UNIVERSITY of WASHINGTON

CHEMLETTER

AUTUMN 2017 / VOLUME XXXV NO.3

LETTER FROM THE CHAIR

Dear Friend of Chemistry,

Since my last message to you, we have begun the new academic year, with continuing increases in undergraduate enrollment. To help us to teach these large numbers of undergraduates, we rely on the contributions of our graduate students, who serve as teaching assistants. The incoming cohort of graduate students for the 2017-18 academic year consists of 44 students: 22 women and 22 men from top universities in the U.S. (39) and abroad (5). To recruit this group, our faculty carefully reviewed more than 600 applications from all over the world. Students are attracted to our program by the caliber of the faculty with whom they would study, the UW's tradition of excellence, and the quality of life in the Seattle area.

We have implemented a new rotation system for our first-year graduate students to get acquainted with the work and culture of research groups they may be interested in joining. The rotation is meant to facilitate students finding a good fit with their Ph.D. advisor, for which the selection process will take place next quarter.

The research program to which these students will contribute continues to prosper. Our faculty have been very successful in winning highly competitive grants to support this work from a variety of sources. The directions of research pursued in the department continue to evolve. Newer areas of research are emerging in materials chemistry, particularly in applications to energy generation and storage. The new Materials Research Science and Engineering Research Center led by Professor Daniel Gamelin has been funded by the National Science Foundation

at the level of $2.6 million per year for six years. This initiative will enhance the strong presence of the UW in the field of materials science, with an emphasis on the development of nanoscale electronic materials for numerous applications, from spectral conversion to spintronics. Adjunct Associate Professor Christine Luscombe is the co-PI and Professors David Ginger, Xiaosong Li, and Assistant Professor Brandi Cossairt are participants.

Our faculty continue to win awards and recognition for their accomplishments. A complete list of awards is found on page 8, but I will mention some highlights here. We are particularly proud of our award winning junior faculty members. Just in the last year

Continued on back page

IN THIS ISSUE

FACULTY INTRODUCTION

Alexandra Velian, Assistant Professor

Ph.D. Inorganic Chemistry, 2014
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Thesis: Taming Reactive Phosphorus Intermediates with Organic and Inorganic Carriers

Advisor: Christopher C. Cummins

B.S. Chemistry, 2009
CALIFORNIA INSTITUTE OF TECHNOLOGY

Thesis: Mono- and Bi-metallic Complexes Supported by a Versatile Diphosphine Terphenyl Framework

Advisor: Theodor Agapie

Research Focus: Tuning the luminescence in Cu_2N_2 diamond-core complexes

Advisor: Jonas C. Peters

Alexandra comes to the University of Washington from Columbia University where she worked with Professor Colin Nuckolls in the Center for Precision Assembly of Superstratic and Superatomic Solids. As a Materials Research Science and Engineering Center (MRSEC) postdoctoral fellow, she worked on creating well-defined functional nanostructures by developing synthetic methods to link atomically precise metal chalcogenide clusters.

Alexandra is originally from Romania and came to the U.S. to pursue her undergraduate education at the California Institute of Technology. She was introduced to synthetic inorganic chemistry in Professor Jonas Peters' group. She then became the first member of Professor Theodor Agapie's group where she developed the synthesis of low-valent mono- and bimetallic complexes supported by a rigid terphenyl diphosphine framework.

As a graduate student with Professor Christopher C. "Kit" Cummins at the Massachusetts Institute of Technology, Alexandra developed the synthesis of anthracene and niobium-supported precursors to reactive phosphorus fragments and studied their behavior using chemical, mechanistic, and computational methods. Notably, this work gave rise to the synthesis of the 6π all-inorganic aromatic anion heterocycle $P_2N_3^-$, produced in the "click" reaction of P_2 with azide ion.

What is special about the new and very simple class of compounds that Alexandra developed is that it allows the generation and study of small molecules such as P_2, HCP and (singlet) phosphinidenes in mild conditions of temperature and pressure. Typically such unsaturated molecules are very reactive and are often formed in extreme environments. For example, P_2 exists in the atmosphere of the exoplanet Osiris, at temperatures of about 1500 K! One remarkable transformation of P_2 facilitated by this new class of mild molecular precursors is its cyclization reaction with the ion azide. Uncovered for the first time in this transformation was the all-inorganic, five-member ring anion $P_2N_3^-$ featuring exposed P-P multiple bonding, ostensibly stabilized by aromaticity.

For her graduate work on reactive phosphorus intermediates with organic and inorganic carriers, Alexandra was awarded the Alan Davison Prize for the best thesis in inorganic chemistry submitted in a given year. In 2016, Alexandra received the Young Investigator Award from the Division of Inorganic Chemistry of the American Chemical Society.

Alexandra had the opportunity to work with many talented chemists during her graduate studies which fueled her passion of empowering young scientists and fostering a creative and collaborating research environment. While a graduate student, she mentored seven undergraduate and visiting students and organized a weekly chemistry seminar for graduate and postdoctoral students. As a continuation of these efforts, she chaired the Organometallic Chemistry Gordon Research Seminar on "Addressing Challenges in Energy Sciences and Materials Development" in 2015.

At the University of Washington, research in the Velian group focuses on applying molecular strategies to develop new generations of molecular and heterogeneous inorganic catalysts and electronic materials. Alexandra's long-term goal for her research program is to contribute to the fundamental understanding of the chemical processes occurring at the surface of low dimensional inorganic materials. While rooted in inorganic and organometallic chemistry, research in the Velian group will interface with chemical engineering and materials science.

Outside of chemistry, Alexandra enjoys hiking and is excited to be surrounded by lush vegetation on Pacific Northwest trails. She loves dance, especially ballroom dancing with her husband.

For more information about Professor Velian and her research, please contact her directly at avelian@uw.edu.

