

LETTER FROM THE CHAIR

Dear Friend of Chemistry,

We have lots of exciting developments to report to you. Our faculty continue to do fantastic research at the cutting edge of science. We are a very young faculty at the moment, but I am pleased to announce that three of our assistant professors have been promoted to associate professor, effective September 15, 2016. Gojko Lalic, AJ Boydston, and David Masiello are featured on page 3.

This leaves us with only 11(!) assistant professors. They are all flourishing, having assembled tremendous research groups in a short time. Recent contributions from Joshua Vaughan are highlighted on pages 4-5. Professor Vaughan and his coworkers have developed a powerful method for visualizing the inner workings of cells. This work is representative of a number of projects in our department, where interdisciplinary research probes the interface between chemistry and biology. Matt Bush uses mass spectrometry to probe the structure of biomolecules. Ashleigh Theberge is measuring metabolites of microbes using microfluidic techniques. Dan Fu is developing precision chemical measurement methods for studying living biological systems using high resolution optical imaging. Jesse Zalatan is investigating cell signaling, metabolic networks, and genome organization. All of these projects involve collaborations, within the Department and more broadly. Ashleigh and Dan started at the UW last academic year, Jesse began in 2014, and Joshua and Matt joined us in 2013 and 2011, respectively.

Our other recent hire is Professor Anne McCoy, who was recruited to the University of Washington from Ohio State. The addition of Anne has strengthened our computational/theoretical chemistry

effort. Since arriving at the UW, Anne has been building a group, and now has three UW graduate students and a postdoctoral researcher working with her. They are working on various projects related to understanding the connections between vibrational spectroscopy and processes like proton transport in aqueous solutions. She also led the University's effort to get state-of-the-art computers available for computational work in the chemical sciences with funds from the National Science Foundation.

PROFESSORS MIKE HEINEKEY AND PAUL HOPKINS, CHAIR AND CHAIR EMERITUS

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PROMOTIONS

Jasmine Bryant, Colleen Craig Promoted to Senior Lecturer; Deborah Wiegand Promoted to Principal Lecturer

The Department of Chemistry congratulates Jasmine Bryant, Colleen Craig, and Deborah Wiegand on their promotions. Lecturers Bryant and Craig were promoted to Senior Lecturer. Senior Lecturer Wiegand was promoted to Principal Lecturer.

Dr. Bryant joined the regular faculty of the Department of Chemistry as Lecturer in Autumn 2012, though she previously contributed to the Department in both instructional and administrative capacities. She is unusually versatile as an instructor, successfully teaching large lecture courses in 100-level introductory general chemistry and 200-level sophomore organic chemistry, as well as 300-level inorganic chemistry lecture and laboratory courses.

Dr. Craig joined the regular faculty of the Department of Chemistry as Lecturer in Autumn 2012 after serving as an instructor for general chemistry courses since Autumn 2009. She typically teaches Introduction to General Chemistry and multiple courses in the introductory-level general chemistry sequence, and she contributes in-depth knowledge about online learning and assessment systems. She also currently serves as the course coordinator for CHEM 110 for UW in the High School, a program that allows high school students across the state to earn college credit for their chemistry coursework. Dr. Craig works with approximately 10 teachers and there are more than one hundred students enrolled in the program in autumn quarter.

Dr. Wiegand joined the Department of Chemistry as Lecturer in 1990, and was promoted to Senior Lecturer in 1995. From 2001–

2013, she served as Director of Academic Counseling and the UW Gateway Center and then as Assistant Dean for Undergraduate Academic Affairs, making wide-ranging contributions to student welfare and improving undergraduate services and education. She returned to Chemistry full-time in 2013 as Senior Lecturer and Director of Entry-Level Programs. She regularly teaches courses in our introductory-level general chemistry sequence and serves as the sole instructor for our general, organic, and biochemistry sequence, which targets students preparing for the study of nursing. As Director of Entry-Level Programs, Dr. Wiegand leverages her previous administrative experience to provide critical leadership for our large introductory-level instructional programs.

All three instructors, in collaboration with members of the Undergraduate Education committee (particularly Senior Lecturer Andrea Carroll and Lecturer Larry Goldman), carried out a significant revision of our introductory-level general chemistry curriculum and the development of a placement test for introductory chemistry courses. Drs. Wiegand, Bryant, and Craig are also part of the Chemical Education Research Group (ChEdR) which collaborates with Principal Lecturer Scott Freeman (Department of Biology) on the Howard Hughes Medical Institutefunded STEM Dawgs grant to improve retention and success of under-represented groups in science, technology, engineering, and mathematics (STEM) courses.

