

Department of Chemistry assistance during COVID 19

By Philip Jessop

In March, around the same time as the shutdown of all research, the Department received an appeal from Kingston Health Sciences Centre (KHSC), which runs the two hospitals in Kingston. They were running out of hand sanitizer! We agreed to help, as did Chemical Engineering and GreenCentre Canada. Together, the three locations are making 2,400 L of sanitizer for the hospitals. Our illustrious leader Richard Oleschuk, building manager Heather Drouillard, and safety chair Philip Jessop have coordinated the response, planning with the hospitals, developing a production protocol, buying large quantities of reagents and recruiting over a dozen willing volunteers from our idled graduate students. It was heartwarming to see how enthusiastic the students have been to help, even when they themselves are being so inconvenienced by the Covid-19 shutdown.

Our amazing volunteers include: Prashant Agrawal, Emily Albright, Igor Tadeu da Cunha, Joseph DeJesus, Karthik Devaraj, Sarah Ellis, Leila He, Matthias Hermann, Jaddie Ho, Yuki Maekawa, Hailey Poole, Timothy Salomons, Matthew Sanger, David Simon, and Guilherme Drechsler Vilela. Production supervisors are Lyndsay Hull, Gabriele Schatte, Tom Hunter, and Cole Reed.

With approval obtained from Health Canada and a production protocol approved by

Environmental Health and Safety, our first production batches of sanitizer were made in late April and handed over to KHSC. The protocol involves every step being checked and double checked by pairs of volunteers, and the finished batch being analyzed for alcohol and peroxide content before being aged for 72 hours to sterilize the container. The bottles and labels were provided by Tri-Art Manufacturing, an art supplies manufacturer based in Kingston.

Once word got out about our effort, further requests for sanitizer were made by Physical Plant Services at Queen's and Providence Care (a mental health rehabilitation, and long-term care facility) in Kingston; we've agreed to help them too. In a difficult time for everyone, the members of the Chemistry Department have found a way to use our skills and largely-empty facilities for the greater good.





Message from the Head

By Richard Oleschuk

The 2019/2020 academic year was one of profound loss, significant turmoil and successes for the Department of Chemistry. The Department suffered the permanent loss of two outstanding and dear colleagues (Dr. Natalie Cann and Dr. Suning Wang) recently after lengthy battles with illness. Natalie was a strong administrator that put the department on a strong financial footing, Suning a prolific internationally recognized materials researcher, but both were excellent scientists and strong, positive female role models. Drs. Hugh Horton and Gang Wu have written pieces highlighting accomplishments and reminiscing about these two wonderful people. Both Natalie and Suning will be sincerely missed and were too soon taken from us.

The unprecedented events and turmoil that unfolded from Covid-19 changed almost all aspects of everyone's lives. The University responded to federal and provincial health directives by requiring the immediate suspension of face to face instruction and that both classes and examinations be carried out remotely. The research mission of the department was also paused as post-doctoral fellows, research associates, graduate students and faculty were prohibited from entering Chernoff Hall. This placed significant stress on students, staff, and professors alike as we tried to adapt to the paradigm of on-line learning, social distancing and working from home. The faculty, staff, and students were extremely professional in handling the significant work/life changes. I am proud to say that Chemistry used its resources to help battle Covid-19. We were notified that Kingston General Hospital was in a tough spot, unable to source hand sanitizer. The Department jumped into action and spearheaded an effort to produce hand sanitizer in the undergraduate labs. Several University staff, faculty and students immediately jumped in to volunteer to help out. This was not the only initiative, as synthesis of novel antivirals is underway,

as is 3-D printing of face shield and mask components as part of a broader University initiative.

The University has embarked on an aggressive plan to rejuvenate the assistant professor ranks depleted from an extended hiring freeze. The Department has benefitted significantly where 30% of the Chemistry faculty have now been hired in the last five years. These young people continue to impress and have a lot of success attracting research funding. This year five new faculty members received their first Natural Sciences and Engineering Research Council Discovery Grants. Great job! While three others also received New Frontiers in Research funding with (5% only national success rate). We are excited to see where they go given their strong starts. Our faculty, staff and students continue to be rewarded for their hard work. You will see some of their many accomplishments highlighted throughout the pamphlet. Some examples include Dr. Ralph Whitney being recognized with a 125th Anniversary Queen's Engineering Faculty Award, Ph.D. Student Morgan Lehtinen placed 1st locally, and then 3rd in the Young Persons' World Lecture Competition in London England. Drs. Suning Wang and Cathleen Crudden being named Distinguished University Professors.

The Department of Chemistry strives to offer the best undergraduate and graduate experience possible where students are trained on current/state of the art equipment. We are however limited in our ability to purchase the latest instrumentation. This year we were very fortunate to receive a generous gift from alumni Will Rogers and Helen Ferkul. The Department was able to further leverage this support with the Faculty of Arts and Science. The support was used to augment the instrumentation for the integrated lab course (CHEM 397) with a new GC-MS, a bench top 100 MHz NMR and multiple UV-Vis and FTIR instruments.

When not being used for undergraduate teaching, the instruments will be available to the department and broader community for research use. Through gifts like this we can continue to both improve our undergraduate experience and enhance our research output. Thank you very much Will and Helen!

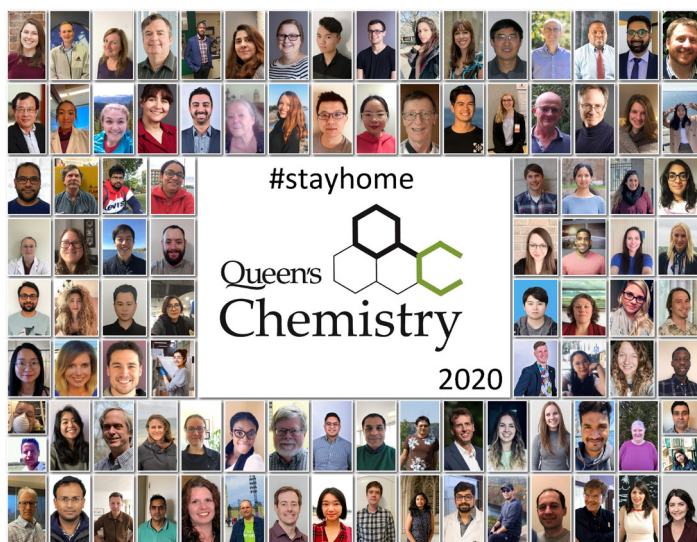
Dr. Ralph Whitney spearheaded the revamping of our History of Chemistry Display Cabinet in Chernoff Hall. The cabinet was unveiled at the Queen's Chemistry Innovation Council Research Poster session last year. When you are next on campus I invite you to check it out. Drs. Whitney and Baird have also updated our "History of Chemistry and Chemical Engineering" which will be posted to the website sometime soon.

The appointments committee was again busy this year with the task of hiring a professor in Nanomaterials. After carefully perusing more than 160 applications, conducting 14 zoom interviews and three in person interviews we selected Dr. Paul Duchesne. Paul originally heralds from the "bright red mud" but was most recently a PDF at the University of Toronto. The Department is excited to have Paul aboard (starting summer 2020). The Departments of Chemistry and Physics have been good neighbours since the Department moved into Chernoff Hall back in 2002. The relationship runs much deeper than that, as we share joint faculty appointments, graduate committees/courses,

research grants and a research collaborations. The two departments have been participating in a visioning exercise that is evaluating both our individual and collaborative academic/research programs. This exercise has involved significant stakeholder engagement to brainstorm and refine new ideas on themes of student success, outreach and engagement, research, and learning. The process is also conducting a space needs assessment for our and Physics' future activities (much more to come!).