ALEXANDRA VELIAN

DR. MARIE CURIE

McCOY & KHALIL

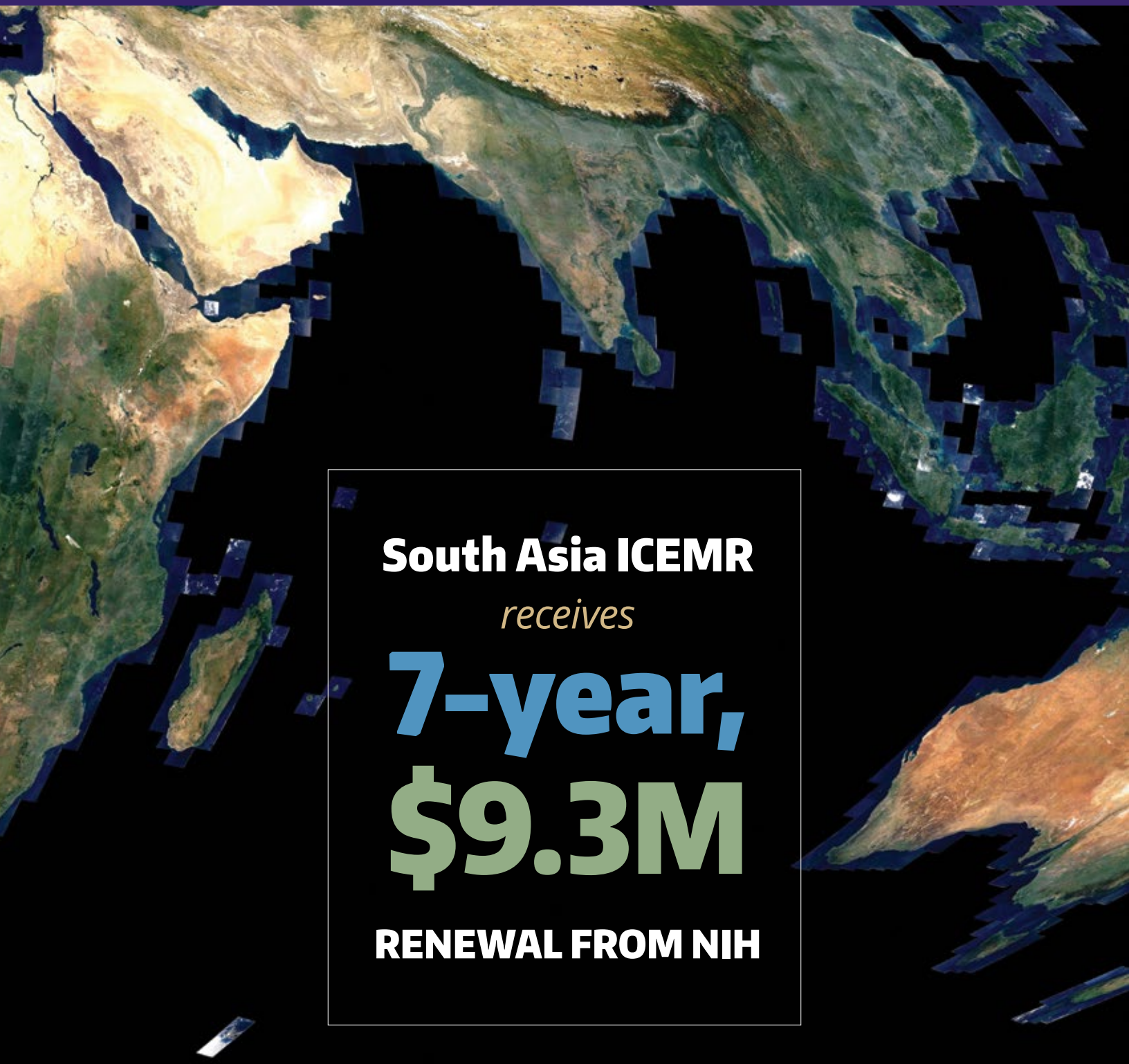
Among 66 Distinguished Women Scientists Highlighted in Journal of Physical Chemistry Virtual Issue

In honor of Marie Curie's 150th birthday on November 7, *The Journal of Physical Chemistry* published a virtual issue highlighting the female physical chemists who have contributed to and whose work has been published in *The Journal of Physical Chemistry*. Professor Anne McCoy and Associate Professor Munira Khalil are among the 66 distinguished women scientists featured in the issue.

McCoy is currently the deputy editor of *J. Phys. Chem. A* and has published more than 50 papers in the Journal. Khalil was awarded the 2014 ACS *Journal of Physical Chemistry B* Lectureship and currently serves on the editorial advisory board. Both women were selected not only for their contributions to *The Journal of Physical Chemistry*, but also for their contributions to physical chemistry more generally.

McCoy's 2004 paper, "Ab initio diffusion Monte Carlo calculations of the quantum behavior of CH_5^+ in full dimensionality," and Khalil's 2006 paper, "Picosecond X-ray absorption spectroscopy of a photoinduced iron(II) spin crossover reaction in solution," are included in the Virtual Issue which you may read at http://pubs.acs.org/page/vi/jpc-mariecurie.

The editorial contains more about Dr. Marie Curie and many other women who have published in *The Journal of Physical Chemistry* since its beginning in 1896—from pioneers like Marie Curie herself to many modern luminaries in the physical chemistry community. Please take a few moments to read about the influential research of these renowned scientists and celebrate with us the recognition of Professors McCoy and Khalil.



South Asia ICEMR

receives

7-year, $9.3M

RENEWAL FROM NIH

The National Institute of Allergy and Infectious Diseases announced that it would provide $9.3 million in funds to the South Asia International Center of Excellence for Malaria Research (ICEMR) over the next seven years, beginning July 1, 2017. Professor Pradipsinh K. Rathod is the principal investigator of the initiative—Malaria Evolution in South Asia (MESA)—which was first funded in 2010 and is one of eleven NIH-supported ICEMRs. The overall goal of the South Asia ICEMR is to understand the genetic plasticity (or adaptability) of malaria parasites in South Asia and its relationship to drug resistance, virulence, transmission, and human immunity.