Drs. Bryant and Craig were one half of a four-person Chemistry team recently awarded the 2015 Distinguished Teaching Award for Innovation with Technology.



JASMINE BRYANT, COLLEEN CRAIG, DEBORAH WIEGAND



AJ Boydston, Gojko Lalic, and David Masiello Promoted to Associate Professor with Tenure

The Department of Chemistry congratulates Assistant Professors AJ Boydston, Gojko Lalic, and David Masiello on their promotions to Associate Professor with tenure. Professors Boydston and Masiello joined the Department of Chemistry in 2010. Professor Lalic joined the department in 2008.

Research in the Boydston group focuses on various aspects of macromolecular design, synthesis, and function. By controlling the microstructures of polymer and network materials, the Boydston group is discovering ways in which macroscopic mechanical forces can be used to guide precise, molecular-level chemical transformations. Materials that display this mechanochemical transduction capability may find application in numerous fields, including biomedical engineering, drug delivery, additive manufacturing (3D printing), and autonomously self-healing systems. Professor Boydston was one of four Chemistry team members to receive the 2015 Distinguished Teaching Award for Innovation with Technology and was recently named a 2016 Camille Dreyfus Teacher-Scholar. Other recent accolades include a National Science Foundation (NSF) CAREER Award and selection as a Cottrell Scholar, both in 2014.

Professor Lalic's research efforts are centered on developing new reactions for the synthesis of organic molecules using transition metal catalysis. An essential part of the Lalic group's approach to reaction development is the exploration of reaction mechanisms, which results in a better understanding of the fundamental reactivity of organic and organometallic compounds. Professor Lalic's accolades include an NSF CAREER Award (2013).

Research in the Masiello group is aimed at building a theoretical understanding of nanoscale optical, magnetic, electronic, and thermal phenomena mediated by surface plasmons. Of particular interest is the fundamental science of light manipulation, especially in metamaterials capable of directing light towards desired pathways, such as optical-frequency magnetism, spatially-directed thermal patterning, roomtemperature quantum information processing, and enhanced solar-energy conversion. Theoretical approaches from the Masiello group are currently being used by the experimental community to direct the design of advanced materials with unprecedented functionalities. Recent work by Professor Masiello and his colleagues was published in Nature Photonics on November 7, 2016. He was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE) in the spring of this year, and he received an NSF CAREER Award in 2012.

AJ BOYDSTON, DAVID MASIELLO; NOT PICTURED: GOJKO LALIC

SINGLE-PARTICLE ABSORPTION SPECTROSCOPY ACHIEVED IN AN OPTICAL MICRORESONATOR CAVITY [*NATURE PHOTONICS* (2016)]. (UPPER) ILLUSTRATION OF THE SPECTROMETER. (LOWER) ABSORPTION SPECTRUM OF A SINGLE PLASMONIC NANOROD DRESSED BY A PROGRESSION OF FANO INTERFERENCES PRODUCED BY INTERACTIONS WITH THE RESONATOR'S PHOTONIC CAVITY MODES. UW RESEARCHERS IMPROVE MICROSCOPY METHOD TO

'swell' cellular structures, BRINGING FINE DETAILS INTO VIEW

JAMES URTON News and Information, UW Today July 11, 2016



Microscopy also has its limit. Light's inherent wavelike behavior limits any microscope's resolving power. The most minute details of our existence—from twisted strands of DNA to bulbous cellular organelles—are difficult or impossible for even the best and most expensive microscopes to visualize directly.

But scientists from the University of Washington recently reported a relatively simple method that would allow ordinary laboratory microscopes to illuminate many of these cellular structures quickly and efficiently. They did not modify microscopes to boost resolution. Instead, they used an approach to swell the tiny, complex structures within cells, bringing them within range of a microscope's existing resolving range.

"This is a radically new way of doing microscopy," said UW chemistry professor Joshua Vaughan, who is senior author on a paper detailing

their approach in *Nature Methods*. "The focus had largely been on hardware—improving the resolution of microscopes. Here, we expand the cell's interior to bring it into view."

Appropriately, this technique is known as expansion microscopy.

