

CHEMISTRY NOTATIONS

WASHINGTON STATE UNIVERSITY
DEPARTMENT OF CHEMISTRY WINTER 2020-2021 NEWSLETTER

**INSIGHTS AND STRATEGIES FOR TEACHING
AT A DISTANCE: Online labs and more**



COLLEGE OF ARTS AND SCIENCES

A MESSAGE FROM THE CHAIR

Greetings, Cougar chemists! Apologies are in order for the lateness of this newsletter—to say the last 9 months or so have been challenging would be an understatement! A lot has been going on in the department since the last newsletter, even in addition to the significant impacts due to the global pandemic. As you'll read in this issue, we've welcomed three new faculty members to the department—Professor Jim Boncella, Assistant Professor Jeff Bell, and Assistant Professor Liane Moreau—as our longtime colleague Prof. Rob Ronald formally retired and two of our former colleagues said goodbye to the Palouse, Professor Ming Xian to Brown University and Assistant Professor David Lee to private industry in New York state. In addition to his normal faculty duties and getting his research lab up and running, Dr. Boncella is also serving as the director of the WSU-PNNL Nuclear Science and Technology Institute. Professors Bell and Moreau have been busy getting their research labs up and running as well and teaching their first classes at WSU.

And then there are the impacts of the COVID-19 pandemic, which made its first effects on WSU in March of last year when all courses had to suddenly switch to remote-only after spring break. As you might imagine, the biggest challenge was converting the remaining laboratory experiments in general and organic chemistry to accommodate this restriction. After a lot of intensive planning over spring break by our faculty, we tackled this challenge with combinations of lab simulations and a focus on data analysis. All research was also shut down in the Fulmer/Troy complex until detailed plans could be put in place for each research group that ensured safe physical distancing with sanitation procedures for our students and faculty. Everyone lost more than 2 months of in-person laboratory research before we were back to nearly full research operations by early June. In addition, nearly all Chemistry support staff, as well as most faculty, when not in the lab directing research, have been telecommuting from home during this time. Since last spring, we have continued to operate our courses in remote-only mode, and details of some of our efforts are included in this issue. Throughout these efforts, for both lecture and labs, our top priority is to construct high-quality learning experiences for our students. Needless to say, we are all now experts at Zoom.

Go (Chem) Cougs!

Kirk Peterson
Professor and Department Chair
Fellow of the ACS, APS, AAAS

P.S. To learn about making a gift to support chemistry education and research, please visit chem.wsu.edu/GiveToChemistry
Gifts of any size help to enhance the student experience and support top-quality research.



DEPARTMENT OF CHEMISTRY DIRECTORY

TENURED/TENURE-TRACK FACULTY

Jeffrey Bell - Assistant Professor - Analytical
Cliff Berkman - Professor - Biological Systems, Organic
James Boncella - Professor - Inorganic, Radiochemistry
James Brozik - Professor - Biological Systems, Materials, Physical
Aurora Clark - Professor - Computational, Materials, Physical, Radiochemistry
Sue Clark - Regents Professor - Analytical, Environmental, Radiochemistry
Brian Clowers - Associate Professor - Analytical
Phil Garner - Professor - Biological Systems, Organic
Xiaofeng Guo - Assistant Professor - Physical, Radiochemistry
Zachariah Heiden - Assistant Professor - Inorganic
KW Higgs - Regents Professor - Materials, Physical
Jeff Jones - Professor - Biological Systems, Organic
ChulHee Kang - Professor - Biological Systems, Physical
Alex Li - Professor - Analytical, Biological Systems, Organic
Rock Mancini - Assistant Professor - Biological Systems, Organic
Liane Moreau - Assistant Professor - Analytical, Materials, Radiochemistry
Ursula Mazur - Professor - Materials, Physical
Kirk Peterson - Professor and Department Chair - Computational, Physical, Radiochemistry
Pete Reilly - Associate Professor and Associate Chair for Graduate Studies - Analytical
Choong-Shik Yoo - Professor - Materials, Physical
Qiang Zhang - Assistant Professor - Inorganic

CAREER-TRACK FACULTY

Paul Buckley - Associate Professor and Director of General Chemistry, Career Track
Greg Crouch - Professor and Associate Chair for Undergraduate Studies, Career Track
Nelmi Devarie-Baez - Assistant Professor, Career Track, WSU Tri-Cities
Michael Finnegan - Assistant Professor, Career Track
Jeremy Lessmann - Associate Professor, Career Track
Amy Nielsen - Assistant Professor, Career Track
Krista Nishida - Assistant Professor, Career Track
Adenike Otoikhian - Assistant Professor, Career Track, WSU Vancouver
Louis Scudiero - Professor, Career Track
Elsa Silva-Lopez - Assistant Professor, Career Track, WSU Tri-Cities
Dinara Storfer - Lecturer, Career Track
Jackie Zhu - Assistant Professor, Career Track

To see our current Affiliate, Adjunct, and Emeritus Faculty, visit our website at www.chem.wsu.edu

INSTRUCTIONAL STAFF

Nikki Clark - Undergraduate Academic Coordinator
Ryan Rice - General Chemistry Laboratory Supervisor

SUPPORT STAFF

Trent Amonett - Facilities Manager
Jett Bingman - Program Coordinator
Lori Bruce - Principal Assistant
Lauren Hatley - Fiscal Manager
Naomi Hyner - Procurement and Supply Support Specialist
Yoshi Kodama - Fulmer/Troy IT Support Manager
Linda Kildew - Fiscal Specialist
Jennica Stiff - Fiscal Technician

STOCKROOM STAFF

Aaron Lang- Instruction & Classroom Support Technician
Jayda Spong- Stockroom Manager

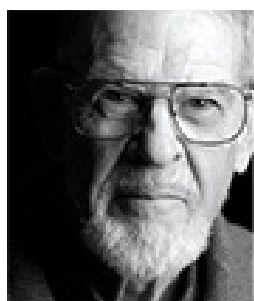
FACULTY



Prof. Sue Clark and Dr. Amanda Lines evaluate a laser-based online monitoring system for radionuclides in the Radiochemical Processing Laboratory at PNNL. Dr. Lines was one of Prof. Clark's doctoral students at WSU.
Photo by Andrea Starr/PNNL