A major corridor for malaria stretches from Southeast Asia to Africa, with South Asia right in the middle. That means that more than 90 percent of India's population lives in areas with a risk of malaria transmission, leading to about 13 million cases of the disease, according to 2015 figures from the World Health Organization.

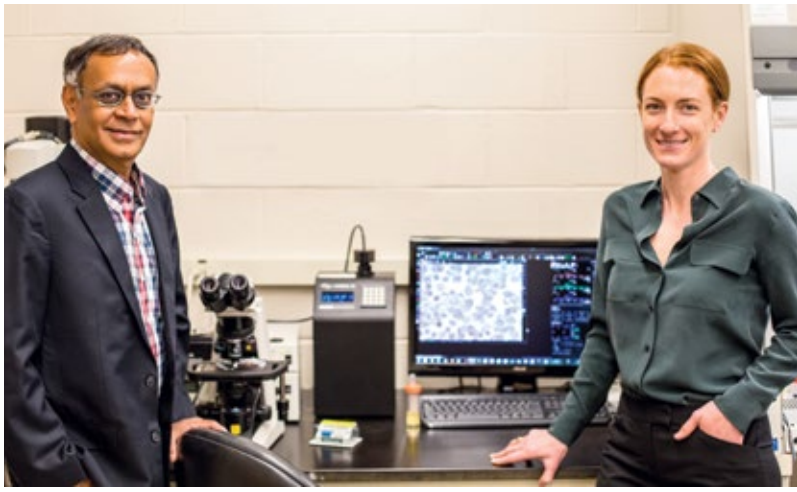
Malaria in India remains underappreciated. "India is a country of critical importance for understanding the spread of virulent malaria globally," said Rathod. "While most deaths caused by drug-resistant strains of malaria have occurred in Africa, most drug-resistant parasites arise first in Asia."

Though the risk of malaria transmission is present in most of India, the actual prevalence of malaria varies greatly, according to Laura Chery, the South Asia ICEMR's associate director. There is variation in levels of immunity as well as variation in the species of mosquitoes that spread the disease. "Most importantly, there is unexpectedly high genetic diversity in malaria parasites that are circulating in India," says Chery.

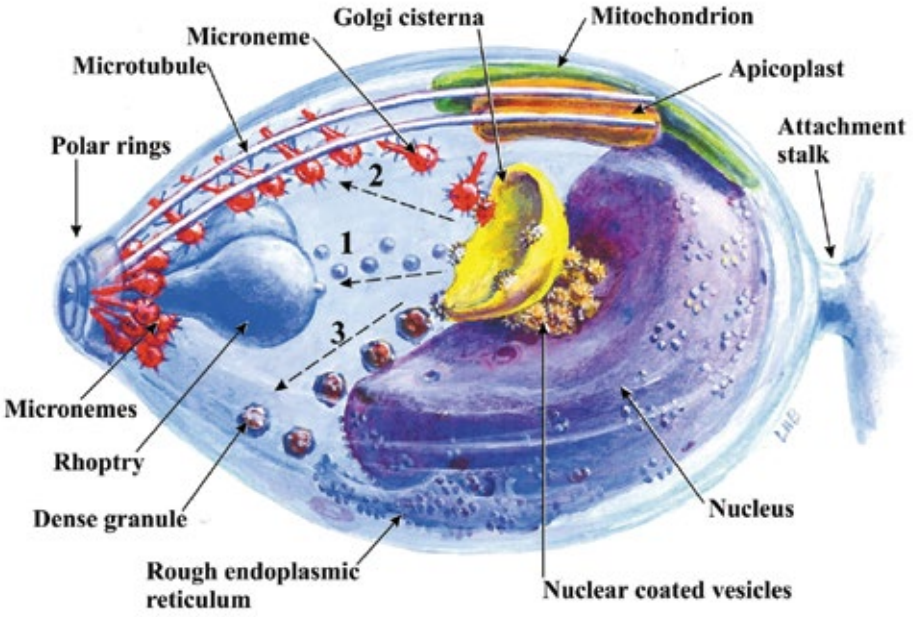
South Asia ICEMR researchers—scientists from the UW, Harvard University, Fred Hutchinson Cancer Research Center, the Center for Infectious Disease Research, and Stanford University—are studying this diversity, collaborating with dozens of scientists, clinicians, and field workers at sites across India. "We have formed wonderful, productive partnerships with hospitals, clinics, government agencies and community members," said Chery. "Together, we have learned to do advanced science on the ground at clinically important sites."

Through partnerships with local hospitals and research institutes, the Center currently works out of six sites across India. The locations capture the diversity of this massive country: four sites are in eastern and northeastern India, where malaria is endemic and cases can reach as high as 50 to 100 per 1,000 people. Two other sites are on the west coast, where the prevalence of malaria can be relatively low—fewer than 1 case per 1,000 people. But these sites include urban hospitals that attract and treat large numbers of malaria patients, including migrants from other parts of the country.

"We believe that movement of people within the country can partly explain the complexity of malaria in India," said Rathod. "However, we do not fully understand the basis for such variations."



"INDIA IS A COUNTRY OF CRITICAL IMPORTANCE FOR UNDERSTANDING THE SPREAD OF VIRULENT MALARIA GLOBALLY," SAYS PRADIPSINH K. RATHOD, LEFT, WITH LAURA CHERY. DENNIS WISE/UNIVERSITY OF WASHINGTON



Schematic diagram of the 1 µM long deadly merozoite form of the malaria parasite, *Plasmodium falciparum*, carrying a mere 5,000 genes in a small 25Mb genome.

L. H. Bannister et al., *Journal of Cell Science*, **2003**, *116*, 3825–3834.

At each site, staff enroll patients to obtain malaria parasite samples and to gather information on patients' health histories. Center staff and partners analyze the parasite samples for signs of drug resistance and to understand the basis for variations in disease presentation. They also sequence parasite genomes to determine their genetic relatedness to one another, and test how well different mosquito species take up various malaria strains.