"This is a simple and robust approach that is surprisingly effective," added Vaughan.

His team was inspired by the expansion approach developed at the Massachusetts Institute of Technology. The MIT researchers stained cells with a complex, DNA-based fluorescent probe that would make cellular contents visible. They then treated cells with an expandable polymer that linked to the custom probes and would "inflate" the specimens to as much as four times their original size. But, this approach was laborious, and required specialized, expensive reagents.



"When I saw their approach, I thought it was amazing," said Vaughan. "But we were wondering if there was a way to do this using simpler staining strategies and conventional probes. That would make expansion microscopy accessible to thousands of labs."

Instead of complex fluorescent probes, Vaughan's team turned to conventional fluorescent dyes bound to antibodies, which are easier to use, and developed a simple chemical treatment that would allow the antibodies to become linked to the polymer. They then treated their stained samples—slices of mammalian brain tissue and cultured cells—with the expandable polymer as well as enzymes that could create small "snips" in proteins to help them expand.

They used this basic approach to come up with two staining protocols for expansion microscopy—one that worked better for individual cells and another for slices of tissue. Under the microscope, their images showed substantially brighter stains while maintaining excellent resolution. As an added bonus, their approach also enables expansion microscopy with fluorescent proteins, another popular fluorescent probe used by biologists. Critically, the UW team was able to obtain these high-resolution images on conventional, widely used laboratory microscopes.

"We think this will make expansion microscopy a widely used technique for researchers who want to visualize what they're studying with a relatively simple, low-cost approach that also has excellent performance," said Vaughan. Vaughan said he hopes that other research groups will modify his team's basic approach for other organisms or cell types, especially structures like cell walls that would resist expansion. Given the details illuminated by expansion microscopy, a hidden world awaits.

Two scientists from the UW Department of Chemistry, doctoral student Tyler Chozinski and postdoctoral researcher Aaron Halpern, were co-first authors on the paper. Other authors were postdoctoral researcher Haruhisa Okawa and Professor Rachel Wong—both in UW Medicine's biological structure department—and UW undergraduates Hyeon-Jin Kim and Grant Tremel. The work was funded by the National Institutes of Health, the National Science Foundation, the Burroughs-Wellcome Fund and the University of Washington.

For more information, contact Vaughan at 206-543-4644 or jcv2@uw.edu.

Grant numbers: DGE-1256082, EY10699, EY17101.

PHOTO 1 IN THIS RAT KANGAROO KIDNEY CELL, BUNDLES OF TUBULIN PROTEIN STRANDS (GREEN) SNAG ON TO CHROMOSOMES (BLUE) AS THE CELL PREPARES TO DIVIDE. PHOTO BY JOSHUA VAUGHAN

PHOTO 2 ZOOMING IN TO A MAMMALIAN KIDNEY CELL, LONG STRANDS OF TUBULIN PROTEINS BEFORE (TOP) AND AFTER (BOTTOM) EXPANSION TREATMENT, SHOWING THE IMPROVED RESOLUTION OF EXPANSION MICROSCOPY. PHOTO BY JOSHUA VAUGHAN

EVENTS

Recent Activities of Women in Chemical Sciences at the University of Washington

Beth Mundy, President of WCS-UW Photos by Jeffrey Buenaflor

Women in Chemical Sciences at the University of Washington (WCS-UW) is a student group at the University of Washington whose mission is to educate and empower women in science and their supporters by providing a safe and open space for dialogue, mentorship, collaboration, camaraderie, and skill building through a variety of activities including guest speakers and panels, student-facilitated discussions, workshops, and outreach to primary, secondary, and post-secondary institutions. WCS-UW participates in a range of science outreach activities in the Puget Sound area such as science nights at local schools and workshops at the Boeing Museum of Flight. We focus on getting all children excited about science, with a particular emphasis on engaging girls.

Highland Terrace Science Night: In our solvent art activity, students explore the effects of solubility while allowing their creativity to run free! By pairing a variety of markers and solvents, kids can observe changes in their designs while learning about basic chromatography.

1 KATIE CORP AND SAMANTHA PHAN

Seattle Expanding Your Horizons: WCS-UW hosts two chemistry based workshops at this event focused on engaging middle school girls in hands-on scientific activities. One has the girls solving the mystery of a chemical spill in Lake Washington and the other involves gathering data on rock samples to determine if they could be from outer space! The workshops allow for more complicated inquiries with ambiguous data that requires additional analysis.