We will continue to strive to enhance the Chemistry Department at Queen's. We hope that you will continue to support the chemistry department by contributing to the Chemistry Gift Trust, the Chemistry Seminar Program, student prizes and scholarships and/or by donating your time/energy on the Queen's Innovation Council. The department is truly a fantastic place to work, research and learn, where faculty, staff and students continue making chemistry matter.

Stay safe everyone.



Message from the Manager

By Heather Drouillard

Hello Q-CHEM Chronicles Readers!

The 2019/20 year was definitely full of many activities and initiatives, which are discussed throughout our newsletter. This year also brought about some changes (and definitely some challenges) for our department. With considerable growth and to increase support to our students, faculty and research operations, in late 2019, we created and recruited for two new staff positions:



Finance & Special Projects Assistant – to provide heightened financial and administrative support to our department operations and research activities. Elizabeth Agostino (pictured left) was hired in November

2019 bringing over 11 years of financial administration experience to this role. She has been a great addition to our administration team.

Instrumentation

Technician – to provide increased support to our teaching and research instrumentation and also supporting health and safety requirements and building safety equipment. Zena Lauzon

(pictured above), also hired in November 2019, has extensive technical repair and quality assurance skills, and a dynamic insight into supporting and maintaining equipment.



Staff Retirements – Barbara Armstrong (pictured left), our Administrative and Advancement Coordinator, transitioned into retirement this past summer. It has been an absolute pleasure working with Barb over the years

and she has been a wonderful colleague. Barb brought a high degree of professionalism, commitment, and expertise to the department. Not only did Barb provide primary support to departmental advancement

activities, strategic support and advice to our Department Head and me but she also supervised the Main Office operations. Barb's dedication and unwavering support to the department will be missed by all faculty, staff and students. A search is underway to fill this role.

There have been many operational activities undertaken from the revamping of various areas within Chernoff Hall, embarking on the Physics+ visioning exercise; to a rapid response required in safely shutting down our building, implementing a remote-working structure for staff and the planning for a remote-start for the 2020-21 Fall academic term. Our current focus is on heightened safety planning for the department for a safe return to work. Professional development is also an area of focus, whereby support and opportunities will be provided for staff to seek out and undertake professional development opportunities that will foster engagement and encourage both personal and professional growth.

I will always likely end my messages with recognizing and thanking the incredible chemistry staff, faculty members, and students who pull together in supporting the mission and vision of the department even during these unprecedented times. It is incredible to work amongst dedicated individuals who bring forward innovated ideas, thought-provoking solutions, and pull together to ensure our department will prosper in the future.



Young Researchers' Successes

By Avena Ross and Kevin Stamplecoskie

The last few years have been exciting times for Chemistry as our expanding department has been invigorated with fresh talent. We have welcomed new members of Faculty in the fields of Chemical Education to Physical Organic Chemistry to Theoretical Chemistry and more! Eight new Assistant Professors have been hired over the last five years and many have their research programs well underway, training graduate and undergraduate students in diverse topics from photonics to carbohydrate research to electrochemical sensors.



The newest addition to the chemistry department, Dr. Farnaz Heidar-Zadeh (pictured left), has really been lighting it up this year! Dr. Heidar-Zadeh was selected as one of 29 CAS Future Leaders by the American Chemical

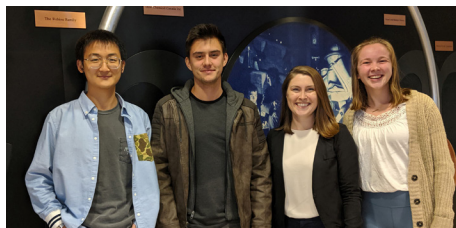
Society (ACS) and was featured in Chemical & Engineering News. Dr. Heidar-Zadeh was the co-organizer and lead-instructor of the "Third School on Quantum Chemistry with HORTON-ChemTools" at Sorbonne-Paris University, France, in May 2019, and was one of 29 theorists from around the world invited to participate in a critical discussion on the future of energy decomposition analysis that was published in the Journal of Computational Chemistry. With her recently awarded *NSERC Discovery Grant* and having attracted graduate students before even arriving at Queen's the department is very excited to see what comes next!

Dr. Graeme Howe (pictured right) joined the Department in July of 2019. His research team of one graduate student and four undergraduate students work at the interface of chemistry



and biology, combining rigorous physical organic chemistry, mechanistic enzymology, and bioinformatics to understand how enzymes work and how they can be used as biocatalysts. Recent work from Dr. Howe has revealed that hydrogen-transferring enzymes exploit the

quantum mechanical properties of matter to catalyze their reactions. Dr. Howe also recently identified and characterized a novel biocatalyst that can facilitate large-scale, stereospecific reductions of carbonyls to yield extremely valuable chemicals. Ongoing work in the Howe lab is funded by an *NSERC-Discovery Grant* and *CFI-JELF Grant* and is focused on characterizing the evolution of enzymes and the use of directed evolution to develop biocatalysts to address global problems.



Dr. Amanda Bongers (pictured above with *The Bongers Research Group*) also joined the Department in July 2019 and her growing group welcomes two additional students this spring funded by *NSERC-USRA* and *Queen's USSRF* fellowships. Her group carries out research combining chemistry expertise with approaches from cognitive science and educational research to study how students learn Chemistry. The Bongers group is funded by an *NSERC-Discovery Grant* and received an infrastructure grant in the fall to set up a state-of-the-art research lab with eye-tracking and EEG instruments, virtual reality gear, and a full interview suite. Very cool! Recently, Dr. Bongers was selected to represent Canada at the inaugural Commonwealth Chemistry Congress where she will present research into the teaching of sustainability. Dr. Bongers created the *Queen's Chemistry Equity, Diversity, Inclusion, and Indigeneity (EDII) Award* with funding granted from the Faculty of Arts and Science. This award fully funds one graduate student



from our Department to attend the annual Leaders Overcoming Gender Inequality in Chemistry (LOGIC) Retreat.

The Crystalline Material Chemistry Group led

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by Dr. Peng Wang (pictured left) has seen an exhilarating year of development in 2019. The group is supported by a *Frontier Research Venture Fund* from the Arthur B. McDonald Canadian Astroparticle Physics Research Institute for the development of scintillating radiation detectors. With this award, and a successful *CFI-JELF Grant* the group is well equipped to investigate novel semiconducting and scintillating materials, associated single crystal growth methods and detector fabrication protocols. The group has rapidly grown to include a postdoctoral scholar, two graduate students, and several enthusiastic undergraduate researchers from both the departments of Chemistry and Physics. The group has recently developed an alternative single crystal scintillator material, which lays the foundation for small scale detector production – “*how scintillating!*”

spoke at various universities in New Zealand and as a Keynote Plenary Lecture at the New Zealand Institute of Chemistry Conference. The life of a carbohydrate researcher is pretty sweet!