In addition to setting up complex research infrastructure, in its first seven years the Center has had some surprising findings about malaria in India. Parasites in India show more genetic diversity than parasites in the rest of the world combined, according to Rathod. As a consequence, some standard laboratory tests for drug resistance, developed elsewhere in the world, do not accurately predict whether Indian parasites will show drug resistance.

By getting a clearer picture of malaria in India, we're 'closing the gap' on how this complex parasite behaves globally.

Today the drug artemisinin is considered the best treatment against malaria, but artemisinin-resistant strains of malaria have been identified in Southeast Asia. The Indian government and the South Asia ICEMR are on the lookout for artemisinin resistance among patients in northeastern and eastern India. Beyond that, the South Asia ICEMR is looking for parasites that mutate at extraordinary rates, as seen in Southeast Asia.

"By getting a clearer picture of malaria in India, we're 'closing the gap' on how this complex parasite behaves globally," Rathod said.

For the 2017-2024 cycle, other South Asia ICEMR project leaders are Neena Valecha, director of the National Institute of Malaria Research in India, and Manoj Duraisingh at Harvard University. Additional U.S.-based senior contributors are Joseph Smith at the Center for Infectious Disease Research, Shripad Tuljapurkar at Stanford University and James Kublin and Holly Janes at Fred Hutchinson Cancer Research Center. Additional India-based senior contributors are Anup Anvikar at the National Institute of Malaria Research; Subrata Baidya at Agartala Government Medical College; D.R. Bhattacharrya and P.K. Mohapatra at Regional Medical Research Centre, NE Region; Edwin Gomes at Goa Medical College & Hospital; Sanjeeb Kakati at Assam Medical College; Ashwani Kumar at National Institute of Malaria Research, Goa Field Unit; Sanjib Mohanty and A.K. Singh at Ispat General Hospital; and Swati Patankar at Indian Institute of Technology Bombay.

This story is adapted from coverage by James Urton, UW News, and *Perspectives*, the College of Arts & Sciences newsletter.

SAVE THE DATE FOR THE UNIVERSITY FACULTY LECTURE

Michael H. Gelb, the Boris and Barbara L. Weinstein Endowed Chair in Chemistry and Adjunct Professor of Biochemistry, will deliver the prestigious University Faculty Lecture on Tuesday, January 23, 2018 at 7:30 pm in Kane Hall. A reception will immediately follow. Please save the date!

Soon after the birth of your child, a small sample of blood is mailed off to the newborn screening laboratory. Within days, tests are performed for about 50 genetic diseases so any needed treatment can begin promptly. In response to new treatment options for lysosomal storage diseases, the University of Washington has developed and expanded newborn screening to include these otherwise life-threatening diseases.

The 2017-18 University Faculty Lecture will explore the science of newborn screening as well as the issues surrounding early disease diagnosis at birth. In his talk, Professor Gelb will introduce the key scientists, physicians, and families who have contributed over the past decade to advancing newborn screening, many of whom will be present in person for you to meet. This is an exciting and emotional area of medicine that will challenge every person in the post-genomic era.

Professor Gelb received his Ph.D. in biochemistry from Yale University and was an American Cancer Society Postdoctoral Fellow at Brandeis University. In 1985, he joined the University of Washington Department of Chemistry as an assistant professor. He is now the Boris and Barbara L. Weinstein Endowed Chair in Chemistry and an adjunct professor in the Department of Biochemistry. His research in the area of enzymes and their importance in medicine has made him a globally recognized authority in several critical areas, including: enzymes involved in the production of lipid mediators of inflammation, the discovery of protein prenylation, the development of drugs for treatment of neglected diseases (malaria, African sleeping sickness, and others), and newborn screening for inborn errors of metabolism (the topic of the University Faculty Lecture). He has authored more than 350 original publications and 50 patents.

MICHAEL H. GELB

Professor Gelb has been the recipient of the Alfred P. Sloan Fellowship, a National Institutes of Health MERIT Award, the Gustavus John Esselen Award for Chemistry in the Public Interest from the Northeastern Section of the American Chemical Society, the Medicines for Malaria Venture Project of the Year award, the Pfizer Award in Enzyme Chemistry, the ICI Pharmaceuticals Award for Excellence in Chemistry, and most recently the top American Chemical Society Award in Biological Chemistry: the 2018 Repligen Award for Chemistry of Biological Processes. His research program has benefitted enormously from a supportive chemistry department and the strong Seattle biomedical community.

FACULTY AWARDS & HONORS

Erwin Berthier

Kavli Microbiome Ideas Challenge Grant

Matt Bush

Arthur F. Findeis Award for Achievements by a Young Analytical Scientist, American Chemical Society (2017)

Charles Campbell

Inaugural Wolfgang Sachtler Lecturer, Center for Catalysis & Surface Science, Northwestern University

Daniel Chiu

Director's Transformative Research Award, National Institutes of Health

Gary Christian

The Shirley B. Radding Award, Santa Clara Valley Section of the American Chemical Society (2017)

Brandi Cossairt

Camille Dreyfus Teacher-Scholar (2017)

Molecular Engineering Materials Center, Materials Research Science and Engineering Center (MRSEC) program, National Science Foundation

Thom Dunning

Center for Scalable, Predictive Methods for Excitation and Correlated Phenomena, Office of Basic Energy Sciences, Department of Energy

Dan Fu

Beckman Young Investigator Award, Arnold and Mabel Beckman Foundation (2017)

Daniel Gamelin

Principal Investigator, Molecular Engineering Materials Center, Materials Research Science and Engineering Center (MRSEC) program, National Science Foundation

Michael Gelb

University Faculty Lecture Award

Repligen Corporation Award in the Chemistry of Biological Processes, American Chemical Society (2018)

David Ginger

Inaugural Angstrom Engineering Distinguished Lecturer, University of Toronto

Cottrell Scholars TREE Award (2017)

Molecular Engineering Materials Center, Materials Research Science and Engineering Center (MRSEC) program, National Science Foundation

Karen Goldberg

Elected Fellow, American Academy of Arts and Sciences

Xiaosong Li

Center for Scalable, Predictive Methods for Excitation and Correlated Phenomena, Office of Basic Energy Sciences, Department of Energy

