

Department of Chemistry Newsletter

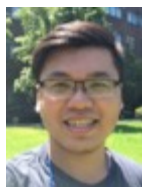
Issue 6 (October), 2021



Irving K. Barber Faculty of Science, University of British Columbia
Sylix Okanagan Nation Territory

Announcements

Congratulations to:



Tuan Anh M. Nguyen, who successfully defended his master thesis on October 5th, 2021. Mr. Nguyen is a student in Assistant Professor Thu-Thuy Dang's research group.



The UBC Okanagan Chemistry Course Union won the 2020 Canadian Society for Chemistry Student Chapter Merit Award, making our CCU back-to-back two time winners (2019 and 2020) for this national recognition. (chemcourseunionubco.org)



Dr. Robert Godin is leaving for Glasgow to participate at the UN Climate Change Conference (COP26) (<https://ukcop26.org>). We are looking forward to getting the inside scoop about the negotiations over climate change agreements upon his return on November 7. His interview on CBC's Daybreak South is available at <https://www.cbc.ca/listen/live-radio/1-110-daybreak-south/clip/15871831-a-chemistry-professor-ubc-okanagan-one-eight-delegates>, with the follow up scheduled for Nov 2:

Live from Glasgow!

Facilities/Instruments News

Undergraduate Teaching Labs Atomic Absorption Spectroscopy (AAS) is up and running! Back in the May newsletter the teaching labs announced Green Chemistry funding to allow us to update the AAS in our teaching labs. We are happy to update that this project was a big success. The undergraduate teaching lab now has an operational refurbished Varian SpectrAA 220 AAS (see picture). Chem461 is currently using this instrument to measure copper concentrations in craft beers using an acetylene flame atomizer. The instrument can also be outfitted with an autosampler and a Graphite Tube Atomizer, with plans to utilize both of these in Chem311 next semester.

There are numerous people and processes to thank for making this project a success. First and foremost, Harrison Meeres was the primary driver of this project. His problem-solving abilities were vital in overcoming obstacles on several fronts, one of the more notable was using a 3D printer to make sample trays that can be used on the autosampler, and his contributions have allowed the department to utilize the instrument this teaching semester. Wes Zandberg and the laboratory staff (Jennifer, Michele, Ieva, Eric) each made significant contributions in supervision, technical and logistical support for Harrison. Our latest recruit to the technical staff, Aida, has also played a pivotal role in preparing SOPs and training documentation. Finally, thanks to UBC Sustainability's Green Labs Program, work-study funding from the Zandberg group, and Chemistry capital expenditure for funding the project. For more information, please contact Dr. Eric Dennis (Assistant Lab Manager).

Welcome

Alex McGegor is joining Dr. Kirsten Wolther's group as an MSc candidate.

Robert K. Szilagyi, the "department head in waiting".

I would like to take the opportunity of an open mic offered to me on the occasion of completing my first month at UBC Okanagan and share a few thoughts on these pages of the Department's newsletter. I applaud having a publication that allows us to take a few moments in our busy lives to inform ourselves about what happened in the past month, and perhaps even more importantly, to celebrate each other.

Thinking of Thuy, I can tell that as a "newborn" at the department, I was celebrating the discoveries that every day brought the first week. Now as tasks are piling up and events are speeding up, the weeks seem like days, and soon months will feel like weeks. Regardless how fast time seems to pass, I continue to appreciate all of the chemistry faculty members, who have contributed to my arrival and welcomed me into the Department. I wish to give additional thanks to the people in the Dean's office who smoothed the path to help me get settled at work.

As expected for an incoming department head, I was quizzed about my vision for the Chemistry Department. My response was spontaneous and straightforward - my vision emerges from the many eyes and viewpoints of the chemistry faculty members, researchers, staff, and students. I wish to be part of a community where everyone contributes to shaping and molding our future, where we are going and how we get there. If someone has an idea, I would like to be the first to hear about it. If we can experiment with something new outside of our research, let's go for it. Acting

alone, I may be able to sketch a noteworthy drawing by using a single colour, but with everyone contributing their unique perspectives, we can create a masterpiece that everyone can be proud of!

I am deeply impressed by the dynamics and productivity of my junior colleagues (thank you for allowing me to join your lab meetings - I'm looking forward to joining more when I am invited). I am standing by to soak up valuable institutional history and know-how from my senior colleagues. The skills and preparation of senior graduate students are on par with those of students I had a chance to interact with on three continents.

