# LUMNI NEWS Spring 2017

### **CU Denver Chemistry Department**

# A Word from the Chair

Inside this Issue	
A Word from the Chair, Haobin Wang	Pg. 1
Dr. Scott Reed's Stockholm Sabbatical	Pg. 2
Dr. Karen Knaus 2016 COACS Salute to Excellence Award	Pg. 2
CU Denver Chemistry Club	Pg. 2
2016/2017 Student Recognition Award Recipients	Pg. 3
Faculty Publications	Pg. 4



EDITOR: Lorrie Vigil Lorrie.Vigil@ucdenver.edu 303.556.3259

The college's Annual Scholarship Celebration took place on Thursday, April 20. This event brought together the donors who contributed to College of Liberal Arts and Sciences (CLAS) scholarship funds with the students who benefited from receiving those scholarships. As part of the luncheon, there was a short program including speaking points from both a scholarship donor as well as an outstanding student recipient. Chelsi Lopez, a graduating senior from the Chemistry Department, shared the importance and impact of scholarships from her respective views. Becoming financially independent after high school, Chelsi thrived in college with the help of scholarships. She has been accepted by the graduate program in University of Miami and will pursue a Ph.D. degree in Ocean Science with a concentration in Marine Biogeochemistry. We wish Chelsi all the best in her future endeavor.

Students like Chelsi are recognized annually in the departmental undergraduate award ceremony. This year the ceremony was also held on May 12. A list of our awardees and their group pictures are included in this newsletter. Again we have a group of excellent students. It is such a great pleasure to watch students excel.

It is often said that a teacher is really a crucial person in a student's life. In the Chemistry Department we have a group of dedicated faculty who work tireless to improve the quality of teaching and student-centered research. This year four outstanding

faculty members were recognized at the CLAS award ceremony for their special achievements. Dr. Margaret (Peggy) Bruehl was honored as one of the college's Outstanding Faculty Award recipients for her achievement in teaching chemical education. Moreover, Peggy was also the recipient of the university award in this category. Dr. Marino Resendiz received the CLAS Award for Enhancing Diversity and Inclusion in Teaching, Research, and Leadership/Service. Dr. Scott Reed received the CLAS Excellence Service and Leadership



Award, and Dr. Xiaojun Ren was recognized by the CLAS Excellence in Research and Creative Activities Award. It has been an honor working with these colleagues. They have done extraordinary work to improve the department.

In the coming academic year the department will welcome a new member: Dr. Emilie Brigitte Guidez from Iowa State University will be appointed as a tenure-track Assistant Professor. Emilie's research specialty is in theoretical/computational chemistry, in particular electronic structure theory study in chemistry and material science. Now that there are four faculty members with research expertise in computational chemistry (Emilie Guidez, Hai Lin, Haobin Wang, and Xiaotai Wang) and an adjoined professor (Michael Crowley) in the same area, the department will propose to establish a Center for Computational Chemistry in the next year.

The launch of a BS Biochemistry program is underway. CLAS Dean Pam Jansma has expressed her support of this program, and the department is working with the Institutional Planning to begin putting together the budget for the proposal. Led by Dr. Jeff Knight, this represents the most significant change for the department over the past ten years. Meanwhile, the revision of the MS program is almost complete. The new program has started to offer four MS tracks: a Biochemistry Track, a Synthesis and Measurement Track, and a Molecular Modeling Track. Students interested in gaining experience in a broad range of chemistry are encouraged to consider the traditional track. The department has also established a joint BS-MS program with the Chemistry Department of the Metropolitan State University of Denver. A significant increase in the number of graduate students is expected in the next few years. On a personal note, may I offer words of appreciation to all alums who have helped the department in the past year. I would like to hear your thoughts on how to further improve our program. If you are interested in serving in the department external advisory board, please let us know.

Sincerely,

Haobín Wang

#### Dr. Scott Reed's Stockholm Sabbatical



During the 2015-2016 academic year, Professor Scott Reed was on sabbatical at Stockholm University in Sweden. Professor Reed was appointed as a Visiting Professor in the Department of Biochemistry and Biophysics. Work-

ing in the lab of Professor Peter Brzezinski, the goal of this sabbatical was to improve the understanding of how the vesicle transport system overcomes the energetic barrier of merging two lipid membranes.

While abroad, Dr. Reed witnessed many Swedish traditions including some interesting academic traditions. For example, one tradition

involved their PhD defense. A few months before defending a PhD thesis, a student takes part in a "spikning". This involves nailing your PhD thesis to a tree. Every department has their own



tree (usually just a large piece of bark, really)

conveniently located for students. There was usually a hammer tied to a string hanging from the tree. The beautifully printed theses were often spared the nail and simply hung by a string.