Above: The She group celebrating the Lunar New Year



Above: Dr. Chantelle Capicciotti with Dr. Richard Furneaux (L) and Dr. Phillip Rendle (R) of the Ferrier Institute

Dr. Chantelle Capicciotti has had a big year, welcoming several excellent graduate and undergraduate students into her chemical glycobiology lab, with a GlycoNet funded undergraduate student starting in the summer and two 2019 *NSERC USRA* students receiving *CGS-M* awards to continue their graduate studies in the group. The Capicciotti group received funding from the highly competitive inaugural *New Frontiers in Research Fund – Exploration Grant* to Develop a High-Throughput Platform to Identify Glycan Targets for Novel Cancer Immunotherapies in addition to recent successes in the *NSERC-Discovery Grant* and *Banting Research Foundation Discovery Award*. Dr. Capicciotti was an invited keynote speaker at the 2019 Canadian Glycomics Symposium in Banff, AB and in November 2019 Dr. Capicciotti gave *The Ferrier Lecture* at Victoria University of Wellington in New Zealand in honour of the late Professor Robin Ferrier. As the Ferrier Lecturer she also

The rapidly growing group of Dr. Zhe She is off to a wonderful start. In addition to celebrating the Lunar New Year, the She group has leveraged funding from the federal defense departments of Canada and the US, enabling development of a new suite of electrochemistry instrumentation and submission of a new patent application. With a recently awarded *NSERC Discovery Grant* and *CFI-JELF Grant* the group will soon be acquiring an electrochemical scanning probe microscope for studying surfaces, metals, and cells. “It will be awesome” says Dr. She!

The Stamplecoskie group (picture below) group is now in its fourth year, with the first two PhD candidates preparing to defend. Dr. Kevin Stamplecoskie could not be more proud of his team of researchers who have contributed several exciting works in the rapidly growing area of atomically precise metal clusters. This basic photonic materials research is rapidly growing into applications for biomedical imaging and therapy with exciting new collaborations and funding including the *New Frontiers in Research Fund – Exploration Grant*. The year has also seen the development of new Raman sensor platforms aimed at putting a hand-held detection system in the hands of first responders, and the hiring of an entire subgroup to study hydrovoltaics – a completely new, renewable energy technology! “It has been truly rewarding to see where we have come so quickly,



and to dream of where we will be in just a few more years”, says Dr. Stamplecoskie.

Dr. Avena Ross and her group focus on the discovery and biosynthesis of marine bacterially derived natural product molecules. The Ross group has been very successful in receiving federal funds over the last year with collaborative CIHR and New Frontiers in Research Fund projects funded to investigate enzymes associated with neuropathic pain and the development of a miniaturized antibiotic drug discovery platform. Dr. Ross was honoured to receive the Graduating Class Award for Excellence in Teaching Chemistry this March. Graduate student members of the Ross group organised their second highly successful Great Lakes Symposium on Natural Products in May 2019 bringing students and faculty members from across Ontario and Quebec together for a weekend of student presentations and scientific discussions. Following the graduation of four MSc students over the last couple of years, summer 2020 will see the first two PhDs from



Above, The Ross group at the Great Lakes Symposium on Natural Products

the Ross group. Dr. Ross will also be up for tenure this year and is looking forward to all the innovative and exciting science her group will undertake in the next phase of the Ross lab. The future of our department is bright indeed and in the hands of a group of such energetic, innovative and passionate young scientists we look forward to the future with curiosity and hope.

Honouring Ralph Whitney

By Mark Parent

Ralph Whitney's longstanding contributions to the Engineering Chemistry program have been recognized with a 125th Anniversary Queen's Engineering Faculty Award. A celebration was held on September 18th, 2019 in Mitchell Hall to honour 14 faculty members, past and present, for engineering and teaching excellence. Each award winner was nominated by their peers and, most notably, Ralph was the only recipient from outside the Faculty of Engineering and Applied Science.

Ralph joined the Department of Chemistry in January 1978 as a synthetic chemist and was originally responsible for delivering introductory and advanced organic chemistry courses. In the mid-1980s, a review of the Engineering Chemistry program prompted him to develop a 3rd year course that featured industrial applications of organic chemistry. This was the beginning of a 30-year engagement as an essential contributor and advisor.

While Ralph is known to hundreds of

Engineering Chemistry alumni as the baritone-voiced authority on industrial organic chemistry, his contributions beyond the classroom have had a profound effect on the current program. When the engineering accreditation was threatened in 1998, Ralph helped to formulate and implement a partnership between the Department of Chemistry and the Department of Chemical Engineering that has sustained the program to this day. Under this partnership agreement, there have been no significant accreditation issues, and Engineering Chemistry remains the only program in North America that is dually accredited as an honours chemistry program and an engineering program.

During this administrative transition period, Ralph was cross-appointed to Chemical Engineering, serving on various curriculum committees and working groups to modernize the curriculum. His contributions also extended into the research domain, as he lent his expertise in organic synthesis and polymer chemistry to several faculty members in the Chemical Engineering

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department, resulting in numerous patents and scholarly papers, as well as the development of several exceptional graduate students. Even after his retirement in 2015, Ralph remains a trusted advisor on all matters of organic synthesis, and he personifies the best that the Engineering Chemistry offers to students in the Faculty of Engineering and Applied Science.

Distinguished University Professors

By Dr. Zhe She

Queen's University named its first nine Distinguished University Professors in 2019. We were so pleased to hear both of our own Dr. Cathleen Crudden and Dr. Suning Wang received the most prestigious award at Queen's University. (It is also amazing, because we are the only department which took two awards!)

Department of Chemistry at Queen's is an international recognized department. We have a group of professors across all disciplines of chemistry, who are recognized as the global leaders of their research fields. The alumni from the department have become elite professionals in both industrial and academic sectors.

Cathy is a Canada Research Tier 1 Chair in Metal Organic Chemistry. Her research from chiral catalysis to organic films on metal surfaces has been making direct impact to applications in corrosion protections, electronics and diagnostics. Suning was a Fellow of the Royal Society of Canada. She had been developing a new method to synthesize functional molecules for light emission applications. Cathy and Suning both have won many prestigious awards from Canadian and international Chemistry societies. The elite research programs they established have attracted most talented students to study at Queen's University. Many of their students have moved onto successful careers and become scholars and professors at universities in Canada, US, Japan, China. They have successfully led many research proposals, which help establishing the cutting-edge research infrastructures in the department. As senior professors in the department, they they have mentored junior professors in developing their new programs.



As role models for female scientists, they have inspired and supported a generation of students from underrepresented groups to take on chemistry and help societies.

The Department of Chemistry established its own award committee to help recognize the contributions made by our faculties to research, teaching and service. As the award committee, we so proudly nominated both Cathy and Suning to be considered for Distinguished University Professors. We are all so pleased to see that their significant contributions were recognized by the University.

Newest Faculty Member

By Paul Duchesne

It brings me great pride to introduce myself as one of the newest faculty members here in the Department of Chemistry at Queen's University. Having grown up in Prince Edward Island, the move to complete my postdoctoral fellowship at the University of Toronto marked a dramatic change in surroundings, and it is now my great pleasure to be joining the community of beautiful Kingston. (Go, Gaels!)

I look forward to working closely with my inspirational colleagues here at Queen's University as I develop my research program and teaching expertise as a new member of the faculty. Having met with some of the exceptional graduate students studying at Queen's, I am eager to begin working with this keen and highly motivated group of individuals, and to play a meaningful role in addressing some of society's most pressing environmental and economic challenges.

My own research focuses on the synthesis and study of catalyst materials for use in renewable synthetic fuels and energy

storage systems, emphasizing a strong understanding of their surface structure and behaviour under catalytic reaction conditions.

In order to overcome the numerous challenges facing the development of such sustainable materials, my group will devise and advance specialized techniques for characterizing their nanoscale surface structure, including the incorporation of in situ and operando x-ray spectroscopy. This work will involve extensive collaboration with researchers at the Canadian Light Source (Saskatoon, SK) and Advanced Photon Source (Lemont, IL) as we develop earth-abundant catalyst materials and work toward a green energy economy. I am immensely grateful for this opportunity to pursue my passions in research and teaching at Queen's University, and look forward to contributing to this community for years to come.