As WorkDay figures out that my paycheck should not be sent to Montana, custom brokers give their blessing to "hand carry" my lab across the border, immigration accepts my English proficiency exam score, not to mention other partially successful adventures with ICBC, BS Services, MSP, SIN... I am eager to set up my wet chemistry lab in SCI334, make FIP357 a cosy office that hopefully you will like to visit, and of course gobble up all the compute resource on ARC Sockeye. These relocation and start-up tasks will be crowned by the arrival of my family in January, which will make me complete, as a Settler of Okanagan - quoting the official immigration lingo here. BTW, this title is MUCH nicer than my 17 years as a Legal Alien.

In closing, I would like to thank you all for giving true meaning to the saying that "after 50, the best is yet to come." I am looking forward to working with every one of you for us and for each other. To finish in the spirit of my last slide of the interview talk, I invite you all to initiate non-negligible overlap among our wave functions regardless of how delocalized they may be. As needed, I am standing by to violate even the Pauli exclusion principle, quantum tunnel through challenging problems, and mix in some excited state as appropriate via spin/orbit coupling in order to obtain the lowest energy solutions for the department.

Recent publications/presentations



Viki Kumar Prasad, Alberto Otero-de-la-Roza, Gino A. DiLabio: Performance of small basis set Hartree–Fock methods for modeling non-covalent interactions. *Electronic Structure* 2021, 3(3), 034007. DOI: 10.1088/2516-1075/ac22b8



Robert Godin,* J.R. Durrant: Dynamics of Photoconversion Processes: The Energetic Cost of Lifetime Gain in Photosynthetic and Photovoltaic Systems, *Chemical Society Reviews* 2021, accepted



Trinh-Don Nguyen: Gene discovery in plant metabolism: Listening to the sound of silence, but where? *Plant Physiology* 2021, 187(2) 670–672 DOI: 10.1093/plphys/kiab357



Jakob Franke, Yang Zhang, **Thu-Thuy T. Dang** Exploring and engineering plant specialized metabolism: Latest advances and new horizons (Editorial) *Frontiers in Plant Science* (2021) 12:783465 DOI: 10.3389/fpls.2021.783465 – explore more review articles at <https://www.frontiersin.org/research-topics/15993/exploring-and-engineering-plant-specialized-metabolism-latest-advances-and-new-horizons#articles>



Matt S. Queen, Farideh Jalilehvand, **Robert K. Szilagy** Ground electronic state description of thiourea coordination in homoleptic Zn^{2+} , Ni^{2+} and Co^{2+} complexes using sulfur K-edge X-ray absorption spectroscopy *Journal of Synchrotron Radiation* 2021, 28 DOI: 10.1107/S1600577521008389

Upcoming Seminars

#PhytochemTalks: a brand new virtual seminar series by the Botanical Society of America (BSA) - Phytochemistry Section covering a broad range of topics related to phytochemical diversity and metabolic pathways in plants.

November 12th: Craig Schenk (Assistant Professor, University of Missouri-Columbia, USA) *Production of structurally diverse acylsugars through rapid screening of a promiscuous, yet specific, Nicotiana acuminata acylsugar pathway*

December 3rd: Sandra Irmisch (Assistant Professor, Leiden University, Netherlands) *A Novel Plant-Derived Anti-Diabetic Compound: From metabolite biosynthesis to engineering production systems*

December 10th: Bryan Leong (Postdoc, University of Florida - Gainesville, USA) *How novel chemical phenotypes evolve: A case study using acylsugars*

Please register for this event using this link: <https://forms.gle/aZksoeVYXgTqUPQG7>

Student affairs

Research proposals

None scheduled for November

Ph.D. comprehensive/candidacy oral examination

None scheduled for November

Thesis oral examinations

None scheduled for November

Committee meetings:

None scheduled for November

Happy Halloween and thank you for your participation in the carving contest!



and the winner is ... the glovebox pumpkin from the Pranckevicius lab!

We would like to acknowledge that the land on which we gather is the unceded territory of the Syilx (Okanagan) Peoples.

If you would like to contribute to, or have any suggestions for, our Department's upcoming newsletters, please contact Thuy Dang (thuy.dang@ubc.ca) or Robert Szilagyi (robert.szilagyi@ubc.ca).