The PhD thesis defense was also quite different from the experience in the US. The defense was a much more involved process. Dr. Reed served as a committee member on two defenses where he was able to witness the special role of the "opponent", a tradition absent

from US theses defenses. The opponent is a special member of the committee who gives a 15 to 45 minute introduction to the thesis work. Sometimes they talk longer than the student.



for a "fika" during the day. Fika is the Swedish tradition of taking time out of the day to have a coffee and a snack with your co-workers.

A highlight of the year for Dr. Reed was getting to attend the Nobel Prize ceremony. The ceremony takes place in December, a cold but beautiful time of year in Stockholm. The entire city takes notice of the ceremony and surrounding events. The hotel that houses the laureates displays the flags from their countries of origin. The city with otherwise unimpeachable public transportation grinds to a halt near the concert hall where the King awards the prizes. And the laureates in Chemistry, Physics, and Economics come to Stockholm University to give free public lectures on their research during the week leading up to the ceremony. There are not many tourists in Stockholm in early December, but for a scientist, there could-

n't be a better time to visit.



#### Dr. Karen Knaus Awarded the 2016 COACS Salute to Excellence Award



Assistant Professor Karen Knaus received the 2016 COACS (Colorado Section American Chemical Society) Salute to Excellence Award. The work that led to the nomination for this award was cited as

"Karen Knaus has been on the student award committee for many years, reading student applications for travel awards to go to scientific meetings." Dr. Karen Knaus has served in the capacity of the Chairperson of the Colorado Section ACS Student Travel Award committee for the last 7+ years. Dr. Knaus' work in this capacity involves: (1) updating application materials for the COACS website; (2) collecting and organizing student applications for each award cycle (twice a year); (3) checking over

and reading student application materials for the award (including letters of recommendation); (4) selecting award winners; (5) crafting award letters; (6) sending award letters to award recipients and their faculty advisors; and, (7) coordinating and communicating information about travel fund reimbursement with the COACS Treasurer.

Professor Knaus' COACS student travel award letters are not your ordinary award letters. Instead, Professor Knaus' student award letters contain inspirational words of appreciation, good will and honor, by encouraging students to "triumph in your excitement as you learn and move forward on your research project with passion and perseverance", "share this good news with family, friends, teachers and advisors who have supported you throughout your academic career" and to feel honored, "It is with honor that we present this award to vou".

Professor Karen Knaus has also served on the COACS High School Award Committee, ACS Fellows Award Committee and participated in several Chemistry Education Outreach Events in the Denver community representing both the Colorado Section of the American Chemical Society and the Chemistry Department at the University of Colorado Denver. Dr. Knaus has increased the visibility of Chemical Education not only through her research and teaching activities at the University of Colorado Denver, but through her service to the Colorado Section of the American Chemical Society for the last 7+ years for which she was able to provide financial and moral support to approximately 100 Colorado Higher-Education Students, their faculty advisors, and their extended learning communities.

#### CU Denver Chemistry Club



In the fall, the Chemistry Club hosted a CV workshop with Dr. Scott Reed. The workshop helped stu-

dents from various work backgrounds create a CV. Their most successful event in the fall was the 4<sup>th</sup> annual DataBlast. DataBlast is an undergraduate student research symposium that helps introduce students to the various research opportunities on campus. This event also give presenters the opportunity to gain experience presenting in an informal setting and is also a

lah

During the Spring semester, the club hosted their 1st annual Graduate School in the Sciences event. Dr. Kristine Sikora, a recruitment director for CU Denver Graduate School gave a presentation about various scientific fields. This event was created to help attendees gain insight into what graduate school is and how to become a competitive applicant. This was also an opportunity for students to network with faculty and students from the graduate school. The club also participated in the Denver Metro Regional

great way for PIs to get the word out about their Science and Engineering Fair and performed the red cabbage pH lab using household items. The club also participated in the Feed the Need Competition and collected donations for the CU Denver Food Pantry to help students in need. Lastly, for fundraising the club sold ACS study guides and lab goggles.

> The club would like to give thanks to the club advisor, Dr. Maroń, Dr. Scott Reed, Dr. Karen Knaus, Lorrie Vigil, the Department Chemistry Faculty, SGA and students who helped promote the club and for everyone's contributions!

