lumni News

Fall 2017

CU Denver Chemistry Department

A Word from the Chair

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When I started here at CU Denver in 2014 there vere six tenure-track Asistant Professors, three Associate Professors, and hree Full Professors in the lepartment. Over the past hree years this composion has changed. At the eginning of this Fall Drs. eff Knight and Liliya ⁷ugmeyster were tenured nd promoted to the rank f Associate Professor. Aeanwhile Drs. Hai Lin nd Scott Reed received promotion to Full Professors. With the recent new hires, the Department of Chemistry has five Full Professors, three Associate Professors and three Assistant Professors. The majority of our faculty have been awarded federal and/ or private grants, all faculty are active in teaching and research. The exponential growth of the department has created a firm foundation for the Department of Chemistry's future plans.

Most recently, Dr. Emilie Guidez joined the department as a theoretical/ computational chemist. With this addition, the department is working toward establishing a Center for Computational Chemistry. The center will be directed by Dr. Michael Crowley and will include five regular faculty members: Emilie Guidez, Hai Lin, Liliya Vugmeyster, Haobin Wang, and Xiaotai Wang. Dr. Crowley is an Adjoined Professor of the department who is a principal scientist in the National Renewable Energy Laboratory (NREL). All members have significant expertise in several areas of modern computational chemistry, including electronic structure theory, molecular dynamics, multi -scale modeling, and quantum dynamics. Their research topics span from small organic reactions, materials at nanoscale, to processes in biomedical systems. The Center for **Computational Chemistry**



will assist to further create a stronger foundation for the department and strengthen collaboration with other departments and institutions.

The department has taken on the task of creating an external advisory board composed of alumni and scientists from local chemical/biotech companies, national labs, and academic institutions to help guide curriculum development and enhance the competitiveness of our graduates. We will work with the advisory board and other CU Denver units to identify opportunities for graduate chemistry

education that can broaden and/or support the program. For example, certificate or specialized professional MS programs for people in industry or seeking an MBA. While a task force has been created and is collecting information, we welcome all your input and ideas on this matter as well as volunteers who want to serve on the board.

We are pleased to announce that on November 16. 2017 the proposed BS in Biochemistry within the College of Liberal Arts and Sciences at CU Denver was approved by all the Board of Regents. New degree proposals no longer need to be approved by the Colorado Department of Higher Education and the degree can now be regarded as official. This new degree was submitted as a track conversion as Biochemistry currently exists as an emphasis pathway, or track, in the BS in Chemistry degree. The director of the program is Dr. Jeff Knight, who also chaired the departmental committee that developed the new curriculum and budget for the proposal and its implementation.

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Word From Chair Continued

The approval of the new Biochemistry BS degree splits the BS in Chemistry into two degrees: Bachelor of Science in Chemistry – current degree, and Bachelor of Science in Biochemistry – new degree. This will greatly enhance the department's role when serving pre-health students as well as strengthening its ties with the Anschutz medical campus. We are very excited about this news and encourage you to forward it to anyone who you feel may be interested.

Overall, during the past three years the department has undergone

significant changes in its BS and MS programs. The number of active faculty and research funding within the department has increased as planned, and the research infrastructure has also improved. We are now ready to begin moving toward establishing a Ph.D. program in Computational and Applied Molecular Science. Not only will this strengthen the graduate program, a Ph.D. program will also enhance the research-based laboratory training for undergraduate students. Beginning January 2018, we will begin working on the Ph.D program proposal details as well as partner-

ships with other departments at CU Denver to build the program.

I welcome your feedback and thoughts.

Sincerely,

Haobín Wang

Haobin Wang

Dr. Emilie Guidez, New Assistant Professor



Dr. Emilie Guidez joined the Department of Chemistry at the University of Colorado Denver as an assistant professor in August 2017. Dr. Guidez

grew up in France near the Swiss border. She became interested in Chemistry at the age of twelve, when she took her first chemistry class. She received her Bachelor's degree in Chemistry from the University of Geneva in Switzerland in 2008. She then moved to the United States where she re-

ceived her Ph.D. in Physical Chemistry from Kansas State University in 2014, under the supervision of Professor Christine Aikens. Her research at Kansas State focused on modeling the optical properties of silver and gold nanoparticles using quantum mechanical methods and determining how these properties can be tuned by varying the size and shape of the system. Dr. Guidez then worked as a postdoctoral researcher for three years under the supervision of Professor Mark Gordon at Iowa State University. Her research at Iowa State focused on the development of new quantum mechanical methods to model the weak interactions between molecules.