Commute Champion, Transportation Services, University of Washington

Molecular Engineering Materials Center, Materials Research Science and Engineering Center (MRSEC) program, National Science Foundation

Christine Luscombe

Co-Principal Investigator, Molecular Engineering Materials Center, Materials Research Science and Engineering Center (MRSEC) program, National Science Foundation

Anne McCoy

Brian Kohler Distinguished Lecturer, University of California, Riverside (2017)

Ashleigh Theberge

Kavli Microbiome Ideas Challenge Grant

Joshua Vaughan

Director's Transformative Research Award, National Institutes of Health

Sotiris Xantheas

Greek Diaspora Fellowship, The Fulbright Foundation in Greece

Center for Scalable, Predictive Methods for Excitation and Correlated Phenomena, Office of Basic Energy Sciences, Department of Energy

Jesse Zalatan

Maximizing Investigators' Research Award, National Institutes of Health

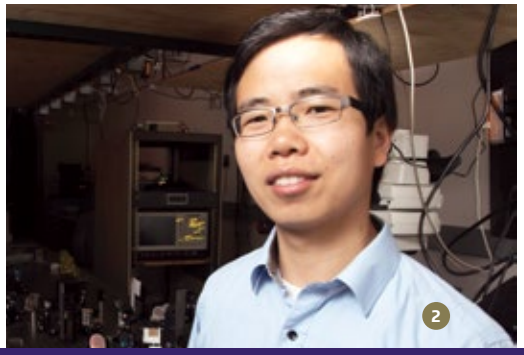
POSTDOCTORAL RESEARCH ASSOCIATE FELLOWSHIPS & AWARDS

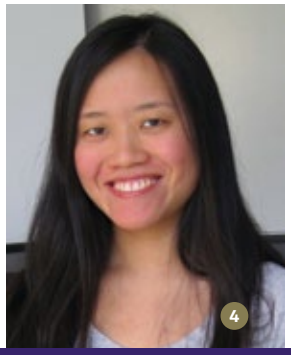
Glenna Foight

Washington Research Foundation Innovation Fellowship (Institute for Protein Design)

Kelly Kim

Ruth L. Kirschstein National Research Service Award, National Institutes of Health





1 ERWIN BERTHIER **2** DAN FU **3** ASHLEIGH THEBERGE (MIDDLE) AND MEMBERS OF HER RESEARCH GROUP **4** KELLY KIM

GRADUATE FELLOWSHIPS & AWARDS

Madhu Balasubramanian

Lyle H. Jensen
Graduate Fellowship

Samuel Berry

National Science Foundation
Graduate Research Fellowship

Mark Boyer

Martin P. Gouterman Endowed
Fellowship in Chemistry

Jason Chen

Arthur G. Anderson Endowed
Fellowship in Chemistry

Emily Cliff

ARCS Foundation Endowed
Fellowship

Caitlin Cornell

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

Emma D'Ambro

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

Kimberly Davidson

Bruce R. Kowalski Award for
Multidisciplinary Research in
Areas of Industrial Significance

Ryan DiRisio

Rowland Endowed Fellowship
in Chemistry

Michael Enright

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

Heather Ewing

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

Hannah Feldman

Regan and Kathy Shea Endowed
Fellowship in Chemistry

Zachary Fox

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

Christopher Freye

Christopher and Karen Pohl
Endowed Fellowship
in Chemistry

Bruce R. Kowalski Award for
Multidisciplinary Research in
Areas of Industrial Significance

James Gaynor

Norman and Lillian Gregory
Endowed Fellowship
in Chemistry

Joseph Heindel

Norman and Lillian Gregory
Endowed Fellowship
in Chemistry

Kira Hughes

George and Agnes Irene Cady
Endowed Fellowship
in Chemistry

Joseph Kephart

Kwiram/CCR Fellowship

Kyle (Tk) Kluherz

Mickey and Karen Schurr
Endowed Graduate Fellowship
in Chemistry

Min Yen Lee

Raymond and Sally Paxton
Endowed Fellowship
in Chemistry

Ulri Lee

Tomas Hirschfeld Endowed
Fellowship in Chemistry

Hongbin Liu

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

Yun (Demi) Liu

2017-18 Clean Energy Institute
Graduate Fellowship

Bryce Manifold

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

Amy Mayhugh

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

Tyler Milstein

2017-18 Clean Energy Institute
Graduate Fellowship

Madison Monahan

Gary and Sue Christian Graduate
Fellowship in Chemistry

Nicholas Montoni

Husky 100

Heidi Nelson

Dorothy Shimasaki Gilmer
Endowed Fellowship

Huong (Ivy) Nguyen

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

Marissa Parker

Howard J. Ringold Endowed
Fellowship in Chemistry

Zachary Potter

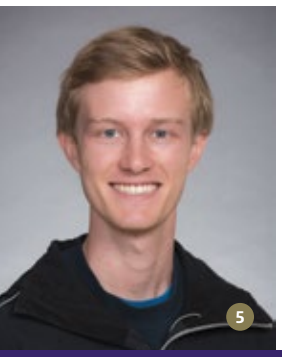
Lewis R. and Joan M. Honnen
Endowed Fellowship
in Chemistry

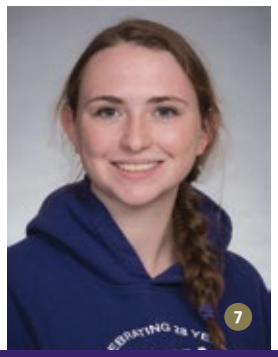
Steven Quillin

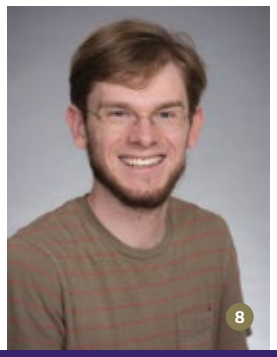
S.P. Pavlou and D.E. Strayer
Endowed Fellowship
in Chemistry