Helen Ferkul and Will Rogers, Prominent Graduates of our Department

By Mike Baird, Professor Emeritus

Helen is from Etobicoke, Ontario, and came to Queen's in 1976. She graduated with a B.Sc. (Hon) in Chemistry in 1980, joined my research group that same year to work on our then ongoing synthetic fuels project, and obtained her M.Sc. in 1981. Will is from Hamilton, Ontario, and came to Queen's in 1973. He graduated in 1977 with a B.Sc. (Hon) in Chemistry, joined my research group that year and obtained his Ph.D. in 1980 after doing some rather neat research on organotransition metal chemistry.

Helen struck me initially as a rather quiet, even slightly introverted person, which undoubtedly surprises her as she is one of the most outgoing people I know, but she was fiercely determined in her research and worked successfully

through some rather difficult chemistry. Will, on the other hand, seemed quite gregarious from the start, and I well remember becoming aware of him during lectures in the old Chem 360 (Transition Metal Chemistry) as a big guy with flowing hair and beard and a seemingly permanent grin.

On a personal note, Helen was our first ever baby-sitter and Will and Helen were the first pair of a dozen graduate students and post-docs who linked up with their eventual spouses while working in my lab.



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On graduation, Will joined the Sarnia Research Department of Imperial Oil in where he spent four years as a lead researcher in the engine oil section before being appointed Section Head for Industrial and Process Oils. Helen spent a year travelling after graduation and she and Will married in May of 1982. Helen soon after joined the R&D department of Dow Chemical in Sarnia.

Will was transferred to Toronto in 1988 and began a series of promotions through progressively senior roles in the marketing and sales departments of Imperial Oil. Helen changed career directions with the move, deciding to remain home with their growing family. She earned a teaching degree at York University after their youngest had entered school, and taught in the Dufferin Peel Catholic Board for five years.

Will returned to Sarnia in 2001 to head up the Sarnia Research Department until his retirement in 2010, while Helen taught on a part-time basis in Sarnia until retirement in 2011. Helen and Will have four children, all of whom graduated from Queens and two of whom, Andrea and Ben, I taught. Ben followed his parents' footsteps and obtained his B.Sc. (Hon) in Chemistry, and then went on to do a Ph.D. in analytical chemistry at Purdue University.

After retirement Helen and Will moved to Kemble, Ontario, north of Owen Sound, where

they are actively pursuing their objective of "wearing out and not rusting out" by golfing, kayaking, skiing, hiking and travelling extensively as in the photo.

Will served on the Board of Directors of Let's Talk Science from 2007 to 2017, on the Grey Bruce Hospital Corporation from 2011 to 2019, and the Grey Bruce Health Unit from 2014 to 2019. He has been a member of the Queens Chemistry Innovation Council since 2006, and has taught a graduate course, Chem 892 (Business Fundamentals for Research Scientists) at Queen's since 2013.

Will and Helen have in recent years also become serious benefactors of our department. As of 2020, they have donated a substantial sum to the department to purchase IR, NMR and UV-Vis spectrophotometers for undergraduate labs. They also, in 2016, organized a campaign to obtain endowment funding for the Michael Baird Lectures Series in Inorganic Chemistry. They contacted a large number of students whom I had taught and worked with over several decades and, of course, made a generous donation themselves. The first Baird Lecturer, in 2017, was Professor Dick Schrock of MIT, who shared the Nobel Prize in Chemistry in 2005. The Department of Chemistry at Queen's is deeply indebted to Helen and Will, and we wish them many happy years in their obviously very active retirements.

Remembering Natalie Cann

By Dr. Hugh Horton

I have been asked to write a piece for the Chem Chronicles to remember Dr. Natalie Cann, Professor and Head of Chemistry, a scientist, wife and mother, and a friend and mentor to many students, staff and faculty in the Chemistry Department at Queen's.

I met Natalie in the summer of 1997, when she arrived at the Chemistry Department for a job interview for the position of Queen's National Scholar and Assistant Professor. I remember it very well. I had myself only been an Assistant Professor in the Department for a few months. Mike Baird was Natalie's 'host' during her interview day (which I had no idea was actually happening!) and he brought her to my office and suggested I take her somewhere for coffee. At

the time I didn't drink coffee very often, and I had no idea where one actually went on campus, so Natalie and I went over to what was the predecessor of the Lazy Scholar inside Victoria Hall. Now, Natalie is a serious coffee drinker, and her 'go-to' is something very complicated from Starbucks, so I don't think she was very impressed. But she was very polite about it. In any case, this was my first chance to get to know someone who would be an important colleague and friend for the next twenty plus years at Queen's.

Natalie started out on her academic career at the University of New Brunswick, where she was Natalie Goudreau and did a double major in Chemistry and Mathematics. She met her



Natalie Mary Cann (Goudreau)

May 3, 1968 - December 15, 2019



husband Brian there, and by the time she arrived at Dalhousie to work on her PhD with Russ Boyd, she was Natalie Cann 'from day one'. Russ remembers being very surprised when, while he was on the phone struggling to communicate with the mother of his French graduate student, Natalie took over and spoke in completely fluent French. He had not known this facet of Natalie's many talents before this, but this also speaks to both Natalie's modesty and her intense privacy. Russ remembers her not only as one of his outstanding graduate students, but also her natural aptitude for mathematics – if there was a mathematical problem the group needed to work out, the advice was 'ask Natalie'.

Following a few years at UBC as a Killam Postdoctoral Fellow, Natalie arrived at Queen's. Once here, she quickly built a group of students focused on using statistical methods to explore the chemistry of chirality. Over her years in research, she made a number of important contributions to understanding the underlying mechanisms of chiral interactions between molecules, and particularly the chiral stationary phased used to separate drug molecules. Natalie and her students built most of the mathematical and computational programming tools they used from scratch, and her contributions to building these tools are as important as the chemical insights that they produced.

Natalie only expected the best from herself and from others. Her former student Chunfeng Zhao remembers that when it came to research, it was all about originality: 'At graduation I wanted to try protein modeling. Natalie asked about what's my plan after my post-doc fellowship. I mentioned that I would take one [newly] protein and propose research based on that. Natalie was very straight about that idea, "Where was your originality? Everyone can do that, why you?" Oh well, it later turns out she was right!'

While very professional in her relationships with both students and faculty colleagues, she was, when you got to know her, deeply engaged and interested in knowing about and supporting others. Both Chunfeng and her student Sorin Nita recall that Natalie went out of her way to support them. Both had a similar experience – as international students, they were in Canada at Christmas, and remember Natalie spending much of her time working with them over the holidays revising manuscripts and debugging programming code. While very private, Natalie did open up, especially on road trips to conferences in the US, and at group lunches or dinners, and was very engaged in understanding more about her students' various backgrounds – from China to Romania.

While building a career, Natalie also brought up what are now two very fine young people – Alex and Jennifer – both of whom are now studying at the University of Toronto. Being a professor and pregnant was not easy – Natalie was in and out of hospital with gestational diabetes in her first pregnancy, and there was a rather embarrassing – but in retrospect funny – incident where Natalie, suffering from morning sickness, left the lecture theatre for the washroom but forgot that her microphone was still live and broadcasting to a class of 500 first year students!