Prof. Sue Clark awarded prestigious ACS Seaborg Award

Dr. Sue B. Clark, WSU Regents Professor and PNNL Battelle Fellow, was the 2020 recipient of the Glenn T. Seaborg Award for Nuclear Chemistry from the American Chemical Society (ACS). An internationally renowned leader in nuclear chemistry, Dr. Clark's outstanding career-long contributions include advancing innovation in nuclear safeguards and forensics, developing landmark nuclear research capabilities, and working toward resolving the national legacy of radioactive waste. She has been a member of ACS, the world's largest professional scientific society, since 1984. In addition to holding several leadership positions with the organization, she received the ACS Francis P. Garvan-John M. Olin Medal in 2012 for her contributions to understanding the chemistry that governs the behavior of actinides in the environment and her tireless efforts to bring gender diversity to university chemistry departments. Dr. Clark is an elected Fellow of the ACS and the AAAS, as well as a member of the WA State Academy of Sciences. (Taken in part from the *WSU Insider*, 1/27/2020.)



Donald S. Matteson

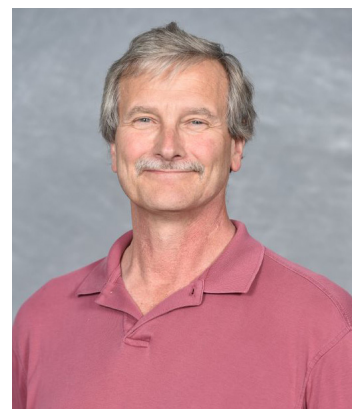
Professor Emeritus Donald S. Matteson received the Emeritus Society Legacy of Excellence Award at WSU Showcase 2020.

Meet James Boncella Professor

I was delighted to move to WSU in August of 2019 to become a professor of chemistry and the first permanent director of the WSU-PNNL Nuclear Science and Technology Institute (NSTI). It has been a very busy and interesting 16 months to say the least with starting a research group once again in a university setting while growing and formalizing the connections between WSU and PNNL through the NSTI. It has been a larger undertaking that I had anticipated, but everyone associated with both WSU and PNNL have been extremely helpful in supporting these start-up efforts. Needless to say, the issues associated with COVID-19 have created unique and unprecedented challenges for these endeavors.

Fortunately, I have been able to hire two post-docs and recruit three graduate students and my research laboratories are now up and running, thanks to their dedication and hard work. My group is currently focused on two research areas: 1) The synthesis of low valent uranium compounds (U(II)) that will give us a better understanding of actinide-ligand bonding, and 2) The reactivity of a family of Mn and Ru hydroxide complexes that function as catalysts for the hydration of nitriles and esters as well as other important transformations. Meanwhile, it has been interesting and inspiring to learn about and begin to further develop the research connections between WSU and PNNL that are made possible through the NSTI, from increased utilization of the WSU TRIGA reactor facilities to collaborating on transuranic chemistry with PNNL staff at the Radiochemical Processing Laboratory.

After spending 17 years at the University of Florida in Gainesville, FL, and then 16 years at Los Alamos National Laboratory in Los Alamos, NM, the move to Pullman was a third major change in culture, scenery, and job responsibilities. I guess this move further confirms the saying, "you never really know where life will lead you." We have been fortunate to live in three very interesting and beautiful places and Linda and I have enjoyed living in all three places. From the year-round mild to steamy weather and beaches of northern Florida, to the mountains of northern New Mexico, and now here in Pullman and the Palouse. We had begun to enjoy skiing at Schweitzer and Red Mountain before things shut down back in March and are planning on doing a lot more exploring and fly fishing in the mountains when next summer rolls around. We are very happy to be a part of the Cougar family!





Meet Jeffrey Bell

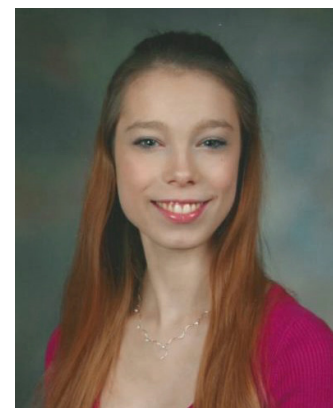
Assistant Professor

Dr. Jeffrey Bell joined the Chemistry Department at WSU in August 2020 as an assistant professor. His previous research dealt with manipulating and controlling out-of-equilibrium chemical

and electrochemical systems as well as the fabrication of paper-based diagnostic devices and portable electrochemical workstations. At WSU, his aim is to (i) further develop affordable diagnostic tools using ubiquitous materials such as paper and/or thread, (ii) study the fundamental role that magnetism plays in electrochemical processes, (iii) exploit the unique characteristics of out-of-equilibrium systems towards fabricating nanomaterials, and (iv) investigate the role that applied/generated voltages played in prebiotic chemical systems as they relate to the origin-of-life. Outside of lab, he enjoys spending time with his family, playing/watching sports, and going for walks with his Siberian Husky.

Meet Liane Moreau

Assistant Professor



Dr. Moreau was very excited to start her independent research career as a faculty member in July 2020, when she moved from Berkeley, CA, having completed her postdoctoral fellowship at Lawrence Berkeley Lab. Prior to that, she completed her PhD at Northwestern University and BS degree at Cornell University. Dr.

Moreau is very happy to be at WSU so that she can join in the already strong department efforts towards understanding the properties of radioactive materials. Specifically, her work lies at the intersection between nanoscale chemistry and advanced X-ray characterization methods.

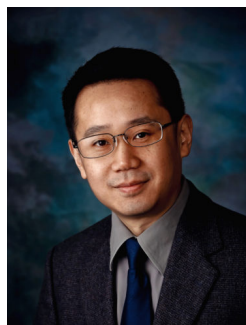
She looks forward to understanding what happens when they make actinide materials like uranium and plutonium down to the nanometer length scale, and how they interface with other proximal materials, both structurally and electronically. Her research group aims to apply what they learn about these size-dependent properties to make advances in the areas of nuclear energy and nuclear medicine, and to consider new possibilities for environmental remediation. It is also Dr. Moreau's goal to make X-ray characterization methods more accessible to those working with radioactive materials and to study complex problems that occur at surface-solution interfaces. On a personal level, Dr. Moreau plays flute and piano, sings, and writes music. She spent several years in a pre-professional ballet company and the arts are still very much a part of her interests.