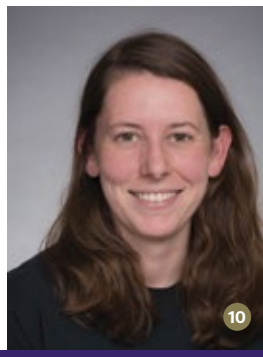
Griffin Ruehl

2017-18 Clean Energy Institute
Graduate Fellowship









5 MARK BOYER **6** JASON CHEN **7** EMILY CLIFF **8** KYLE (TK) KLUHERZ **9** AMY MAYHUGH **10** MARISSA PARKER

Yukako Sakazaki

David M. Ritter Endowed Fellowship in Chemistry

Jason Sandwisch

Benton Seymour Rabinovitch Endowed Fellowship in Chemistry

Johanna Schwartz

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

Julian Smith-Jones

Regan and Kathy Shea Endowed Fellowship in Chemistry

Parker Sommerville

Early 60s PhD Alumni Endowed Fellowship in Chemistry

Jennifer Stein

Joseph Bouknight Endowed Fellowship for Chemistry

Sarah Sweger

Schomaker Endowed Fellowship in Chemistry

Niket Thakkar

2017 Graduate School Medal

David Ung

2017-18 Clean Energy Institute Graduate Fellowship

Tammi Van Neel

Faculty Endowment for Graduate Study in Chemistry

Emilie Viglino

Irving and Mildred Shain Endowed Fellowship in Chemistry

Sarah Vorpahl

2017-2018 Science and Engineering Congressional Fellowship, Materials Research Society and The Optical Society

Anne Claire Wageman

Slutsky Endowed Fellowship

Robert Weakly

Larry R. Dalton Graduate Fellowship

David Williams-Young

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

Jitkanya (Jenn) Wong

Amy Scott and Stephen C. Alley Endowed Fellowship in Chemistry

Benjamin Zercher

ARCS Foundation Endowed Fellowship

Wei Zhang

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

2016–17 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.

Emma D'Ambro

Le Moyne College (Syracuse, New York)

Thomas Edwards

University of Utah (Salt Lake City)

Yunshan Fan

Beijing Institute of Technology (China)

Hannah Feldman

Colorado State University (Fort Collins)

Christopher Freye

University of Tennessee (Knoxville)

Addie Kingsland

University of Utah (Salt Lake City)

Kenneth Laszlo

Georgia Institute of Technology (Atlanta)

Heidi Nelson

University of Minnesota (Minneapolis)

Soumyadyuti Samai

Presidency College, University of Calcutta (Kolkata, India)

Emilie Viglino

University of Central Florida (Orlando)

1 YUKAKO SAKAZAKI **2** JULIAN SMITH-JONES **3** PARKER SOMMERVILLE **4** TAMMI VAN NEEL **5** ANNE CLAIRE WAGEMAN **6** ROBERT WEAKLY

UNDERGRADUATE FELLOWSHIPS & AWARDS

Nasser Alrashdi

Distinguished Achievement in Chemistry Research

Kyla Berry

Distinguished Achievement in Chemistry Research

Rachel Boccamazzo

Bonderman Travel Fellowship

Athena Bollozos

Distinguished Achievement in Biochemistry Research

Sierra Broker

Martha R. Sklar Endowed Scholarship

Kyle Curtis

Husky 100

Hannah Damitio

Zalia Jencks Rowe Undergraduate Tuition Scholarship

Jose de los Rios

Donald J. Hanahan Endowed Scholarship in Chemistry or Biochemistry

Quynh Do

Boeing Scholarship

Distinguished Achievement in Chemistry Research

Washington Research Fellowship

Alice Dong

Distinguished Achievement in Biochemistry Research

Ashlee Evans

Distinguished Achievement in Biochemistry Research

Zachary Gottschalk

Distinguished Achievement in Biochemistry Research

Aengela Kim

Distinguished Achievement in Biochemistry Research

Hyeon-Jin Kim

P. C. Cross Award

Ed F. and Clara M. Degering Tuition Scholarship

Levinson Emerging Scholar

Washington Research Fellowship

Jason Joon Yup Kim

Rex J. and Ruth C. Robinson Scholarship in Chemistry

Ulri Lee

Distinguished Achievement in Chemistry Research

Rex J. and Ruth C. Robinson Scholarship in Chemistry

Tongyu Lin

Distinguished Achievement in Biochemistry Research

Ravishankar Madhu

Hyp Dauben Award

Harnoor Kaur Mahal

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Cecilia Martin

Rex J. and Ruth C. Robinson Scholarship in Chemistry

Ashley Mathews

Usha and S. Rao Varanasi Endowed Diversity Scholarship in Chemistry

Alberto Jesus Melchor

H. K. Benson Undergraduate Tuition Scholarship

Sarah Parkhurst

Ed F. and Clara M. Degering Tuition Scholarship

Distinguished Achievement in Chemistry Research

Anika Patel

Distinguished Achievement in Chemistry Research

Alexander Rachkov

P. C. Cross Award

Distinguished Achievement in Chemistry Research

Zachary Ramey

Distinguished Achievement in Chemistry Research

Bobby Shih

Distinguished Achievement in Biochemistry Research

Zoha Syed

Gerald and Sheila Berkelhammer Senior Book Award

Distinguished Achievement in Chemistry Research

Washington Research Fellowship

Ernie Tao

Husky 100

Kahtana Tran

Distinguished Achievement in Biochemistry Research

PoKi Tse

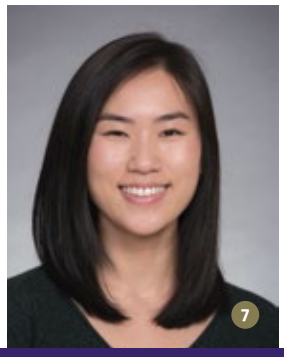
Ed F. and Clara M. Degering Tuition Scholarship