2 RAE EATON, BETH MUNDY, AND KIRA HUGHES

Photonics Fair: WCS-UW participated in this on-campus event sponsored by the Clean Energy Institute to engage girls in science that focuses on light. We examined some of the fundamentals of color mixing, prisms, and absorbance.

3 KATIE GUYE AND CLAIRE WEST

Welcome Ice Cream Social: This annual event welcomes new graduate students and faculty members with a delicious sundae bar to begin building community at the start of autumn quarter.

4 HEIDI NELSON, NICK MONTONI, ELLIA SHELTON, AND ZOHA SYED

WCS-UW Annual Lecture: Each year, WCS-UW brings in a high profile external speaker to discuss her career path and perspective on being a woman in STEM (science, technology, engineering, and mathematics). Our first speaker, Dr. Maria Klawe, president of Harvey Mudd College and a member of the Microsoft board of directors, spoke about her advocacy for bringing women back into computer science. The next WCS-UW Annual Lecture is on February 8, 2017 and will feature National Medal of Science recipient and the director and co-founder of COACh, Professor Geraldine Richmond from the University of Oregon. WCS-UW would love to see you there! For more information, contact wcsuw@uw.edu.

5 SCOTT RAYERMANN, DR. MARIA KLAWE, AND ADDIE KINGSLAND

Strengthening STEM Through Diversity: Two of our amazing members, Sarah Vorpahl and Nick Montoni, organized a summit with the University of Washington Graduate School called Strengthening STEM Through Diversity. The event focused on building a diverse community within STEM and included extensive discussions on mentorship, supporting underrepresented groups, and how to successfully recruit and maintain diversity.

6 SUMMIT ATTENDEES



Save the Date for Alumni Event in San Francisco

The Department of Chemistry will be hosting an alumni and friends social event at the 253rd American Chemical Society National Meeting in San Francisco on Sunday, April 2, 2017, from 6:00–8:00 p.m. If you are planning to attend the ACS Meeting, you may reserve your ticket through the ACS registration website. If you live in the Bay Area or will be in San Francisco on April 2 (but not for the ACS Meeting), please contact Diana Knight (chemdept@uw.edu, 206-543-1611) if you wish to attend so that she can reserve a ticket on your behalf and provide you with further details.



GIVING PROFILE

A Lasting Gift: Regan and Kathy Shea Endowed Fund in Chemistry

In 2015, Chemistry alumnus Regan Shea and his wife, Kathy, established the Regan and Kathy Shea Endowed Fund in Chemistry to provide broad-based direct financial support to undergraduate or graduate students in the Department of Chemistry, as well as to benefit the Department per the discretion of the chair.

Regan came to the University of Washington to begin working toward the Ph.D. in 1982, the same year Professor and Chair Emeritus Paul Hopkins came to the UW as assistant professor. Regan earned his Ph.D. in 1987, and was Hopkins' first group member to do so.

Regan and Kathy met in high school and married in 1980, while undergraduate students at the University of Missouri, Kansas City. They moved to Seattle so that Regan could begin graduate school; Kathy worked at the University Bookstore prior to beginning her career in the college textbook publishing industry.

Following a postdoctoral year working with Professor J. William Lown at the University of Alberta, Regan began his industrial chemistry career at Genentech, Inc. (South San Francisco, California). He was also employed for a time at ICOS Corp. (Bothell, Washington), but the majority of his career has been spent at Gilead Sciences, Inc. (Foster City, California). He was Gilead's 58th employee and contributed to the development and commercial launch of numerous innovative, FDA-approved medicines including those containing the active pharmaceutical ingredients (APIs) cidofovir, adefovir dipivoxil, tenofovir disoproxil fumarate, elvitegravir, cobicistat, ambrisentan, idelalisib, sofosbuvir, ledipasvir, tenofovir alafenamide fumarate, and velpatasvir.

The Sheas have contributed to a variety of educational and humanitarian charities, including their almae matres. They were supporting the UW Department of Chemistry with annual gifts until Hopkins approached them to think about a more lasting gift. The Sheas reached a point when a number of their favorite organizations were approaching them with similar appeals and it became clear that adopting a longer viewpoint was advantageous. Fortunately, the Department of Chemistry was able to offer matching funds to the Shea's new gift from other unrestricted funds donated to the Department by many alumni and friends in order to establish the endowment.