Farewell to Profs. Lee and Xian



Dr. David Lee

We wish all the best to Dr. David Lee as he leaves his academic position at WSU for a job opportunity with Inficon in upstate New York. Dr. Lee will continue as an adjunct faculty member with WSU in order to continue research involving his Keck Foundation award, now in collaboration with Prof. KW Hipps (Chemistry), as well as to continue mentoring his remaining PhD graduate student.



Dr. Ming Xian

Please join us in also wishing Dr. Ming Xian well as he leaves his position as Professor of Chemistry at WSU for a new professorship in the Department of Chemistry at Brown University. He will continue as an adjunct professor at WSU in order to finish mentoring a few remaining WSU PhD graduate students.

Dr. Zachariah Heiden has been appointed as the new director of the WSU Center for NMR (Nuclear Magnetic Resonance) Spectroscopy. The previous director, Greg Helms, retired after 24 years of service. The Center for NMR Spectroscopy is a central University facility, administered by the Office of Research, which provides access to state-of-the-art NMR instrumentation. The Center is open for users from across the WSU campuses and from outside institutions. The mission of the WSU NMR Center is to provide full access to state-of-the-art NMR instrumentation (24 hours/day, 7 days/week, 365 days/year), in addition to providing training, assistance, and service in NMR spectroscopy, safely and expeditiously.

With Dr. Heiden's appointment at the WSU NMR center, he aims to update the aging instrumentation and modernize the center. Since his appointment in June of 2019, he has already been successful in obtaining funding from the Murdock Trust Foundation and the Washington Research Foundation to acquire a new Bruker Avance Neo 500 MHz spectrometer, which was recently installed in early December of 2020. This new NMR spectrometer will aid in the ability to examine the diffusion of polymers in solution (reducing the time needed for data collection by a factor of 20) and expedite the analysis of solid-state samples. The NMR Center has also undergone a renovation to remove the degrading sound adsorption panels and update the space for the new 500 MHz spectrometer. To learn about other recent updates, please visit the center's new website (nmr.wsu.edu) or email: nmrcenter@wsu.edu.



Rob Ronald Retirement



Pictured above: Chair Dr. Kirk Peterson (Left) and Dr. Rob Ronald

Rob Ronald's retirement party was held at the WSU Alumni Center on December 16, 2019. As expected, the event was well attended and included a special musical performance by the guest of honor! Rob laid down the chalk/laser pointer after 45 years as a faculty member in the Department of Chemistry. During that time, he left his mark on many a student and colleague. He was the consummate teacher – whenever one talked with Rob, they learned something new. He was a master at giving the extemporaneous lecture—whether the topic was Johnson's bioinspired steroid synthesis or how to make the perfect caipirinha. His passion for chemistry, sage advice, and plain speaking will be sorely missed!

Rob earned his BS in Chemistry from Portland State University and his PhD in Organic Chemistry from Stanford. Before coming to WSU, he was a National Academy of Sciences Overseas Fellow at the University of Sao Paulo and a section manager for the Syva Research Institute. Rob plans to spend his time away from chemistry with his wife Bete, and daughter Isabella, cooking and composing in Pullman and Marica, Brazil. We wish him the best as he begins the next chapter of his multifaceted life!

Pictured left: Dr. Zachariah Heiden (Director of the WSU NMR Center) and Dr. William Hiscox (Assistant Director of the WSU NMR Center) filling liquid helium in the older 600 MHz NMR spectrometer in February of 2020.

\$4,925,269

NEWLY FUNDED AWARDS AND RENEWALS

May 2019 through July 2020

AURORA CLARK

NATIONAL SCIENCE FOUNDATION | NEW AWARD
DELTA - Descriptors of Energy Landscape by Topological Analysis
\$846,222

ARGONNE NATIONAL LABORATORY - UNIVERSITY OF CHICAGO | NEW AWARD
Quantifying Energy Drivers in Chemical Separations
\$450,000

CLIFF BERKMAN

US DEPARTMENT OF HEALTH AND HUMAN SERVICES - NATIONAL INSTITUTES OF HEALTH | RENEWAL
Training in Biotechnology: Emphasis in Protein Chemistry
\$458,213

BRIAN CLOWERS

PACIFIC NORTHWEST NATIONAL LABORATORY - BATTELLE-DEPARTMENT OF ENERGY | RENEWAL
Joint Appointment Agreement with PNNL and WSU
\$6,000

ROCK MANCINI

US DEPARTMENT OF HEALTH AND HUMAN SERVICES - NATIONAL INSTITUTES OF HEALTH | NEW AWARD
Exploiting Cancer Metabolism and Drug Efflux with Bystander-Assisted Immunotherapy
\$318,579

KIRK PETERSON

DEPARTMENT OF ENERGY | RENEWAL
Accurate ab Initio Thermochemistry and Spectroscopy of Molecules Containing f-block Elements
\$360,000

QIANG ZHANG

AMERICAN CANCER SOCIETY | NEW AWARD
Hierarchically Porous Materials Constructed from Simple Linkers
\$110,000

MING XIAN

NATIONAL SCIENCE FOUNDATION | NEW AWARD
Mechanistic Chemistry of Reactive Sulfur Species
\$450,000

CHOONG-SHIK YOO

DEPARTMENT OF ENERGY | RENEWAL
Chemistry of Dense Planetary Mixtures at Extreme Conditions
\$225,000

AGENCY FOR DEFENSE DEVELOPMENT SOUTH KOREA | NEW AWARD
Novel nitrogen-rich polymeric solids
\$160,000

COLLABORATIONS

BRIAN CLOWERS / AURORA CLARK

GEORGIA TECH UNIVERSITY - DEPARTMENT OF ENERGY | NEW AWARD
Consortium for Enabling Technologies & Innovation (ETI)
\$249,682

PAUL BUCKLEY / JEREMY LESSMANN

NATIONAL SCIENCE FOUNDATION
REU Site: The RISE Program - Research in Interdisciplinary STEM Education
\$359,074

ZACH HEIDEN / CLIFF BERKMAN / ROCK MANCINI / QIANG ZHANG

M.J. MURDOCK CHARITABLE TRUST AND WSU FOUNDATION, WASHINGTON RESEARCH FOUNDATION | NEW AWARD
PMU: Acquisition of a 500 MHz Nuclear Magnetic Resonance spectrometer with components to enhance the capabilities of the WSU NMR center
\$452,500 + \$250,000

STEVEN CONRADSON / XIAOFENG GUO

NATIONAL SCIENCE FOUNDATION | NEW AWARD
Eager: Local Structure and Dynamics In Tc-Enhanced Overdoped Cuprates: Beyond BCS?
\$229,999

INSIGHTS AND STRATEGIES FOR TEACHING AT A DISTANCE: Online labs and more

Strategies for Distance-Labs:

Written by: Paul Buckley and Ryan Rice

With face-to-face instruction being very limited during the global pandemic, one of the most challenging aspects in delivering meaningful instruction to undergraduates has been the laboratory component in the General Chemistry curriculum. We have developed a two-pronged approach to this problem: “Grocery Store Labs” and “Virtual Labs.”