Dr. Guidez moved to Colorado after welcoming her new baby boy Logan in August 2017. At CU Denver, she plans on developing computational methods to model nanomaterials in solvent. Applications for this research are diverse, including solar energy harvesting, nanotechnology development, cell imaging and cancer therapy. Dr. Guidez is also passionate about teaching and mentoring students. She will teach physical chemistry courses and introductory chemistry courses. She is looking forward to working with students both in the classroom and in her research group.

CU Denver Chemistry Club



The Chemistry Club had an eventful Fall 2017 semester. The Club

continued their tradition of the 5th annual DataBlast. The DataBlast is a research symposium designed to inform the student body of research opportunities within the Science Departments at the University of Colorado Denver. Through DataBlast, the Chemistry Club hopes to encourage undergraduate students to get in-

volved in on-campus research and learn about other research groups within the university. Additionally, student researchers have the opportunity to gain presentation experience in a low-pressure, semi-formal event. *Continued on pg. 2*

CU Denver Chemistry Club Continued

This is an opportunity for the students to share their research with their peers. This year, The Chemistry Club had three presenters and approximately 50 student audience members. Following presentations, the students were given the opportunity to speak with the presenters one-on-one and learn about the showcased research labs.

For the upcoming Spring 2018

semester, the Chemistry Club plans to volunteer at the Denver Metro Regional Science and Engineering Fair as judges and volunteers. The club had participated in this fair last year with demonstrations, and really enjoyed the community outreach, and will continue this custom. Additionally, The Chemistry Club hopes to hold a faculty meet-and-greet in the spring to allow students and faculty in the department to mingle and get familiar with each other.

We are proud of all that the CU Denver Chemistry Club has been involved in this semester and look forward to another successful semester.

Chemistry Students and Faculty Present Research at the 2017 American Chemical Society Rocky Mountain Reginal Conference in Loveland Colorado

Eleven CU-Denver students and Chemistry faculty mentors presented their research on a variety of topics, including DNA modification, cell signaling, and chemistry education, at the 2017 American Chemical Society Rocky Mountain Regional Meeting in Loveland, Colorado, October 25-28. Masters students Kirubel Tekletsadik and Nara Chon, postdoctoral scholar Chun-Hung Wang, undergraduates Hai Tran, and Timothy Spotts each delivered oral research presentations, and undergraduates Austin Skinner, Cassandra Herbert, Erast Davidjuk, and Lamont Sharp presented posters. Mr. Sharp won a Best Poster award for his presentation at the meeting, and several students won travel awards from the Colorado section of the American Chemical Society to attend the conference. Profs. Marino Resendiz and Jefferson Knight also presented research at the meeting.





Austin Skinner Presenting Research poster at 2017 Conference

MS Program Update

With the MS Programs last update in 2007. The Department of Chemistry has completed a much needed modernization of the MS program.

Changes to the MS program include:

• Inclusion of three new tracks. The tracks match faculty expertise and modern expectations of students. The proposal provides specialization in 1) Biochemistry 2) Synthesis and Measurement and 3) Molecular Modeling. We have retained our original curriculum, now labeled as

"Traditional Chemistry."

- Alteration of our admissions requirements to match student preparation specific to each of those new tracks.
- We have removed a cumbersome Master's report requirement for non-thesis students and added a final examination.
- Increased research internships with local companies for non-thesis students
- Added a course in pedagogy
- Expanded our BS/MS program

by making it easier for students to complete both degrees in a total of 5 years

The new program has been approved by the CLAS EPCC and the Graduate Council. We expect the first students to graduate under the new guidelines by this Fall.

CU Denver Chemistry Faculty Publications

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CU Denver Chemistry Faculty

Larry Anderson, Prof. Emeritus Margaret Bruehl Priscilla Burrow Robert Damrauer Douglas Dyckes Prof. Emeritus Emilie Guidez Kim Nan Kyoung Doris Kimbrough Karen Knaus Jefferson Knight Jung-Jae Lee Hai Lin Marta Maroń Scott Reed Xiaojun Ren Marino Resendiz Liliya Vugmeyster Xiaotai Wang



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