#### 2016-2017 Student Recognition Awards Recipients



#### 2016-2017 Award Recipients left to right:

Matilda Hallet, Cassandra Herbert, Chloe Pitsch, Angela Nguyen, Nia Travers, Haobin Wang (Professor and Chairman), Mikias Negussie, Thao Huynh, Lana Salah, Desmond Hamilton, Sami Hourieh, Danielle Miller, Robera Oljira, Keegan Caroll



**Douglas F. Dyckes Award:** Dr. Douglas F. Dyckes, Danielle Miller, Dr. Haobin Wang



**General Chemistry Award:** Matilda Hallet, Keegan Caroll, Dr. Haobin Wang



**Robert Damrauer Award:** Cassandra Herbert Dr. Haobin Wang



**Honors General Chemistry Award:** Mikias Negussie Dr. Haobin Wang



**Douglas F. Dyckes Award** 

**Robert Damrauer Award:** 

Marti Barrett Scholarship:

**Michael Milash Award:** 

**General Chemistry:** 



Danielle Miller Chloe Pitsch

Sami Hourieh Lana Salah

Nia Travers

Keegan Caroll Matilda Hallet



Marti Barrett Award: Danielle Miller, Dr. Haobin Wang, Chloe Pitsch



**Inorganic Chemistry Award:** Robera Oljira Dr. Haobin Wang



**Outstanding Graduates Award:** Desmond Hamilton, Thao Huynh, Dr. Haobin Wang

#### **Honors General Chemistry:**

**Inorganic Chemistry:** 

**Organic Chemistry:** 

**Analytical Chemistry:** 

**Biochemistry:** 

**Outstanding Graduates:** 



Michael Milash Award: Sami Hourieh, Lana Salah, Dr. Haobin Wang, Nia Travers



Analytical Chemistry Award: Angela Nguyen Dr. Haobin Wang

Mikias Negussie

Robera Oljira

Adnan Syed

Angela Nguyen

Tim Spotts

Desmond Hamilton Thao Huynh

## CU Denver Chemistry Faculty Publications

L. G. Anderson, Effects of Using Renewable Fuels on Vehicle Emissions, Renewable and Sustainable Energy Reviews, 47, 162-172, 2015. DOI information: 10.1016/j.rser.2015.03.011

L. G. Anderson, Effects of Biodiesel Fuels Use on Vehicle Emissions, Journal of Sustainable Energy and Environment, 3, 35-47.

Margaret Bruehl, Denise Pan, and Ignacio J. Ferrer-Vinent. Demystifying the Chemistry Literature: Building Information Literacy in First-Year Chemistry Students through Student-Centered Learning and Experiment Design. Journal of Chemical Education Article ASAP September 11, 2014 DOI: 10.1021/ed500412z.

"Introducing Scientific Literature to Honors General Chemistry Students: Teaching Information Literacy and the Nature of Research to First-Year Chemistry Students". Ignacio J. Ferrer-Vinent, Margaret Bruehl, Denise Pan, and Galin L. Jones J. Chem. Educ., 2015, 92 (4), pp 617-624.

Damrauer, R., Stanton, J. F., (2012). Studies of 1,2-Dihalo Shifts in Carbon-Carbon, Carbon-Silicon, Silicon-Silicon Systems: Computational Study, Organometallics, 2012, 31, 84268436

Damrauer, R., (2010) Interactions of Tetrahedrane and Tetrasilatetrahedrane with CH2 and SiH2: A computational Study, Organometallics, 2010, 29, 4975-4982.

Knaus, K. J. and Hund, A. J. (2014). Inuit Concepts of "Naklik" and "Ilira". In Antarctica and the Arctic Circle: A Geographic Encyclopedia of the Earth's Polar Regions. (Vol. 1, pp. 398-399). Santa Barbara, CA: ABC-CLIO, LLC,

Tang, ., T. Tran, H. Kim, A. Hund, and Knaus, K. J (2013). "eLmaps: An Educational Software Application based on Principles of Cognitive Linguistics and Cognitive Science." International Journal of Technology, Knowlede, and Society, 8(5): 49-64.

Vasquez, J.K., Chantranuvatana, K., Giardina, D.T., Coffman, M.C., and Knight, J.D. (2014/2015) Lateral diffusion of proteins on supported lipid bilayers: Additive friction of synaptotagmin 7 C2A-C2B tandem domains. Biochemistry, in press.

Lvakhova, T.A. and Knight, J.D. (2014) The C2 domains of granuphilin are high-affinity sensors for plasma membrane lipids. Chemistry and Physics of Lipids, 182, 29-37. Invited submission for special issue on phosphoinositides.