Grocery Store Labs require the student to purchase some basic items, such as bleach, salt, and food dyes. The cost of the supplies is typically no more than \$30 for the semester, which is offset by the absence of lab fees for the students. As an example, laboratory staff and some of our graduate students developed a lab where students make ice cream, and use this activity as an opportunity to measure the effects of adding different components to a mixture on the physical properties of the mixture. In another, they determine how variables such as temperature affect the rate at which bleach reacts with food dyes.

Virtual labs involve students watching a video recording of the procedures required for a lab experiment, which also shows observable experimental

results. The students are then given a set of “typical” data they can then use to write a post-lab report. Although they are provided with data, they still must think critically about the procedure, be able to analyze their data, and draw conclusions from it.

Certainly, nothing can replace in-person laboratory work as a learning experience, and we hope we can offer that to our students soon!

Physical chemistry laboratory courses:

Written by: Louis Scudeiro, Jeremy Lessman, Jayson De Mers, and Wei-Jyun Wang

These lab-courses are taught by requiring students to first read a handout and watch a short video about the lab they are scheduled to do that day before the Zoom meeting.

When connected to Zoom, students tell the TA and/or instructor the purpose of the work they are about to do. We are keeping track of the participation of each student to make sure that everyone in the meeting participates. The idea here is to have an interactive meeting between students and student-TAs (instructors). To facilitate this interaction we formed groups of only 3 to 5 students per meeting. The Zoom meeting is also recorded on the Cloud to allow later viewing by the students.

To achieve an “in-person” experience as much as possible, students are asked to guide us in performing the experiment and collecting data needed for the calculations and to write the report. As we (TA or instructor) perform the experiment, students are asked to answer questions pertinent to the experiment and write down the data points given to them, as they are collected.

The TAs have also Zoom meetings scheduled during the week (office hours) to answer questions and help the students with calculations and lab reports.

DEPARTMENT SEMINARS

The 2019-2020 department seminar schedule was filled with compelling speakers from around the country. Our department seminars take place on Monday afternoons during the academic year and are open to everyone.

SEMINAR SCHEDULE

FALL 2019

07/09/19 **Cheol Park**, Advanced Materials and Processing Branch, NASA Langley Research Center, *Boron Nitride Nanotube (BNNT) and BNNT Composites: Overview*

08/19/19 **David Lee**, Washington State University, Department of Chemistry, *From Surface Chemistry to Surface-Supported Chemistry*

08/26/19 **Zach Heiden**, Washington State University, Department of Chemistry, *Controlling the Reactivity of Molecular Complexes in Chemical and Catalytic Transformations*

09/09/19 **Christopher Culbertson**, Kansas State University, *Enhancing the Information Content of Single Cell Analysis on Microfluidic Devices Using Optical Fiber Bridges*

09/16/19 **Binghe Wang**, Georgia State University, *The Yin and Yang of Medicine: The Story of Carbon Monoxide*

09/23/19 **Gabriel Ménard**, University of California-Santa Barbara, *Targeting Energy Solutions: From Fundamental to Applied Inorganic Redox Chemistry*

09/30/19 **Punam Dalai**, Department of Polymer Science, The University of Akron (Ohio), *Mineral - Organic Interactions and Early Compartmentalization of Protocells in the Origins of Life*

10/04/19 **Nicolas Dacheux**, Université de Montpellier, *Evolving Interfaces in Nuclear Materials: New Insights for the Actinide-bearing Materials Chemistry*

10/07/19 **Lisa Berreau**, Utah State University, *Flavonols As Visible Light-Induced CO - Releasing Molecules*

10/21/19 **Eugene Ilton**, Pacific Northwest National Laboratory, *Accurate Determinations of Oxidation States and Bonding Environments of Metal Impurities in Fe(III)-(oxyhydr)oxides*

10/28/19 **Matthew Cain**, University of Hawaii, *1,2-Benzoazaphospholes as Transition Metal Surrogates*

12/02/19 **Robert Hayes**, Senior Scientist, Computational and Structural Chemistry at Merck & Co., Inc, West Point, PA., *Emerging Opportunities for Structural Biology in Drug Discovery*

SPRING 2020

02/10/20 **Mark Allendorf**, Sandia National Lab, *Nanopores, Nanoparticles, and "Molecular Hydrides" for Hydrogen Production, Transport, and Storage*

02/24/20 **Graeme Henkelman**, UT Austin, *Correlating Structure and Function for Nanoparticle Catalysts*

03/02/20 **Eric Borguet**, Temple University, *Single Molecule Switching and Sensing*

All seminars in spring were cancelled after this date due to COVID-19 safety protocols.

STAFF NEWS

Meet Jett Bingman *Program Coordinator*

Jett Bingman (program coordinator for iDream, and INST) has been happily married for 11 years and is a father of two elementary-aged children. He graduated from North Idaho College with an associate's degree and from University of Idaho with a bachelors degree in Theatre Arts. He joined the WSU family as a stockroom attendant for Dining Services before he moved to the WSU Chemistry Department. Jett is hoping to further his education while continuing to work at WSU.



Meet Linda Sue Kildew *Fiscal Specialist*

Linda Sue Kildew is a Cougar through and through! A WSU alumna who has worked at the University for the past 25 years, Linda is very happy to be a part of the Department of Chemistry. In her spare time, she is a national collegiate volleyball official. If you follow the WSU team you will find Linda sitting courtside.