I certainly learned a lot from Natalie. About science, and about leadership. Natalie was the first woman to be the permanent Head of the Department of Chemistry at Queen's, and one of the first women to be Head of any math or science department at Queen's. Hers was a quiet, determined brand of leadership, focused around relationship building and long term planning. I remember very clearly her management of people around the design of CHEM 112, where she helped me manage (and despite being an Associate Dean at the time, very much out of my depth!) a group of very disparate characters. I wouldn't have succeeded in that project without

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her counsel and insight. She was unfortunate to have to take on the Headship at a time of extreme fiscal austerity in the university, and having to deal with several very difficult individuals. Even today, there are people in the university who are misogynistic, and Natalie dealt firmly but fairly with them, though it took a lot out of her. While the financial circumstances did not allow her to grow the department much during her tenure, she built up its reputation both within the University and in the wider Canadian chemical community so

that when the money began to return soon after her tenure, her successor was well placed to hire over a half-dozen new colleagues, based on what was much of her planning and success as a leader.

There is a lot more that I could say about Natalie, and the impact she has had – there are many who miss her greatly, and others whose stories I haven't got the room here to recount. She left us much too early, but she made a huge impact in the time she had with us. We all miss her.

In Memory of Suning Wang (1958-2020)

By Gang Wu



I met Suning on perhaps the coldest day in January of 1997, when I was interviewed by the Chemistry Department at Queen's University. After a full day of meetings, Suning and another colleague took me to a local Chinese restaurant for dinner. Having

been warned by friends that dinner could be part of the interview process as well, I naturally did not let my guard down. However, my caution was quickly evaporated by the energy and warmth irradiating out of Suning and, in that chilly wintery evening, I felt completely at home. After I joined the Chemistry Department, we became not only colleagues but also good friends. For 23 years in two different chemistry buildings, my office was always located just two doors down the hall from Suning's. It had become second nature to me that every morning before I went into my own office, I would look over to see if Suning's door was open. For most of the time, it was!

Suning was born in Nanjing, China, in 1958, but grew up in the northeast part of China. She was part of the famous Class 77, the first group of students who entered universities via a rigorous exam-based process after the ending of the Cultural Revolution in China. She completed

B.Sc. at Jilin University in 1982. Then she was admitted into the most prestigious US-China Chemistry Graduate Program (CGP) which offered scholarships to the brightest Chinese students to pursue graduate studies in the United States. She obtained her Ph.D. from Yale University in 1986. After finishing a three-year postdoctoral fellowship at the Texas A&M University, she moved to Canada. She first taught at the University of Windsor. In 1996 she came to Queen's as a Queen's National Scholar and quickly became a full professor in 2000.

Suning was an exceptional scientist. She was a pioneer of modern photochemistry of organoboron compounds and made seminal contributions to the use of these novel compounds in advanced materials. Her groundbreaking discoveries have inspired many researchers to explore organoboron chemistry. Suning published over 300 publications and held 5 patents with additional 7 patent applications filed/pending. Her research achievements have been recognized by many prestigious honours and awards including the Rutherford Memorial Medal in Chemistry by the Royal Society of Canada (2002), Fellowship of the Chemical Institute of Canada (2002), the Rio Tinto Alcan Award by the Canadian Society for Chemistry (2007), Fellowship of the Royal Society of Chemistry (U.K.) (2012), Killam Research Fellowship (2012-14), and Fellowship of the Royal Society of Canada (2015). In 2019, she was named a Queen's Distinguished University Professor.

To me, Suning has always been a role model. Her dedication and love for science have been

a constant inspiration to me. Over the years, while our research interests were different, we have co-authored 18 papers and co-supervised 3 graduate students. In addition to her outstanding research achievements, Suning was a popular teacher and a wonderful supervisor. She has supervised over 70 graduate students and 20 postdoctoral fellows. Suning was a passionate advocate for her students. She had such a joyful smile every time she told me a successful story about her students. Because of her dedication to education and training, Suning received twice the Excellence in Teaching Prize from the Chemistry graduating class (2010 and 2012), the Queen's University Prize for Excellence in Graduate Student Supervision (2017), and the inaugural Canadian Association for Graduate

Studies Award for Outstanding Graduate Mentorship (2018).

In the final days of her life, Suning was still concerned about the well-being of her students, exhausting the last ounce of strength to help students finalize their manuscripts and plan for their graduation. She also gave me the two pots of orchid flowers that she had kept in her office for many years. This is a perfect reflection of Suning's character: always caring about others before herself. From now on, every time I look at the beautiful orchid blossom, I will be thinking of Suning.

She will be sorely missed.

Undergraduate Life

By Katie Horgan and Josh Kofsky
(Chemistry DSC Presidents)

Warm wishes from the Chemistry Departmental Student Council (DSC)! This past year, we had the utmost pleasure of working with a team of 25 passionate and hardworking undergraduate students to improve the student experience for chemistry students. Our team worked tirelessly to plan social and academic programming to help our undergraduate community make stronger bonds to each other and to the department.

Undergraduates, graduate students, and professors had a blast at our annual "Pool with Profs" pool tournament in October; it was fantastic to see everyone mingle and get to know one another better. The spirit of competition continued in November with a department-wide game of tag, called Gotcha. It was so hotly contested that we were only able to crown a winner at our End-of-Year Banquet! Even with the unprecedented coronavirus crisis, we were very pleased to be able to cap off our year with this celebration of our students' hard work this academic term and to send off the Queen's Chemistry Class of 2020 in early March.

To complement the social programming, our team hit the books and hosted many peer-to-peer tutoring sessions and study nights open to all chemistry students. We also had the opportunity to work with the department to



further implement better study tactics and spaces for students, which was hindered by the early end to the semester. The DSC also hosted several info nights on topics such as tips and tricks for academic success targeted to each year, research funding opportunities, and the Queen's Internship Program.

We also had the opportunity to promote our chemistry program to first-year students at Majors Night and to prospective students at the Fall Open House. These outreach events allowed us to show some of the many friendly faces of the Queen's chemistry community and entice students to join us for a future in chemical industry, research, and beyond!

Please find us on Facebook as "Queen's Chemistry DSC" (www.facebook.com/QueensChemistryDSC/) to stay updated on the DSC's initiatives and events for the upcoming academic year!

Graduate Life

By Morgan Lehtinen

Greetings from the Queen's Graduate Chemistry Society (QGCS)!

The 2019-2020 academic year has brought us many unexpected twists and turns. As its end draws near, I can now look back and reflect on my time as QGCS President. The QGCS is comprised of 10 elected individuals who are dedicated to, and passionate about, providing the best graduate student experience within the Queen's Chemistry Department. Our team worked tirelessly throughout the year to advocate for our peers and foster a positive community within the department by organizing social, professional development and academic events. As President, I want to graciously thank each one these individuals for their hard work, because without them success would not have been achieved.