REGAN AND KATHY SHEA

While a student, Regan was a recipient of an ARCS Fellowship, which was a very welcome source of support during his graduate studies. In establishing the Shea Fund, Regan said, "One of the things that was important to me was to leave it as unrestricted as I could; I know in many places that people who donate tend to put conditions on what they think the needs and priorities are, and I didn't want to try to 'outsmart' any future chairman, but to rely on the fact there are some smart people in the situation who can provide good judgement on where [the funds] would go." It is the Sheas' hope that the Regan and Kathy Shea Endowed Fund in Chemistry will allow future UW chemistry students the chance to benefit from a UW education just as Regan did.

Regan and Kathy reside in the San Francisco Bay Area. Regan is the senior vice president of Chemical and Biologics Operations at Gilead, with responsibilities for process development, scale up, and manufacturing activities for all development stage and commercial APIs. Kathy currently designs and produces custom greeting cards. Their daughter and grandson reside in the Seattle area.

We thank the Sheas for their gift and for choosing to give back to the UW to help others.

FACULTY AWARDS & HONORS

AJ Boydston

2016 Camille Dreyfus Teacher-Scholar

Thieme Chemistry Journal Award (2015)

Jasmine Bryant

Chemistry Teaching Award – Lecturer, Epsilon Chapter of Phi Lambda Upsilon

Charles Campbell

Fellow, American Vacuum Society

The Gauss Professorship of the Göttingen Academy of Science, Germany (2016-17)

R.B. Woodward Lecture in the Chemical Sciences, Harvard University Department of Chemistry (2015)

Fink Lecture, Georgia Institute of Technology

Brandi Cossairt

CAREER Award, National Science Foundation

Colleen Craig

2015 Outstanding Faculty Award, UW Panhellenic Association and Interfraternity Council

Larry Dalton

Helmholtz International Fellow Award

James De Yoreo

2016 David Turnbull Lectureship Award, Materials Research Society

Daniel Gamelin

Fellow, Royal Society of Chemistry Dunne Lecturer, Reed College

David Ginger

Finalist, Blavatnik Award for Young Scientists, The Blavatnik Family Foundation

Karen Goldberg

2016 Award in Organometallic Chemistry, American Chemical Society

Sarah Keller

Somorjai Visiting Miller Research Professor, University of California, Berkeley (2016) 2017 Avanti Award in Lipids,

Biophysical Society

David Masiello

2016 Presidential Early Career Award for Scientists & Engineers

Jaromír Ružička

Gold Medal, Charles University in Prague

Robert Synovec

2016 Marcel Golay Award

POSTDOCTORAL RESEARCH ASSOCIATE FELLOWSHIPS & AWARDS

Giles Eperon

Marie Skłodowska-Curie Actions Fellowship, European Commission

Nirala Singh

Washington Research Foundation Innovation Fellowship (Clean Energy Institute)

First place, Perfect Pitch Contest/ Poster Session, UW Clean Energy Institute (2016)

Elizabeth Speltz

Washington Research Foundation Innovation Fellowship (Institute for Protein Design)

Claudia Tait

John Weil Young Investigator Award, International EPR Society Bruker Thesis Prize (2015)