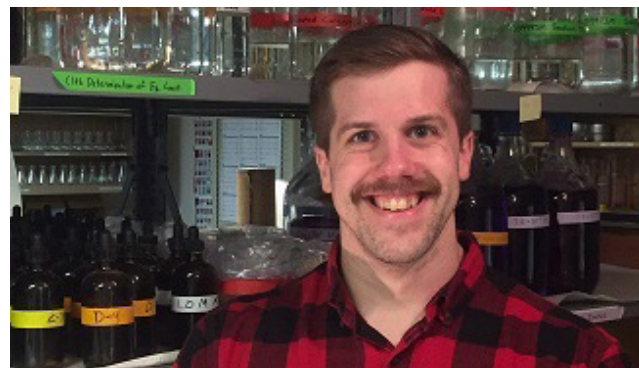
Naomi Hyner **PROMOTION:** *Procurement & Supply Support Specialist* January 2018

Naomi started her career with WSU in 2016, working as stockroom attendant in the main Chemistry storeroom, eventually working her way up to assistant storeroom manager. During her time in the storeroom, she helped establish consistency in their operating hours, helped launch a new inventory management system, and improved delivery times to the various labs within the department while also establishing a good rapport amongst faculty and staff. Due to her efforts, she was offered a challenging but great opportunity in January 2018 to work more closely with faculty and staff as Procurement and supply support specialist in charge of all purchasing for the department.



Meet Aaron Lang *Instruction & Classroom Support Technician*

Aaron Lang grew up in the Seattle area, attended Bellevue College, and then made the move to WSU. Three years after transferring, Aaron graduated this past June with his bachelor's degree in chemistry. Congrats, Aaron!! Since that time, Aaron has been working as the new Instruction and Classroom Support Tech for inorganic classes on the third floor of Fulmer. Aaron hopes to become a forensic scientist later in his career. In his spare time, Aaron enjoys podcasting, rock climbing, archery, and oil painting. GO COUGS!



STAFF NEWS

Jayda Spong

PROMOTION:

Stockroom Manager

February 2020

Jayda Spong came to WSU at the start of the spring semester in 2017. Shortly into her time with the chemistry department, Jayda found herself managing the two instructional stockrooms. After some restructuring and the departure of a beloved boss -- who accepted a new position with the WSU Office of Research Assurance (Way to go, John!) -- Jayda found herself taking on the position of stockroom Manager for the Chemistry Department. This exciting new position has Jayda overseeing the main storeroom, along with maintaining the supervisor position for the 3rd- and 4th-floor stockrooms.

While learning the ropes of her new position, the world began to change, and this change made its way to WSU. While these times have been difficult for all, we are hopeful that this challenge will lead to some exciting innovations in the academic world of instructional labs. We miss observing our students as they navigate the chemistry techniques that we have had learned, and we hope to see our instructional labs filled with young scholars in lab coats and goggles very soon.



College of Arts and Sciences

Outstanding Career Achievement

Civil Service

Yoshi Kodama

*Fulmer/Troy
IT Support
Manager*

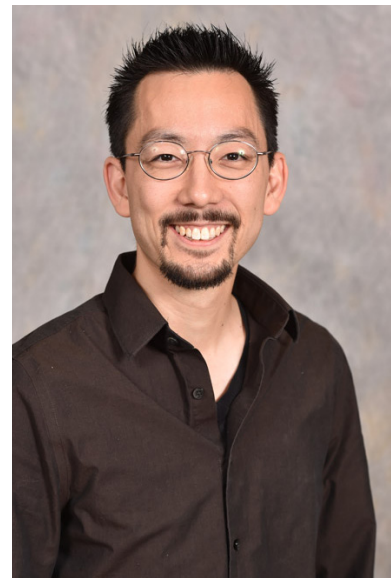
Yoshi Kodama applies his diverse technical expertise and excellent customer service skills to provide critical support for the complex operations of the Department of Chemistry.

With a portfolio that encompasses 20 research groups, 35 faculty, nearly 100 graduate students, and 20 instructional laboratories used by more than 5,000 students, Yoshi deftly manages a wide variety of concurrent projects.

His ingenuity and knowledge of new technologies enabled the department to make important investments and upgrades at significant cost savings. For example, Yoshi designed and built a custom portable workstation that extends the lifespan of specialized lab instrumentation and he served as the engineering lead for building the department's new Lightboard for instructional videos. His excellent time- and people-management skills took center stage for Project Kangaroo: the replacement of all 140 teaching lab workstations during one summer so they were ready for fall classes.

When new WSU security protocols were required, he efficiently implemented new measures with minimal disruption to daily operations.

Yoshi's outstanding commitment to service and support helps keep the department running smoothly, and ensures faculty, staff, and students have the tools they need to succeed.



STUDENTS

Achievements Awards Fellowships

Armina Abbasi (Jones)

Donald S. Matteson Graduate Fellowship
ASPET Mentoring Program Travel Award

Robbie Baker (Yoo)

GCS Teaching Assistant of the Year

Anthony Burt (Mancini)

NSF iCORPs

Elvin Cabrera (Clowers)

RADS Assistantship

Jessica Carder (Brozik)

NASA Space Grant Fellowship in Science and Engineering

Sumeet Chakravorty (Reilly)

NASA Space Grant Fellowship in Science and Engineering

Vitaliy Goncharov (Guo)

Los Alamos National Laboratory Seaborg Summer Research Fellowship

Akil Hamsath (Xian)

Gardner Stacy Research Fellowship

Tanner Hanson (Heiden)

Neva Martin Abelson Graduate Fellowship
Herb and Jann Hill Travel Scholarship

Nicholas Holloran (Garner)

Gardner Stacy Research Fellowship

Ashley Hunt (Peterson)

ARCS Foundation Fellow

Matthew Hurlock (Zhang)

James P. & Lee Ella Ruck Graduate Fellowship

Kristen Johnson (Hipp/Mazur)

Leon and Barbara Radziemski Graduate Fellowship in the Sciences

Shane Kelly (Xian)

PNNL-WSU Distinguished Graduate Research Program

Creighton King (Wall)

J. Ivan Legg Fellowship

Kyle Kriegsman (Guo)

DOE Radiochemistry Traineeship
James C. Sullivan Memorial Scholarship in Chemistry