It is my great pleasure to introduce the 2019-2020 QGCS executive:

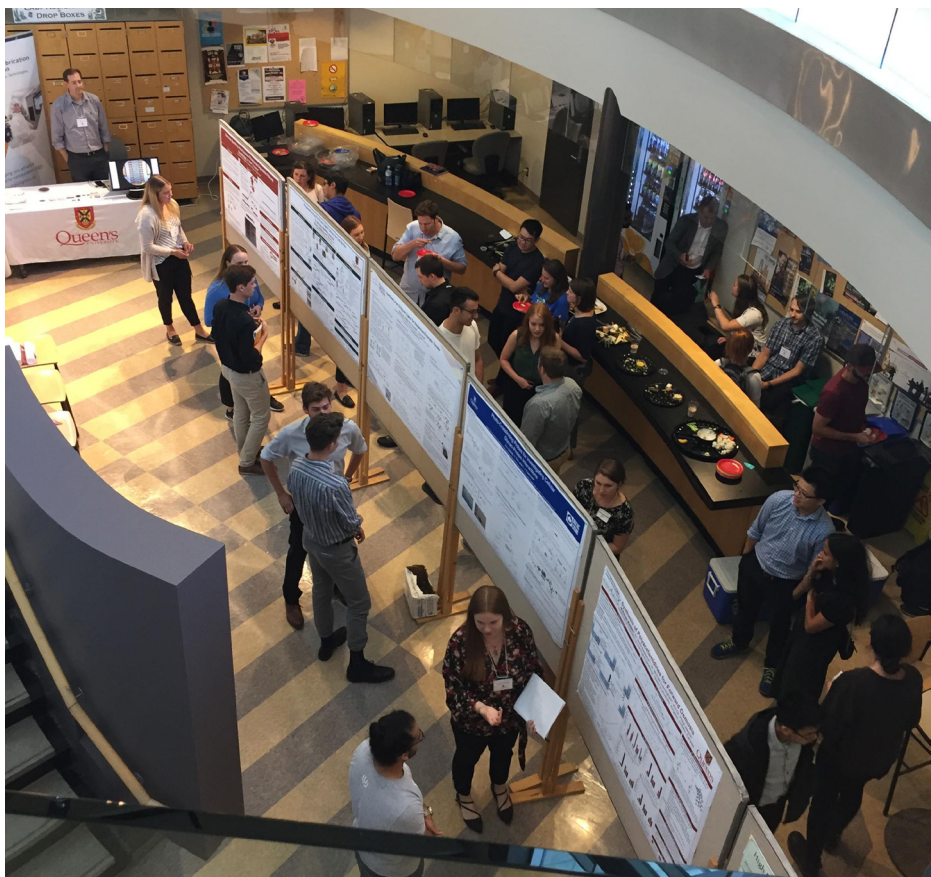
Igor Tadeu da Cunha, VP Internal Affairs; Jevon Marsh, VP External Affairs; Tina Tabrizzadeh, VP Finance; Hannah Ramsay, Outreach Coordinator; Calvin Palmer, Third Floor Representative; Hailey Tomm, Fourth Floor Representative; Bailey Smith, Fifth Floor Representative; Matt Sanger, Union Representative and Emily Groper, Secretary. Your efforts do not go unnoticed within the department and each of you should be immensely proud.

During our first QGCS executive meeting, we brainstormed what our ideal graduate degree would look like and what we, as a student society, could do to make that happen. The list was endless, but one major idea stood out – improving connection. These connections extended beyond our peers, to faculty members, Queen's Chemistry Alumni, and our local chemical community. We envisioned a degree program where students have endless opportunities to learn about career paths, find successful mentors, and spark new discussions that traditionally would not exist. Therefore, we set out to work planning our events and initiatives for the year, with the motto of "Creating Bonds Within Our Chemical Community!"

The fall semester started off with a bang

with the 12th Annual Graduate Chemistry Symposium held during orientation week. This event hosted over 80+ individuals, welcomed new students to the department and offered a unique opportunity for graduate and post-doctoral researchers to share their work with colleagues, faculty and industry members in a supportive environment. To keep with our theme of "Creating Bonds Within Our Chemical Community" we partnered with the Chemical Institute of Canada's Kingston Local Section, which consists of a network of students, academics and industry members that hold roles as chemists, chemical engineers and chemical technologists in Kingston and the surrounding area. Through this partnership, individuals from local institutions such as RMC, as well as industrial colleagues from GreenCentre, Kingston Process Metallurgy Inc., DuPont and others, attended the symposium to learn about the work being done within the department and network with students. To add something new to this year's symposium we introduced a career development session containing two panel discussions; "Transitioning from Graduate School to Your Career" and "What Else is Out There? Non-Traditional Careers for Chemists". These panels welcomed back departmental alumni and shared valuable insight on how to best prepare for next steps after graduate school. After months of hard work, the QGCS could not have been more proud of the symposium's outcome and we thank each and every student, faculty member, staff and industrial colleague who made it happen.

Upon the arrival of Queen's Homecoming, the QGCS and Chemistry Department hosted a collaborative event to welcome back the Queen's Chemistry Innovation Council (QCIC); a successful group of Queen's chemistry and chemical engineering alumni that take an active role in the betterment of our department. Over two days we treated them to graduate student research posters, live technology demonstrations, and an engaging panel discussion on "The Future of Chemistry." Stories were shared, technical research was discussed, and, above all, everyone left inspired that we, as scientists, can help shape a brighter future. The involvement of the QCIC members has been invaluable. As experts of their fields, they have shed light on the diverse opportunities a chemistry degree grants



and made lasting impressions on the graduate student body.

With the gracious support of the QCIC we were able, for the first-time ever, to bring students to the heart of the chemical industry by hosting behind the scenes tours of chemical plants in Kingston. When polling students, we realized that many indicated “industry” as their proposed career path, but had never actually set foot in an industrial chemical plant...this had to change. Thank you to GreenCentre and Kingston Process Metallurgy Inc. for stepping up and helping us organize this successful pilot event. The event series was planned to continue this spring with additional tours, including a visit to DuPont and a “chemistry field trip” to visit Apotex Pharmachem Inc. and Blachford in the Toronto area. Unfortunately, with the onset of COVID-19 these tours have been postponed until further noticed, but we have promised our

student body they will occur as soon as it is safe to do so.

COVID-19 brought other unexpected challenges to the QGCS, but we did not let it stop us! Pivoting from our original strategic plan, we were able to offer a virtual Professional Development and Learning Series hosted by the outstanding Arthur B. McDonald Canadian Astroparticle Research Institute. Weekly workshops were held starting April 2020 regarding important topics such as presentation skills, resume writing, interview tips and effective LinkedIn strategies, all targeted towards physicists and chemists. These sessions not only provided a new and unique opportunity to our graduate students, but also helped to keep our community connected during this difficult time of social distancing. A huge thank you to the McDonald Institute for welcoming us and including us in the process!

continued

Another exciting new implementation was born from the collaboration of the QGCS and Chemistry Department, manifesting in the addition of the Chemistry Graduate Student Ambassador position. The Ambassador is responsible for guiding students interested in applying for graduate studies through the application process and, eventually, in their transition to the department. We are eager to hear about the results of this effort in the upcoming years, but preliminary feedback has been positive! In between the networking and research symposia, the QGCS is dedicated to fostering a positive community within the department. A selection of this year's highlighted events includes welcome day activities for new students, summer BBQs, trips to the Wolfe Island Corn Maze, bowling and euchre nights as well as involvement in global initiatives such as the IUPAC Global Women's Breakfast. Additionally, the QGCS provides free Wednesday morning coffee as a time to take a break to socialize with peers and encourage discussion and collaboration between researchers. We also continued the tradition of a Winter Formal held at the Grizzly Grill for a night of delicious food, drinks and pool to celebrate a semester well done. Initiatives and events like these are the backbone

of our society, creating new memories for friends and colleagues to look back on for years to come.

To say I have enjoyed my time as the QGCS President is an understatement. Serving in this role has been one of the most fulfilling, though challenging, experiences of my career. It is important to note that I would not be here without the dedicated QGCS executive and every student, faculty, staff and industry member who gave their time to participate in our events. Being able to give back to the Queen's Chemistry Department as both the Undergraduate Student President in 2015-2016 and QGCS President in 2019-2020 has been an honour and leaving my chemistry family upon graduation will be bittersweet. Upon reflection, the QGCS is proud of our success, having achieved our goal of creating new bonds within our community. We cannot wait to see how these bonds continue to strengthen for years to come.