Pezeshki, S.; Davis, C.; Heyden, A.; Lin, H. Adaptive-Partitioning QM/MM Dynamics Simulations: 3. Solvent Molecules Entering and Leaving Protein Binding Sites. Journal of Chemical Theory and Computation 2014, 10, 4765-4776.

Pezeshki, S.; Lin, H. Molecular dynamics simulations of ion solvation by flexible-boundary QM/MM: On-the-fly partial charge transfer between QM and MM subsystems. Journal of Computational Chemistry 2014, 35, 1778-1788.

Leng, C. B.; Roberts, E. R.<sup>®</sup>; Zeng, G.; Zhang, Y. H.; Liu, Y.\*, Effects of Temperature, pH, and Ionic Strength on the Henry's Law Constant of Triethylamine. Geophys. Res. Lett. 2015, DOI: 10.1002/2015GL063840

Leng, C. B.; Pang, S. F.; Zhang, Y.; Cai, C.; Liu, Y.\*, Zhang, Y. H.\*, Vacuum FTIR Observation on the Dynamic Hygroscopicity and Efflorescence of Aerosols under Pulsed Relative Humidity, Environ. Sci. Technol., 2015, under revision.

Reid E. Messersmith, Greg J. Nusz, and Scott M. Reed. "Using the Localized Surface Plasmon Resonance of Gold Nanoparticles to monitor Lipid Membrane Assembly and Protein Binding." Journal of Physical Chemistry C. 2013, DOI: 10.1021/ip406013g.

Benjamin R. Ayres and Scott M. Reed. "A minor lipid component of soy lecithin causes growth of triangular prismatic gold nanoparticles." Environmental Science: Nano, 2014, DOI:10.1039/C3EN00015J.

Chao Yu Zhen, Huy Nguyen Duc, Marko Kokotovic, Christopher Phiel, Xiaojun Ren (2014) Cbx2 stably associates with mitotic chromosomes via a PRC2 or PRC1-independent mechanism and is needed for recruiting PRC1 complex to mitotic chromosomes. Molecular Biology of the Cell 25:23 3726-3739

Colleen M. Bartmana, Jennifer Egelstona, Xiaojun Ren, Raibatak Dasa, Christopher J. Phiel (2014) A simple and efficient method for transfecting mouse embryonic stem Cells using polyethylenimine. Experimental Cell Research Aug 4.

Bo Cheng<sup>#</sup>, Xiaojun Ren, Tom K Kerppola (2014) KAP1 represses differentiation-inducible genes in embryonic stem cells through cooperative binding with PRC1 and derepresses pluripotencyassociated genes. Molecular and Cellular Biology 34(11):2075-91

X. Chen, W. Fang, and H. Wang, "Slow Deactivation Channels in UV-photoexcited Adenine DNA", Phys. Chem. Chem. Phys., 16, 4210 (2014).

E. Y. Wilner, H. Wang, G. Cohen, M. Thoss, and E. Rabani. "Nonequilibrium Quantum Systems with Electron-phonon Interactions: Transient dynamics and approach to Steady State", Phys. Rev. B, 89, 205129 (2014).

Dang, Y.; Qu, S.; Nelson, J. W.; Pham, H. D.; Wang, Z.-X.; Wang, X. "The Mechanism of a Ligand-Promoted C(sp<sup>3</sup>)-H Activation and Arylation Reaction via Palladium Catalysis: Theoretical Demonstration of a Pd(II)/Pd(IV) Redox Manifold," J. Am. Chem. Soc. 2015, 137, 2006-2014.

Nelson, J. W.; Grundy, L. M.; Dang, Y.; Wang, Z.-X.; Wang, X. "Mechanism of Z-Selective Olefin Metathesis Catalyzed by a Ruthenium Monothiolate Carbene Complex: A DFT Study," Organometallics 2014 33 4290-4294

#### **CU Denver Chemistry Faculty**

Larry Anderson, Prof. Emeritus Margaret Bruehl Priscilla Burrow Robert Damrauer Douglas Dyckes Prof. Emeritus Hai Lin Vanessa Fishback Kim Nan Kyoung

Doris Kimbrough Scott Reed Karen Knaus Jefferson Knight Jung-Jae Lee Yong Liu Marta Maroń

Xiaoiun Ren Marino Resendiz Liliya Vugmeyster Xiaotai Wang Haobin Wang



Department of Chemistry University of Colorado Denver Campus Box 194, PO Box 173364 Denver CO 80217-3364 http://www.ucdenver.edu/academics/colleges/CLAS/Departments/chemistry/Pages/Chemistry.aspx