GRADUATE FELLOWSHIPS & AWARDS

Samuel Allen

Irving and Mildred Shain Endowed Fellowship in Chemistry

Charles Barrows

Benton Seymour Rabinovitch Endowed Fellowship in Chemistry

Ryan Beck

Benton Seymour Rabinovitch Endowed Fellowship in Chemistry

Troy Becker

George H. Hitchings Endowed Scholarship

Samuel Berry

Tomas Hirschfeld Endowed Fellowship in Chemistry

Tyler Blair

Kwiram/CCR Fellowship

Jacob Busche

2016-17 Clean Energy Institute Graduate Fellowship

Honorable Mention, National Science Foundation Graduate Research Fellowship



1 BRANDI COSSAIRT 2 JAMES DE YOREO 3 SARAH KELLER 4 NIRALA SINGH 5 RYAN BECK 6 TYLER BLAIR

Daniele Canzani

Lewis R. and Joan M. Honnen Endowed Fellowship in Chemistry

Gerard (Mike) Carroll

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Derek Church

Boris and Barbara L. Weinstein Endowed Graduate Fellowship in Chemistry

Caitlin Cornell

Biophysical Society Student Research Achievement Award

Kathryn Corp

Clean Energy Institute Education and Service Award

Phillip Cox

Larry R. Dalton Graduate Fellowship

Hester Dang

Boris and Barbara L. Weinstein Endowed Graduate Fellowship in Chemistry

Kimberly Davidson

Reinhardt Family Endowed Fellowship in Chemistry

Abhinav Dhall

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Alexandra Downing

Schomaker Endowed Fellowship in Chemistry

Gabriel Feeley

Norman and Lillian Gregory Endowed Fellowship in Chemistry

Helen Ferreira

Kwiram/CCR Fellowship

Sarah Floris

Martin P. Gouterman Endowed Fellowship in Chemistry

Dylan Gary

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Jonathan Goldberg

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Madison Goodstein

Boris and Barbara L. Weinstein Endowed Graduate Fellowship in Chemistry

Julia Greenwald

Mary K. Simeon and Goldie Simeon Read Chemistry Research Endowed Fellowship

Christopher Gunderson

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Ellen Hayes

Benton Seymour Rabinovitch Endowed Fellowship in Chemistry

Shu (Wing) Huang

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Kira Hughes

2016-17 Clean Energy Institute Graduate Fellowship

Samuel Jahn

Edwin and Phyllis Motell Endowed Fellowship in Chemistry

Austin Keller

Amy Scott and Stephen C. Alley Endowed Fellowship in Chemistry

Jessica Kong

2016-17 Clean Energy Institute Graduate Fellowship

Chantelle Leveille

Rowland Endowed Fellowship in Chemistry

Yun (Demi) Liu

Mickey and Karen Schurr Endowed Graduate Fellowship in Chemistry

James Ludwig

Howard J. Ringold Endowed Fellowship in Chemistry

Tyler Milstein

Howard J. Ringold Endowed Fellowship in Chemistry

Nicholas Montoni

2016-17 Clean Energy Institute Graduate Fellowship

Nicholas Moore

Natt-Lingafelter Endowed Fellowship in Chemistry

Eleanor (Nora) Munger

Eugene S. Mindlin Endowed Fellowship in Chemistry

Ian Murphy

Chemistry Graduate Alumni Fellowship

Heidi Nelson

Husky 100



1 DANIELE CANZANI 2 ALEXANDRA DOWNING 3 JULIA GREENWALD 4 SHU (WING) HUANG 5 YUN LIU 6 JAMES LUDWIG

Stephen Oja

Dorothy Shimasaki Gilmer Endowed Fellowship

Bo Peng

Benton Seymour Rabinovitch Endowed Fellowship in Chemistry

Emily Rabe

2016-17 Clean Energy Institute Graduate Fellowship

Honorable Mention, National Science Foundation Graduate Research Fellowship

Scott Rayermann

S.P. Pavlou and D.E. Strayer Endowed Fellowship in Chemistry

Julian Rees

Basil G. and Gretchen F. Anex Endowed Fellowship in Chemistry

Dylan Rogers

David M. Ritter Endowed Fellowship in Chemistry

Alexander Santiago

Honorable Mention, National Science Foundation Graduate Research Fellowship

Patrick Smith

Lloyd E. and Florence M. West Endowed Fellowship in Chemistry

Karena Smoll

Raymond and Sally Paxton Endowed Fellowship in Chemistry

Sarah Vorpahl

Husky 100

Claire West

Paul H. and Karen S. Gudiksen Endowed Fellowship in Chemistry

Fan Yi

Arthur G. Anderson Endowed Fellowship in Chemistry

Jacob Ziegler

Brian R. Reid Endowed Fellowship in Chemistry

2015-16 ALMA MATER TRAVEL AWARDS

Recipients of these travel awards receive funds to present a seminar on their Ph.D. research at their undergraduate alma mater.