To the incoming QGCS, I wish you the best of luck on your future endeavours and have the utmost confidence in your success!



2019-20 Departmental Highlights

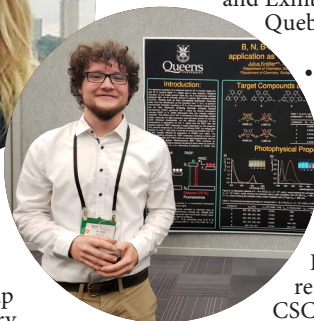
June 2019

- Morgan Lehtinen (pictured on right), PhD candidate in the Liu group, who receives first place in the 2019 Young Persons' Lecture Competition presented by the Institute of Materials, Minerals and Mining and the Arthur McDonald Institute for her talk on her research in and the importance of innovative green technologies in oil/water separation.
- A recent paper from the Snieckus group (pictured below) is highlighted in Chemistry World. The Directed Metalation Group Dance, a reaction coined in the Snieckus group, may be useful in advancing syntheses

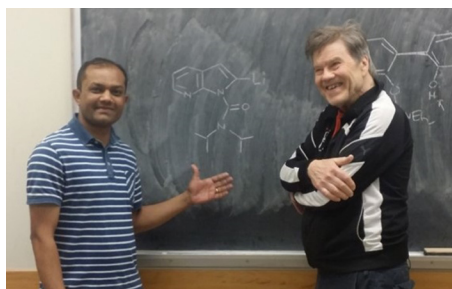


of azaindoles, a currently active antitumor agent class of molecules.

- Congratulations to Julius Knöller (pictured below) in the Suning Wang group, for receiving the Organic Chemistry Division of the Canadian Society for Chemistry prize for his outstanding presentation at the 102nd Canadian Chemistry Conference and Exhibition (CCCE) in Quebec in June 2019.



- Congratulations to Sherry Dai and Betty Lin from the Wu group for winning the Best Student Oral Presentation and Best Poster Presentation prizes, respectively, at the CSC held in Quebec, Quebec, June 3-7, 2019.



continued

2019-20 Departmental Highlights *(cont'd)*



on Analytical Sciences and Spectroscopy; Calvin Palmer, MSc Candidate, received the prize for the second-best poster at the same conference; Margaret MacConnachie

July 2019

- Dr. Jean-Michel Nunzi (*pictured above*) and his graduate student team receives \$55,000 from the Scheme for Promotion of Academic and Research Collaboration (SPARC). The research in Durgapur is on the design and fabrication of hybrid nanostructured organic field-effect transistors for environmental and bio-fluid detection and monitoring.



- Dr. Jessop's (*pictured left*) technology purification technology, also known as forward osmosis, is one step closer to commercial success. This highly energy efficient technology featured in the Queen's Gazette removes many pollutants and impurities from waste water. The technology could be of great interest to the chemical industry, municipalities, factories, etc. and would change the waste water to fresh water available for re-use or discharge.



- Dr. Kevin Stamplecoskie (*pictured left*) receives the 2019 ThermoFisher Scientific Spectroscopy Award at the 63rd International Conference on Analytical Sciences and Spectroscopy in Montreal, Quebec.

- Diane Beauchemin's graduate student group wins the following prizes: Alastair Kierulf, PhD candidate, received the Burgener Research Graduate Student Travel Award at the 63rd International Conference



Photo Above:
Dr. Beauchemin, presenting awarded prize

and Andrew Williams, both MSc Candidates received the best and second-best poster prizes during Spectr'Atom 2019 conference.

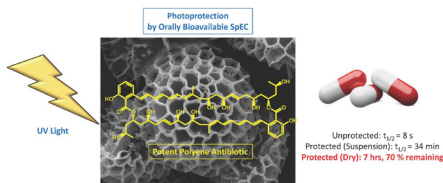


- Dr. Amanda Bongers (*pictured right*) joins the Department of Chemistry as an Assistant

Professor in
Chemistry
Education.



- Dr. Graeme Howe (*pictured left*) joins the Department of Chemistry as an Assistant Professor in Physical Organic Chemistry.



August 2019

- Professor P. Andrew Evans in collaboration with Dr. Grahame Mackenzie at the University of Hull and Professor Rebecca Goss at St Andrews recently reports an innovative way for the isolation and photoprotection of the potent light-sensitive antibiotic, marinomycin A in *the Times (UK)* and the *Queen's Gazette*.

September 2019

- Congratulations to Dr. Ralph Whitney who is recognized for his contributions in engineering and teaching excellence at the 125th Anniversary Queen's Engineering Excellence Faculty Awards, hosted in Mitchell Hall on Wednesday, September 18th.



Photo Above:
Dr. Ralph Whitney, recognized for his contributions in engineering and teaching excellence

October 2019

- Morgan Lehtinen, PhD candidate in the Liu group places third in the Young Persons' World Lecture Competition in London England on Oct. 10, 2019 (pictured right).
- Queen's Chemistry Innovation Council returns



to the Department. QIC members came to Queen's on Oct. 17th and 18th to participate in our student poster session, dinner, and day-long meeting to discuss the state and future of the chemistry department. The after-dinner speaker is alumnus Anton Toutov, Founder & Chief Science Officer, Fuzionaire and Fuzionaire Diagnostics.

- On Saturday October 19th, 2019, the doors of Chernoff Hall is open to welcome back alumni. We are honoured to have students, staff, families, and alumni all in attendance to celebrate this year's Queen's homecoming. The day is filled with food, fun conversations, and tours of Chernoff Hall!



Photo Above:
Alumni exploring Chernoff Hall to welcome students, staff, families & alumni, celebrating homecoming

- Soren Mellerup (pictured right), a recent PhD graduate from the Suning Wang group, has won the 2019 AGS (Canadian Association for Graduate Study) Distinguished Doctoral Dissertation Award that is given to two top doctoral students by CAGS per year in recognizing the student distinguished contributions to research.



- 2019 August Queen's Alumni Review features many faces of Chemistry; Matthias Hermann, PhD student in the Oleschuk group, talks about inventing a portable spectrometer to detect toxic metals

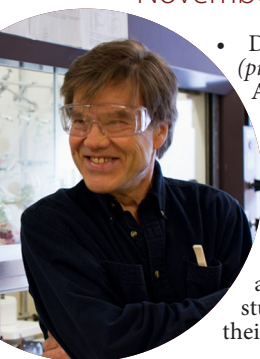
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in water; Dr. Cathleen Crudden talks about pushing the boundaries of science; Dr. Victor Snieckus discusses the importance of fundamental science and the magic of chemistry.



Photo Above:
Photo credit of the Queen's Alumni Review.

November 2019



- Dr. Victor Snieckus (pictured left) receives the Award for Excellence in Graduate Student Supervision, this award recognizes those outstanding supervisors who demonstrate excellence in advising, monitoring and mentoring graduate students through their training.

• This year's Chemistry's 4th year thesis poster presentations, held on November 28th is a huge success.



- Dr. Tucker Carrington (pictured left) is elected to the International Academy of Quantum Molecular Science.

• It is with great sadness that we learn Dr. Natalie Cann, 51, died on Sunday Dec. 15, 2019. Flags are lowered to half-mast on campus Friday, December 20, in her honour.