Anthony Krzysko (S. Clark)

Frank A. Fowler Fellowship
DOE SCGSR Award

Nitesh Kumar (A. Clark)

James C. Sullivan Memorial Fellowship

Jiahong Li (Zhang)

Dr. T.J. Chow Endowed Fellowship in Chemistry

Robert Lusk (Wall)

Frank A. Fowler Fellowship
DOE Forensic Operations Training Evolution Support Award

Michael Martinez (Brozik)

Consortium Research Fellows Program
NASA Space Grant Fellowship in Science and Engineering

Cameron Naylor (Clowers)

NASA Space Grant Fellowship in Science and Engineering
Frank A. Fowler Fellowship
WSU 3 Minute Thesis (3MT), 2nd place

Feyisola Olatunji (Berkman)

Donald S. Matteson Graduate Fellowship

Daniel Pope (A. Clark)

Dr. T.J. Chow Endowed Fellowship in Chemistry

Uendra Rathnayake (Garner)

Gardner Stacy Research Fellowship

Margaret Reece (Reilly)

Frank A. Fowler Scholarship

Austin Ryan (Mancini)

Frank A. Fowler Scholarship

Emily Savoy (Berkman)

CAS J. Walter Hendrix Fellowship

Haley Schramm (Clowers)

Neva Martin Abelson Graduate Fellowship

Andrew Strzelecki (Guo)

DOE Radiochemistry Traineeship

Yingying Wang (Xian)

Richard R. and Constance M. Albrecht Scholarship

Hsin-Hua Joelle Wu (Peters)

Clarence "Bud" Ryan Institute of Biological Chemistry Travel Scholarship

Bixia Zhang (Kang)

Donald S. Matteson Graduate Fellowship

CONGRATULATIONS

BA GRADUATES

Drayko Chudomelka
Jillian Smersh
Linda Hernandez
Emily Burns
Jordan Binder
Ashley Alumbaugh
Nhi Nguyen
Madison Lucas
Aaron Lang

BS GRADUATES

Christian Buhler
Stena Peterson
Chelsie Greene
Eric Moreno
Rebecca Rambo
Andrew Staten

MS GRADUATES

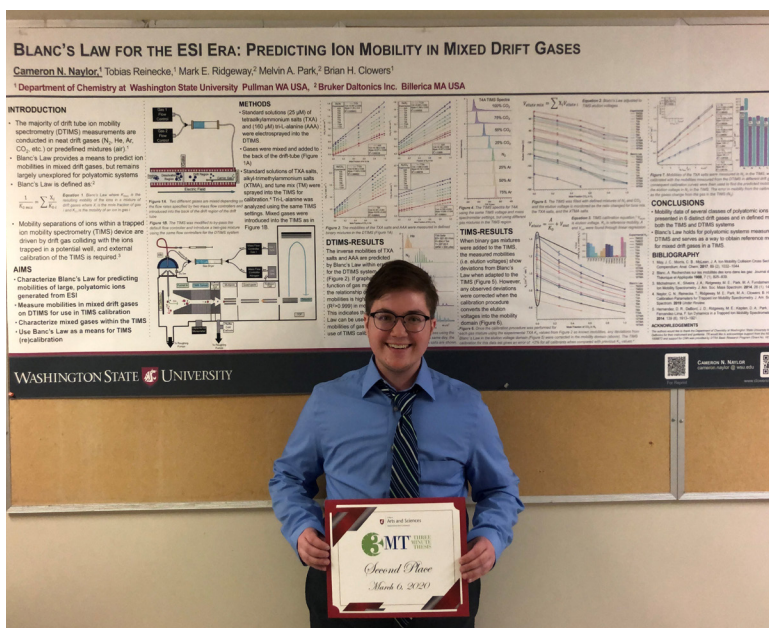
Abigail Bravo (C. Kang)
John (Kip) Daly (Y. Gupta)
Derek Deming (Q. Zhang)
Akil Hamsath (M. Xian)
Alexandra Hanna (Z. Heiden)
Kevin Hernandez (C-S. Yoo)
Karissa Jensen (C-S. Yoo)
Jared Kroll (N.D. Baez)
Kui Ting (Boris) Lam (J. Brozik)
Ashley Rojas (N. Wall)

PhD GRADUATES

Kirsten Adams (N. Wall)
Daniel Collins (P. Garner)
Guy Dutech (K. Nash)
Adam Huntley (P. Reilly)
Pearl Kwantwi-Barima (B. Clowers)
Ernesto Martinez Baez (A. Clark)
Matthew RisenHuber (K. Nash)
John Rodgers (J. Jones)



Nikki Clark and Guy Dutech with Dr. Dutech's final thesis.



Cameron Naylor wins 2nd Place for WSU 3 Minute Thesis (3MT Competition)

ACTIVITIES:

Visitation Weekend
Celebrations
and more...

VISITATION WEEKEND

March 6-8, 2020, Chemistry held their new graduate student visitation weekend, when potential students who have received offers from the department come to Pullman and spend the weekend. Unfortunately, the visitation weekend occurred just as COVID-19 was starting to become front and center, and attendance this year was low, with only 12 students visiting WSU.

Students arrived in Pullman Friday night, March 6, and were escorted from the Spokane or Pullman airports by our current graduate students, and stayed at the Hilltop in Pullman. That night, they went to dinner at Gambino's in Moscow, hosted by the GCS.

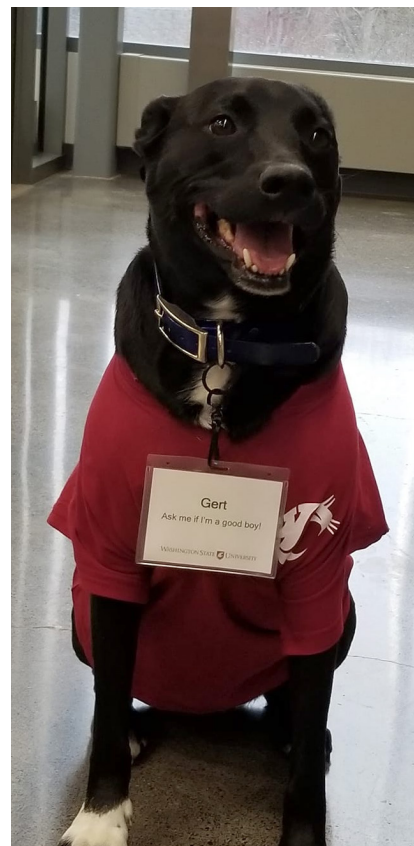
Saturday morning began with a Meet & Greet in our newly remodeled Troy Hall, where Department Chair Kirk Peterson greeted the students and discussed the department, life as a graduate student in chemistry, and answered questions from the visiting students, over donuts and coffee. After the Meet & Greet, each visiting student was taken around to meet various chemistry faculty by their assigned graduate student host. After meeting with the participating faculty, lunch was catered by Taco Del Mar, where the current graduate students hosted a Q&A session with the visiting students.