Samuel Allen

California State University, Chico (Chico, CA)

Gerard (Mike) Carroll Fort Lewis College (Durango, CO)

Dane deQuilettes Pepperdine University (Malibu, CA)

Patrick Lestrange

York College of Pennsylvania (York, PA)

Jonathan Litz

Harvey Mudd College (Claremont, CA)

Steven Oja

University of Wisconsin–Madison (Madison, WI)

Brendon Parsons

Florida Atlantic University (Boca Raton, FL)

Brooke Reaser

St. Olaf College (Northfield, MN)

Julian Rees Goucher College (Baltimore, MD)

UNDERGRADUATE FELLOWSHIPS & AWARDS

Haley Amemiya

Husky 100

Julia Carlstad

Distinguished Achievement in Chemistry Research

National Science Foundation Graduate Research Fellowship

Jiayi Chen

Distinguished Achievement in Chemistry Research

Bryan Chou

Ed F. and Clara M. Degering Tuition Scholarship

Sasha Dickinson

Distinguished Achievement in Chemistry Research

Alice Dong

Mary Gates Research Scholar

Mengtong (Tom) Duan

Mary Gates Research Scholar Distinguished Achievement in Biochemistry Research

Donald J. Hanahan Endowed Scholarship in Chemistry or Biochemistry



7 ELEANOR (NORA) MUNGER 8 IAN MURPHY 9 DYLAN ROGERS 10 CLAIRE WEST 11 HELEN FERREIRA, BRANDEN VANDERMOON, PHILIP FAN

Victoria Duong

Gerald and Sheila Berkelhammer Senior Book Award

Philip Fan

Mary Gates Research Scholar Rex J. and Ruth C. Robinson Scholarship in Chemistry

Moshe Gordon

Distinguished Achievement in Chemistry Research

H. K. Benson Undergraduate Tuition Scholarship

Mustufa Jafry President's Medal

Dane Kawano Mary Gates Research Scholar

Martin Kinisu

Distinguished Achievement in Chemistry Research

Malte Lange Distinguished Achievement in Chemistry Research

Felix Leeb

Hypercube Scholar

Yifan Lu

Distinguished Achievement in Chemistry Research

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Ravishankar Madhu

CRC Freshman Achievement Award

Jennifer Merrill

Gerald and Sheila Berkelhammer Senior Book Award

Dylan Moore

Bonderman Travel Fellowship Husky 100

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Monish Naidu

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Kenji R. Nakamichi

P. C. Cross Award

Thao Nguyen Boeing Scholarship

Tess O'Rourke Gerald and Sheila Berkelhammer Book Award Christopher and Karen Pohl Undergraduate Award

Hyun Park Mary Gates Research Scholar

Allison Rollins Bonderman Travel Fellowship

Alexander Shcherbakov

Distinguished Achievement in Chemistry Research

Kelli Stoneburner

Libraries Student Employee Scholarship

Zoha Syed

Husky 100 Mary Gates Research Scholar

Zalia Jencks Rowe Undergraduate Tuition Scholarship

Nicholas Tan

Mary Gates Research Scholar

Thanh Tran

Gerald and Sheila Berkelhammer Book Award

Van Thi Bao Tran

Ed F. and Clara M. Degering Tuition Scholarship

Achombom (Jude) Tunyi

Mary Gates Research Scholar Earl W. Davie Endowed Scholarship in Chemistry or Biochemistry

Lavinia Turian

Distinguished Achievement in Biochemistry Research

Timothy Welsh

Hyp Dauben Award

Erin Williams

Mary Gates Research Scholar

Samuel Wilson

Distinguished Achievement in Biochemistry Research

Annie Wong-On-Wing

Mary Gates Research Scholar

Wenbi Wu

Distinguished Achievement in Chemistry Research

Luming Yang

Distinguished Achievement in Chemistry Research

Yanting Zhao

Distinguished Achievement in Biochemistry Research

DYLAN MOORE, Pullman, WA, BS Biochemistry '16

Moving beyond the UW, I hope to continue bridging the traditional boundaries between scientific inquiry and social problems, guiding my scientific curiosity with social consciousness and responsibility. By listening and sharing stories between different, otherwise disparate realities, I hope to play a role in bringing more people into the difficult work of facing our histories and present situations, that we may find solutions together.