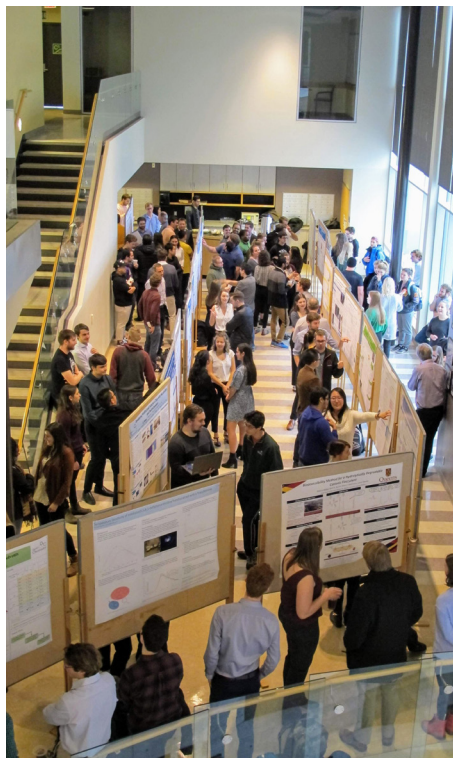


Photo Above:
Chemistry's fourth year thesis poster presentations



December 2019

- Dr. Donal Macartney (pictured above, left) wins the graduating class award for excellence in teaching chemistry award.

- Dr. Peter Look (pictured left), professor and former Department Head accepts a position as Dean of Science at University of Victoria where he conducted his PhD. Research.





- The Stan Brown Lecture Series is established through the generosity of Queen's alumni. At the Inaugural Lecture on February 28th, the invited speaker was Dr. Peter Schreiner of the Institute of Organic Chemistry at Justus Liebig University.

March 2020

- Matthias Hermann wins the Canadian Society for Chemistry (Analytical Division), Ryan-Harris Award.

April 2020

- The Departments of Chemistry and Chemical Engineering along with the GreenCentre Canada make hand sanitizer to help local hospitals. In the Queen's Gazette article, Dr. Richard Oleschuk, Head, Department of Chemistry says "our health care professionals have enough to worry about at the moment and should not have to be concerned about rationing hand sanitizer as we try to 'flatten the curve'. There were three sites being used (two at the university and one at GreenCentre Canada) to make 300 litres of product per week to help meet the needs of Kingston hospitals.
- The 4th year project presentations, the Walter McFarlane Smith Prize are awarded to Katelyn Downey, and the M. Sullivan & Son Ltd. Scholarship awarded to Jourdain Piette (pictured below). The judges for the competition are Drs. Richard Oleschuk and Ralph Whitney.

January 2020

- The Engineered Nickel Catalysts (pictured above) for Electrochemical Clean Energy research team visits Queen's before wrapping up the \$4 million NSERC grant that could revolutionize clean energy technology through the use of nickel.

- Dr. Farnaz Heidar-Zadeh (pictured left) joins the Department of Chemistry in Theoretical and Computational Chemistry. Her group will develop new mathematical tools, numerical algorithms, and computer software to qualitatively and quantitatively predict the outcome of chemical phenomena.



February 2020

- Nicole Dozois (pictured below) an MSc Candidate in the Bongers group, is awarded the Queen's Chemistry EDII Award that funds her trip to the CWICNetwork LOGIC2020 Retreat! This award is sponsored Queen's University Arts and Science and recognizes her equity, diversity, & inclusion efforts at Chemistry!



Photo Above:
The Stan Brown Lecture Group

continued



National NSERC & OGS Recipients

- The following students win national NSERC awards for 2020-2021:

Jevon Marsh (PGSD3 Petitjean group)
Joshua Kofsky (CGSM Capicciotti group)
Celena Hoeve (CGSM Petitjean group)
Katharine Manas (CGSM Petitjean group)
Polina Novoseltseva (CGSM Petitjean group)
Angus Sullivan (CGSM Crudden group)

- Ontario Graduate Scholarship recipients for 2020-2021 are:

Liam Varvaris (MSc- Jerkiewicz)
Brandon Becher Nienhaus (PhD - Liu)
Yushi Liang (MSc- Petitjean)
Viveka Kulkarni (MSc - Crudden)
Marina Tintor (MSc - Jerkiewicz)
Sam Hollards (MSc - Zechel)

- The 2020/2021 elected executives of Queen's Graduate Chemistry Society are:

Igor Tadeu da Cunha, President
Dianne Lee, VP Internal Affairs
Polina Novoseltseva, VP President External
Brandon Becher Nienhaus, VP Finance
Margaret MacConnachie, 3rd Floor Rep.
Joshua Kofsky, 4th Floor Rep.
Nicole Dozois, 5th Floor Rep
Matthew Sanger, Union Rep
Dan Barker, Outreach Coordinator
Tina Tabrizzadeh, International Student Representative



TA Teaching Awards

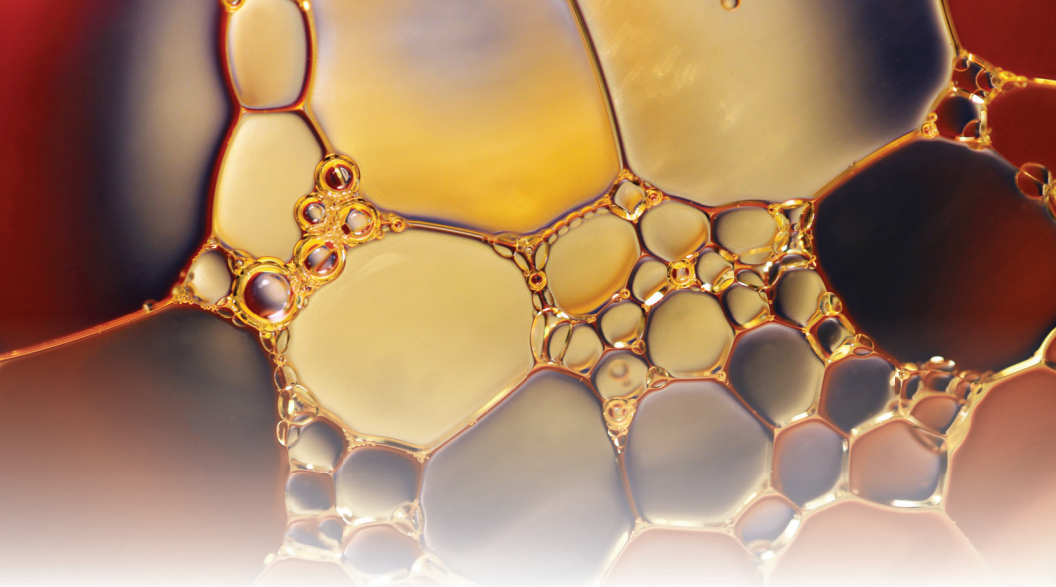


Promoting Excellence in Teaching Assistants in Chemistry

TA Award recipients (left to right): Adam Bernicky, The McAdie Chemistry Doctoral Award; Emily Groper, William Patrick Doolan Prize in Chemistry; Hannah Ramsay, Friends of Chemistry TA Award; Jadab Majhi, Fisher Scientific Award; Travis Ferguson, Friends of Chemistry TA Award (absent) Carolyn Kimball, 1960's Scholarship. Jasmine Buddingh, Friends of Chemistry TA Award



Congratulations to the Class of 2020!



Friends
of
Queens
Chemistry



We are pleased to announce that the following speakers have been confirmed for our 2020-2021 Seminar Series. For more information and dates, please visit our website at:

<http://www.chem.queensu.ca/departamental-seminar-series>

Prof. Jeremiah A. Johnson, Massachusetts Institute of Technology
Prof. Lei Jiang, Beihang University