After lunch, the visitors were given the option of returning to their hotel rooms or taking tours of campus, which included the NRM center, the University Recreation Center, the CUB and Bookie, and other areas on campus and around Pullman.

Saturday evening, Chemistry faculty and students hosted a dinner and poster session in Troy 305. Dinner was provided by University Catering. After the poster session, visiting students were treated to a night on the town in Pullman by the GCS. (And that's when the real fun began!)

On Sunday, they returned to their respective homes. Of the 12 visiting students, 6 chose to join our Chemistry department, with an overall new class of 7.

Written by: Lori Bruce



*Gert welcomes prospective students on visitation weekend!
Picture by: Lori Bruce*



February 2020, some of our staff, students, and faculty got a chance to show off their baking skills in our second annual Dessert Contest.

This event was started by Molly Spain the previous year as a way to beat the winter blues with home-baked goodness. Our top three bakers, Lori Bruce, Danielle Keerbs, and Alex Hanna, took home prizes generously donated by GCS and Yoshi Kodama.

CHEMISTRY CLUB

Advisor: Dr. Michael Finnegan

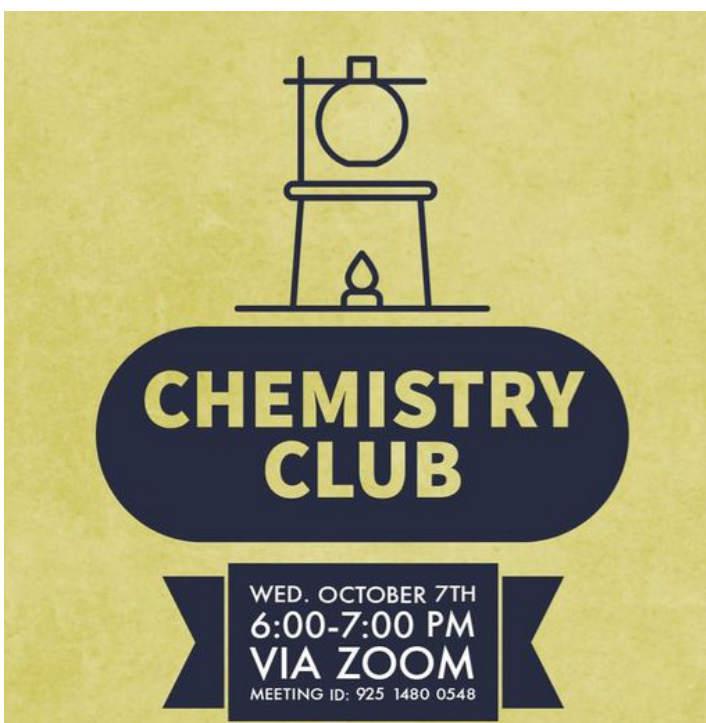
President: Andrew Deebach

Vice President: Sarah Harkins

Secretary: Jonah Hart

Historian: Joy Kvamme

Treasurer: Corey Bissonette



Chemistry Club members have an active Facebook page. You can find them at [facebook.com/groups/wsuchemclub](https://www.facebook.com/groups/wsuchemclub)

Left: Chemistry Club members held meetings via Zoom for Fall 2020.



GRADUATE CHEMICAL SOCIETY

by Maggie Reece, Graduate Chemical Society President

Over the last year, the GCS has offered the Chemistry Graduate students a number of activities and resources. A big change that came to the GCS this year was the renovated GCS Library and Lounge in Fulmer 318. This newly furnished area offers our graduate students space to focus on their studies, hang out on a comfy papasan chair and beanbag, or unwind from the stresses of grad school with a game of ping pong. This area has already been used as a gathering spot for discussion over a cup of coffee and some confections, and is encouraged to be used as a place to connect and learn from peers. The GCS is excited about supporting and being involved with the graduate student body and chemistry department as a whole through the challenges that future years will bring.

The GCS event list for the 2019-2020 year:

End of summer ice cream social, football ticket raffles, annual department fall picnic, bowling nights, Haunted Palouse, winter wrap party, t-shirts contest, Visitation Weekend, at-home movie night, and summer park days.

Your GCS Officers:

Maggie Reece - President
Kirill Gurdumov - Vice President
Cameron Naylor - Secretary
Ashley Hunt - Treasurer
Kyle Kriegsman - Librarian



2020 Grad GCS T-shirt winners



Rent 'N Vent Bowling: pictured, Maggie Reece and Alex Hanna



GCS members at a WSU football game in 2019

2020 GCS Awards Recipients

Undergrad Teaching Advisor of the Year
Krista Nishida

Graduate Teaching Faculty of the Year
Brian Clowers

Teaching Assistant of the Year *
Alex Hanna

Research Assistant of the Year
Pearl Kwantwi-Barima

Research Faculty of the Year
Jim Boncella

Department Staff of the Year
Ryan Rice

*Award given by the Gen Chem Faculty

ALUMNI NEWS

Brandon Greene, BS '09 (J. Brozik)

Brandon is a WSU Chemistry alumn (B 2009) and has stayed active in chemical research ever since. Very recently, Brandon was hired as an assistant professor in the chemistry and chemical biology department at University of California - Santa Barbara and is tackling challenges in enzymology and redox biology relevant to human health, energy, and biogeochemistry. Brandon's WSU education was pivotal in preparing him for his graduate and postdoctoral studies. He performed undergraduate research in Jim Brozik's lab when he first started at WSU, taught Gen Chem lab, and took graduate quantum and stat mech from Aurora Clark and Jeanne McHale respectively. Brandon couldn't be prouder to be a Cougar, and hopes the department is doing well!