1 DYLAN MOORE AND ZOHA SYED 2 WENBI WU 3 ACHOMBOM (JUDE) TUNYI

DOCTORAL DEGREES AWARDED

Miles Braten, Ph.D. Chemistry

Proton Coupled Electron Transfer Reactions at the Surface of Metal Oxide Nanomaterials

(Professor James Mayer)

Gerard (Mike) Carroll, Ph.D. Chemistry

The Redox Potentials of n-type Colloidal Semiconductor Nanocrystals

(Professor Daniel Gamelin)

Sophia Cherry, Ph.D. Chemistry

Toward Catalytic Hydrogenolysis of Chlorofluorocarbons with Group 8 and 9 Complexes

(Professor D. Michael Heinekey)

Erica Chong, Ph.D. Chemistry

Positive Encounters: An Investigative Study on the Effects of Interactions between Cations and Quantum Dots

(Professor Xiaosong Li)

Phillip Cox, Ph.D. Chemistry

Local Imaging of Optoelectronic Properties and Film Degradation in Polymer/Fullerene Solar Cells with Electrostatic Force Microscopy

(Professor David Ginger)

Hester Dang, Ph.D. Chemistry

The Discovery, Development, and Mechanistic Investigations of Transition Metal-Catalyzed Organic Reactions

(Assistant Professor Gojko Lalic)

Abhinav Dhall, Ph.D. Chemistry

Investigating the Effect of Histone H4 Sumoylation on Chromatin Structure and Function

(Assistant Professor Champak Chatterjee)

Helen Ferreira, Ph.D. Chemistry

Characterization of the Structure and Dynamics of Biomimetic Peptides by Solid-State NMR

(Professor Gary Drobny)

Kerry Garrett, Ph.D. Chemistry

Computational Study of Linear and Nonlinear Optical Properties of Single Molecules and Clusters of Organic Electro-optic Chromophores (Professor Emeritus Larry Dalton)

Dylan Gary, Ph.D. Chemistry

Investigation of the Nucleation and Growth of Colloidal Indium Phosphide: From Molecular Precursors to Semiconductor Nanocrystals through $In_{37}P_{20}(O_2CR)_{51}$ as a Magic-Sized Intermediate

(Assistant Professor Brandi Cossairt)

Trevor James,Ph.D. Chemistry

Adsorption and Adhesion of Metal Films and Nanoparticles Studied By Adsorption Calorimetry: Understanding Catalytic Systems (Professor Charles Campbell)

Peter Johnston, Ph.D. Chemistry

Structure Function Paradigms of Organic Electrooptic Materials for Telecommunication Devices

(Professor Gary Drobny)

Jonathan Litz, Ph.D. Chemistry

Sterol-phospholipid Interactions in Model Lipid Membranes (Professor Sarah Keller)

Samuel Marionni, Ph.D. Chemistry

Native Ion Mobility Mass Spectrometry: Characterizing Biological Assemblies and Modeling their Structures

(Assistant Professor Matthew Bush)

Phu Nguyen, Ph.D. Chemistry

Facilitating Realistic and Efficient Applications of Ab Initio Electronic Dynamics for Polyatomic Systems

(Professor Xiaosong Li)

Brendon Parsons, Ph.D. Chemistry

Development and Application of Improvements to the Tilebased Fisher Ratio Method and Fundamental Instrument Considerations for Non-targeted Analysis using Two-dimensional Gas Chromatography

(Professor Robert Synovec)

Bo Peng, Ph.D. Chemistry

Towards the Accurate and Efficient Description of Excited States

(Professor Xiaosong Li)

Robert Pepin, Ph.D. Chemistry

Gaseous Studies of Ionic Chromophores and of Peptide Cation Radicals Generated from Electron Transfer

(Professor František Tureček)

Nathaniel Phillips-Sylvain, Ph.D. Chemistry

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LETTER FROM THE CHAIR continued from page 1

Undergraduate students continue to have a strong interest in the study of chemistry and biochemistry. Our population of undergraduate majors continues at record levels. We have added a new introductory course sequence intended for chemistry and biochemistry majors. This sequence is intended to offer an accelerated introduction to chemistry at a level of rigor slightly lower than the honors course.

Our teaching obligations to large numbers of students in our introductory sequence require the efforts of many faculty members. We are fortunate to have five highly capable lecturers who carry a significant part of this teaching load. Lecturers Colleen Craig and Jasmine Bryant were promoted this year to the rank of Senior Lecturer. Senior Lecturer Debbie Wiegand was promoted to Principal Lecturer (see page 2). In addition to teaching large numbers of students, the lecturers are taking on a leadership role in developing new pedagogical approaches to large lecture instruction.

As always, I want to express our gratitude to the generosity of our friends. Your donations to our department funds are vital to our teaching and research missions. We are striving for excellence in all of our undertakings. Your support provides a vital supplement to our state funding. Thank you!

Sincerely,

D. Michael Heinekey *Professor and Chair*

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