Distinguished Achievement in Chemistry Research

Achombom Jude Tunyi

Gerald and Sheila Berkelhammer Senior Book Award

Levinson Emerging Scholar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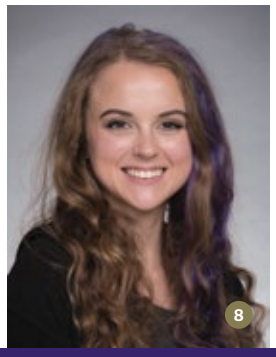
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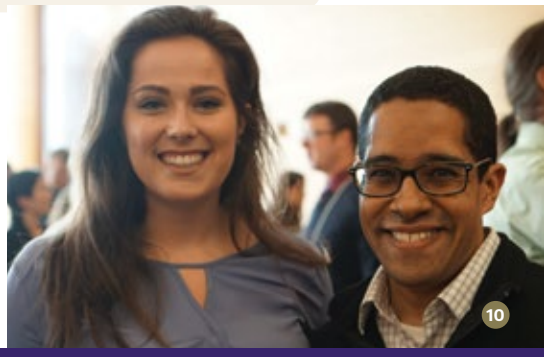
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7 ULRI LEE **8** SARAH PARKHURST **9** HANNAH DAMITIO (RIGHT) WITH BETSY SPELTZ AND JESSE ZALATAN **10** CECILIA MARTIN WITH AL NELSON

Ethan Vo

Freshman Achievement Award

Michelle Ann Wasan

Husky 100

Timothy Welsh

Ed F. and Clara M. Degering Tuition Scholarship

Husky 100

ThinkSwiss Research Scholarship

Kaelan Yu

Earl W. Davie Endowed Scholarship in Chemistry or Biochemistry

Phillip Zhu

Distinguished Achievement in Biochemistry Research

DOCTORAL DEGREES AWARDED

Samuel Allen, Ph.D. Chemistry

Development of Ion Mobility Mass Spectrometry Instrumentation to Investigate the Gas-Phase Structures of Protein and Protein Complex Ions

(Assistant Professor Matthew Bush)

Jordan Anderson, Ph.D. Chemistry

Caps-Turns-Loops: Designing Better ß-Hairpins

(Professor Niels Andersen)

Wilson Bailey, Ph.D. Chemistry

Late Transition-Metal Complexes Supported by Pincer Ligands: Applications in Partial Oxidation Catalysis

(Professor Karen Goldberg)

Charles Barrows, Ph.D. Chemistry

Helping Observe and Tune Diffusion Using Mn^{2+} Photophysics in Inorganic Nanocrystals after Growth

(Professor Daniel Gamelin)

Matthew Chang, Ph.D. Chemistry

SNAP-tag Based Affinity Reagents for Proteomic Profiling of Cell Signaling

(Professor Dustin Maly)

Derek Church, Ph.D. Chemistry

Exploring the Thermal and Mechanochemical Reactivity of 1,2-Oxazine Hetero-Diels–Alder Adducts for Stimuli-Responsive Polymers

(Associate Professor AJ Boydston)

Adam Colbert, Ph.D. Chemistry

Spectroscopic Characterization of Interfacial Charge Transfer and Recombination in Polymer/Quantum Dot Blends

(Professor David Ginger)

Daniel Cunningham-Bryant, Ph.D. Chemistry

Small-Molecule Gated Artificial Regulatory Domains: A Novel Tool for Dissecting Signaling Pathways

(Professor Dustin Maly)

Kimberly Davidson, Ph.D. Chemistry

Investigation of the Fundamentals of Electrospray Ionization and the Separation of Small Molecules Using Ion Mobility Mass Spectrometry

(Assistant Professor Matthew Bush)

Heather Ewing, Ph.D. Chemistry

Phospholipase A_2 Research: Protein Capture, Enzymatic Assay, and Receptor Binding

(Professor Michael Gelb)

Benjamin A. Glassy, Ph.D. Chemistry

The Role of Precursor Conversion in the Nucleation and Growth of Zinc Pnictide Based Semiconductor Quantum Dots

(Assistant Professor Brandi Cossairt)

Joshua Goings, Ph.D. Chemistry

Breaking Symmetry in Time-Dependent Electronic Structure Theory to Describe Spectroscopic Properties of Non-Collinear and Chiral Molecules

(Professor Xiaosong Li)

Jonathan Goldberg, Ph.D. Chemistry

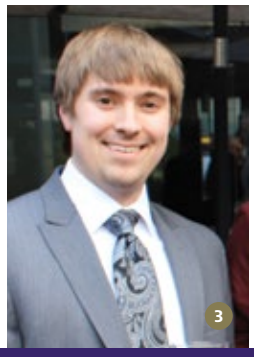
Preparation and Characterization of Iridium Hydride and Dihydrogen Complexes Relevant to Biomass Deoxygenation

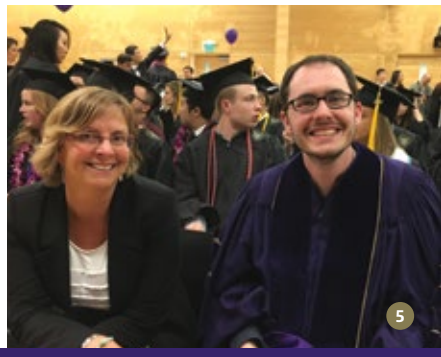
(Professor Karen Goldberg)

Ellen Hayes, Ph.D. Chemistry

Electronic and Geometric Structure of Biological Spin Centers Investigated with EPR Spectroscopy

(Assistant Professor Stefan Stoll)





1 DEREK CHURCH **2** KIMBERLY DAVIDSON **3** BENJAMIN A. GLASSY **4** JONATHAN GOLDBERG WITH LOUISE GUARD AND NATALIE HILLERSON **5** BENJAMIN LEIPZIG WITH JULIE KOVACS

Stephanie Hemmingson, Ph.D. Chemistry

Fundamental Insights into Catalyst Design: Energetics of Metal Atom Adsorption and Nanoparticle Adhesion on Oxide Surfaces

(Professor Charles Campbell)