Anthony (Tony) J. Papa, '57-'60 (G. Stacy)

Tony is a former student of Dr. Gardner W. Stacy and attended WSU from 1957-1960. After five years with DuPont (Delaware) and 32 years with Union Carbide Corporation (West Virginia), Tony retired in 1998. Most of his industrial career was spent developing metallic homogeneous and heterogeneous catalysts for various industrial processes. Over the years, he has been granted 35 U.S. patents, has authored five books and 19 publications, and was a recipient of Union Carbide's prestigious Chairman's Award for Technical Excellence. Currently, Tony spends some of his time gardening and traveling, but mostly you will find him painting landscapes, the result of a passion for fine art that has been with him since high school.

Stephanie Holbrook Bruffey (S. Clark)

Stephanie is working as a Radiochemical Engineer at Oak Ridge National Laboratory (ORNL) in Tennessee where she has been for the past nine years. Currently, Stephanie spends her time on a wide variety of projects, which keep her busy and engaged. She has developed a specialization in off-gas management by working with Bob Jubin and is also a point person in her group for chemical enrichment technologies for several different elements. Stephanie fills in the remainder of her time with various other fuel-recycle projects. She is funded by DOE-NE, NNSA, Office of Science, and a couple of industry partners.

WE'D LOVE TO HEAR FROM YOU!

It's always wonderful receiving news from our alumni. Please keep in touch with us and let us know how you're doing and what you're up to or to notify the WSU Chemistry Community of the passing of a colleague.

Send updates to: chemistry@wsu.edu

IN MEMORIAM



MARK STEPHEN NISSEN

Mark Nissen, who last worked in Jeff Jones' lab, passed away on March 20, 2020. Mark received both his BS and MS degrees from the WSU chemistry department and then went on to work in a number of labs at WSU including those of Professor Kang and Professor Jones in chemistry. Mark was ever the scientist, interested in all things. He loved physics and astronomy as well as biochemistry. He also was an avid outdoorsman, and was a fantastic rafter, taking on a number of very challenging rivers over the years. He was always helpful to anyone who needed anything. His wry smile will be missed. Survivors include his wife, Traci Topping, of Moscow; his mother, Greta Rizzuti, of Spokane. Mark was 62 years old.

ROGER D. WILLETT

Professor Roger Willett passed away on November 27, 2019, at the age of 83. Roger served WSU for nearly 45 years, from 1962 until he retired in 2007. Roger graduated from St. Olaf College in Northfield, MN, in 1958 and went on to obtain his PhD in Chemistry and Physics at Iowa State University in 1962. He then joined the faculty of the Chemistry Department at Washington State University where he became one of the founding members of the Chemical Physics Program that eventually morphed into the current Materials Science and Engineering program. Here he mentored many graduate and post-doctoral students, and published over 300 scientific papers, several of which covered discovering the structure of crystals and their magnetic properties via a wide range of experimental techniques including X-ray diffraction, low temperature magnetic studies, DSC, EPR, and spectroscopic methods. Roger's work was cited more than 7,000 times in scientific literature! During his career, Roger served two separate terms as Chair of the Chemistry Department at WSU, (1974-1978 and 1992-1998) and was awarded a NATO Senior Postdoctoral Fellowship, and his work led to collaborations with researchers in Switzerland, Italy, and Spain, and also the Netherlands, where he worked as a visiting professor at the University of Zürich in 1980 and a Fulbright fellow at the University of Leiden in 1981.



Roger was a master crystal grower. Other inorganic chemists would start with a compound that had been thoroughly characterized and then work hard to get a structure of that compound. Professor Willett would often grow beautiful crystals whose composition was unknown until it was determined by its X-ray structure. He had a gift for mixing the "Edisonian" method (try everything) with using theoretical concepts to know what classes of compounds would have exciting magnetic properties. But Roger's group was known for more than just their science. Their lab housed the "perennial" foosball game where grad students and postdocs from all over the department (but mostly Chemical Physics, Physical, and Inorganic) would test their skill against Roger's "professional" players.
(continued on next page)

(Roger Willett in memoriam continued)

Roger always tried to keep his graduate courses near the cutting edge of the discipline, but for those students not directly involved in structure and magnetic phenomena, it was a struggle. Even so, Roger worked hard to make sure all were learning and he was always available for private help. For those wanting to understand this fascinating area, it was a revelation. Long after Roger retired, he would visit the department to check up on old friends, both faculty and staff. It was always a pleasure to see his tall, broad frame shambling down the halls again. Those of us who knew him miss him.

Notice of Passing:

THEODORE J. WILLIAMS, 92, PhD Chemistry
'65, December 13, 2017, in Missoula, MT

DONOR SHOWCASE

*Ralph G. Yount Distinguished Professorship in Sciences
McFadden/Yount Undergraduate Scholarship in Biochemistry and Chemical Biology*

Ralph Yount's legacy continues to benefit students and faculty

Ralph G. Yount began instructing at Washington State University in 1960 and spent his entire professional career at WSU. After 44 years as researcher, advisor, administrator, and teacher, he retired in 2004 as a professor of chemistry and biochemistry. His professionalism and compassion are renowned among his students and WSU colleagues.

Yount's many honors include WSU's top research award, the Sahlin Award, bestowed to him in 1989. In 2001, he received WSU's first Eminent Faculty Award, and in 2003 he was named one of the first three WSU Regents Professors. He was also the inaugural holder of the Edward Meyer Distinguished Professorship in Chemistry.

Yount maintains a deep affection for the chemistry department and, through his philanthropic giving, chose to make a difference for the students and faculty in chemistry by establishing the Ralph G. Yount Distinguished Professorship in Sciences to support and retain the most productive senior faculty. In addition to the professorship, Yount partnered with another emeritus faculty member, Bruce McFadden, to establish the McFadden/Yount Undergraduate Scholarship in Biochemistry and Chemical Biology to help undergraduate students access a transformative WSU education.

Ralph Yount's legacy will live on in perpetuity, benefitting faculty and students alike. If you would like more information about how you can make a difference for the Department of Chemistry, please contact the College of Arts and Sciences Development team at cas.development@wsu.edu.

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chem.wsu.edu



Fulmer lab COVID-19 empty



Fulmer Hall

