Abby (Pre-Med)  
 Chen, Kathryn (Pre-Med)  
 Coddington, Nathan (Pre-Med)  
 Conley, Lucas (For Sci)  
 Day, Blake (AdvCh)  
 Del Savio, Jacob (For Sci)  
 de la Puente, Vanesa (BA)  
 Devine, Sarah (ChEd)  
 Duda, Stephen (Biochem)  
 Duenas, Camarin (For Sci)  
 Dunagan, Sara (For Sci)  
 Florick, David (Pre-Med)  
 Fong, Eaton (AdvCh)

Gallagher, Trenton (Env Ch)  
 Garcia, Jeffrey (Pre-Med)  
 Hargrave, Haily (Pre-Med)  
 Hawken, Gavin (AdvBioCh)  
 Hernandez, Marcos (Env Ch)  
 Hochstetler, Cory (Pre-Med)  
 Hoodenpyle, Elizabeth (Bus)  
 Jennings, Chanze (For Sci)  
 Kawamoto, Trevor (Mat Sci)  
 Kincaid, Joseph (AdvBioCh)  
 Kinch, Samuel (Pre-Med)  
 Kutnerian, Amy (For Sci)  
 La Jeunesse, Jesse (AdvCh)  
 Lindemann, Makayla (Pre-Med)  
 Liu-May, Rachel (Pre-Med)  
 Lloyd, Kevin (EnvCh)  
 Marhshall, Stephanie (ChEd)

Morrison, Aaron (Bus)  
 Muniz, Colin (AdvCh)  
 Ocel, Duncan (EnvCh)  
 Pjha, Ashwin (ChemEng)  
 Palmiter, James (Mat Sci)  
 Qian, Eric (AdvBioCh)  
 Stout, Kenneth (Mat Sci)  
 Villegas, Juan (Mat Sci)  
 Vong, Leif (ChemEng)  
 Westlake, Rebecca (Pre-Med)  
 Wilebski, Quentin (AdvCh)  
 Woods, Brandon (Pre-Med)  
 Youngblood, Stephanie (BioCh)  
 Younk, Caleb (Pre-Med)  
 Zirkle, Breeanna (Pre-Med)



# Oregon State University

Department of Chemistry  
153 Gilbert Hall  
Corvallis, OR 97331



## HOME & HEART

**Couple gives Corvallis residence to support students**

**SCHOLARSHIPS HELPED** retired chemistry professor Ken Hedberg '42 attend college following the Great Depression. Now, he and his wife Lise have discovered the perfect way to expand their support for OSU chemistry students.

Through a retained life estate, the Hedbergs gave their Corvallis home to the OSU Foundation but retained the right to live in it for the rest of their lives. This type of gift provides donors with an immediate tax deduction and relieves their heirs from the burden of selling the property. Contact us to learn more about giving real estate to support Oregon State University.

**Julie Irmer**  
Office of Gift Planning  
800-336-8217  
[Gift.Planning@osufoundation.org](mailto:Gift.Planning@osufoundation.org)  
[osufoundation.org/giftplanning](http://osufoundation.org/giftplanning)



**Oregon State University  
Foundation**