Eleanor Johnson, Ph.D. Chemistry

Cells Incognito: Microfluidic Tools for Detecting and Isolating Cancer Cells

(Professor Daniel Chiu)

Kenneth Laszlo, Ph.D. Chemistry

Investigating the Relationship Between the Gas-Phase Structures of Protein Ions and Their Charge States

(Assistant Professor Matthew Bush)

Benjamin Leipzig, Ph.D. Chemistry

Electronic Activation and Tuning of Redox-Active Ligand Orbitals

(Professor Julia Kovacs)

Patrick Lestrange, Ph.D. Chemistry

Modeling Core Excitations and Preserving Spin Symmetry in Molecular Systems

(Professor Xiaosong Li)

David Lingerfelt, Ph.D. Chemistry

Excited State Chemical Dynamics: Beyond the Born-Oppenheimer Approximation

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Melrose Mailig, Ph.D. Chemistry

Copper-Catalysis in Synthesis of Alkyl Fluorides, Sterically Hindered Anilines, and 1,4-Dienes

(Associate Professor Gojko Lalic)

Stephen Oja, Ph.D. Chemistry

Development of Fluorescence-Enabled Electrochemical Microscopy for Electrochemical Imaging and Detection

(Professor Bo Zhang)

David Pinkerton, Ph.D. Chemistry

Fundamental Considerations in One and Two-Dimensional Chromatography for Improved Chemometric Analysis

(Professor Robert Synovec)

Scott Rayermann, Ph.D. Chemistry

Hallmarks of Reversible Phase Separation in Living, Unperturbed Cell Membranes

(Professor Sarah Keller)

Brooke Reaser, Ph.D. Chemistry

Advanced Chemometric Techniques for the Analysis of Complex Samples Using One- and Two-Dimensional Gas Chromatography Coupled with Time-of-Flight Mass Spectrometry

(Professor Robert Synovec)

Kayla Sapp, Ph.D. Chemistry

Pin the Protein on the Membrane: Using Numerical Simulations to Explore Membrane-Protein Systems

(Assistant Professor Lutz Maibaum)

Kalkena Sivanesam, Ph.D. Chemistry

Biological Applications of Designed Hairpin Peptides: As Antimicrobials and Inhibitors of Amyloidogenesis

(Professor Niels Andersen)

Tyler Stevens, Ph.D. Chemistry

Alkyl-heteroatom Bond Forming Reactions from the Late Transition Metals

(Professor Karen Goldberg)

Alison Thompson, Ph.D. Chemistry

Single-Cell Molecular Profiling of Nucleic Acids in the Microfluidic Self-Digitization Chip

(Professor Daniel Chiu)

Bridget Trevillian, Ph.D. Chemistry

Developing a Small Molecule Regulated Cre Recombinase and A Chemical-Genetic Strategy for the Investigation of Kinase Non-Catalytic Function using Covalent Conformation-Selective Inhibitors

(Professor Dustin Maly)

Emilie Viglino, Ph.D. Chemistry

New Tandem Mass Spectrometric Methods of Structure and Sequence Elucidation for Synthetic and Tryptic Peptides

(Professor František Tureček)

Nathanial Watson, Ph.D. Chemistry

Development of Instrumental and Computational Methods for Accessing Information in Multi-Dimensional Gas Chromatography with Mass Spectrometry

(Professor Robert Synovec)

Caroline Weller, Ph.D. Chemistry

Development of Auxiliary-Mediated Protein Semisynthesis Methods toward the Study of Histone SUMOylation

(Associate Professor Champak Chatterjee)

Reestablishing contact with our postdoctoral research alumni

The Department of Chemistry is hoping to reestablish contact with our former postdoctoral research associates. We have contact information for just a small number of the hundreds of postdocs who have studied with us through the years. Can you help us? Do you know the whereabouts of any postdocs you knew or worked with when you were at the UW? If so, we would appreciate you contacting them on our behalf to ask them to email us at chemdept@uw.edu. Thank you!

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During the past decade, we have seen a remarkable transition in publicly funded higher education. A decade ago, gift-derived funds played a small role in our programs, funding the occasional student fellowship or lecture. A decade later, we and other public institutions of higher education are heavily reliant upon gift funds for support of our baseline program. Today, annual gifts and endowment-derived funds are critical to every aspect of our teaching and research. Students, faculty, and staff are the beneficiaries of your gifts.

The UW Department of Chemistry is extraordinarily fortunate to have literally thousands of friends and alumni, a large fraction of whom contribute generously to our programs. We are deeply indebted to the donors named below. With your help, we are providing state of the art education to the current generation of students. Thank you!

If you are among our chemistry or biochemistry alumni who have never given back to the Department of Chemistry, we hope you will reconsider that choice. Our ability to help the current generation of students to achieve their dreams depends upon your gift. Thank you in advance for thinking of our students.

If your name is missing or misspelled we apologize and hope you will let us know.

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LETTER FROM THE CHAIR *continued from page 1*

Assistant Professor Brandi Cossairt was named a Camille Dreyfus Teacher-Scholar; Assistant Professor Dan Fu won the Beckman Young Investigator Award; Assistant Professor Ashleigh Theberge received a Kavli Microbiome Ideas Challenge Grant; Assistant Professor Josh Vaughan received a Transformative Research Award from the National Institutes of Health. Professor Michael Gelb won the Repligen Award in the Chemistry of Biological Processes and was also named the 2017-18 University Faculty Lecturer. I encourage you to attend this public lecture, which will be on January 23, 2018.

I am pleased to announce the establishment of a new endowed fund for support of students, the Charles Dean Wolbach Endowed Fund in Chemistry. The late Dean Wolbach was an alumnus of our department, having completed his doctoral degree in 1969 under the supervision of Professor William S. Chilton. Dean's widow, Sharon Wolbach, generously established this fund, bringing the total number of endowed funds in Chemistry to 84.

We continue to rely on the generosity of our friends, whose donations provide a vital supplement to our state funding. Your gifts directly impact the quality of the instruction that we can offer to our students. Thank you for giving back.

Sincerely,

D. Michael Heinekey
Professor and Chair

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