

## Dean's Round-up: May 2023

### FACULTY HIGHLIGHTS

The Faculty of Science published its **2022 Annual Review**, “Our Community, Our Impact.” This publication is a collection of our Faculty’s highlights and accomplishments from 2022, showcasing how we are striving to make York Science a great place to study, to research, and to be proud community members. [Read the report.](#)



The **Science Engagement Programs (SEP)** team partnered with Main Street Markham to host the Faculty of Science’s 15th Science Rendezvous, which included more than 50 volunteers, 2,000 participants, and internal and external collaborators. The Mayor of Markham Frank Scarpitti declared May 13, 2023 as Science Rendezvous Day and presented the certificate to **Robert Tsushima** (Biology), one of the original organizers of Science Rendezvous. Highlights included more than 20 STEM activities from the SEP team; chemistry virtual reality with **Kyle Belozarov** and **Derek Jackson** (Chemistry);

chemistry magic show with **Hovig Kouyoumdjian**'s chemistry society students; mathemagic activities with **Hongmei Zhu** and **Amenda Chow** (Mathematics & Statistics); microscopy of ticks and mosquitos with **Jean-Paul Paluzzi**'s (Biology) lab; and solar viewing and games with the **Observatory** team. Check out the [recap video](#).

The SEP team also collaborated with Lions Sport Camp to deliver two science workshops for participants at Congress 2023 Camp. Participants were engaged in topics about unbreakable bubbles and Ozobots.



The Faculty of Science hosted the 2023 [Annual General Meeting of the Canadian Council of Deans of Science](#) to share knowledge and strengthen pan-Canadian advocacy for science education. The three-day event was attended by 30 science and associate deans from universities across Canada, and featured talks by experts on topics including research data storage and security; the emergence of AI and its effect on academic integrity; student and employee mental health and well-being; equity, diversity, inclusion and accessibility in science education; an update on NSERC funding mechanisms; and internationalization strategy.

A [new Chair](#) has been appointed to take on leadership of the Department of Mathematics & Statistics. Effective July 1, 2023, **Michael Haslam** will assume the role of Chair for a term of three years.

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## CONGRATULATIONS



A photo by **Robin Metcalfe** (Science, Technology & Society) won the Royal Astronomical Society (Mississauga Centre) 2022 [Astrophotography Contest](#), in the General Astroscope category.

PhD student **Nayanthara Asok** (supervised by **Thomas Baumgartner**, Chemistry) won a poster prize at the third From Carbon Rich Molecules to Carbon-Based Materials Conference.

**Elizabeth Clare** (Biology) was awarded an NFRF-E grant named "The ethical challenge to non-invasive environmental (e)DNA technology" to study how eDNA from the air can be used to study honey bee hive health. Collaborators include co-I **Amro Zayed** (Biology); co-I Lauren vanPatter (U Guelph); and co-I Crystal Tremblay (U Victoria).

Co-applicants **Christine Le** and **Christopher Caputo** (Chemistry) were awarded and kicked-off a Mitacs Accelerate Grant in collaboration with the company BIC worth \$273,333 to further develop the chemistry behind semi-permanent tattoos.

Former MSc student **Melodie Lao** (supervised by **Trevor VandenBoer**, Chemistry), was the recipient of one of three university wide thesis prizes for 2022, which are awarded for exceptional theses defended in a given year. Lao's work has so far produced two lead author contributions and two co-authored in peer-reviewed publications.

Undergraduate Science student **Yashna Manek** (double major in mathematics for education and French studies) received a [Robert Everett Exceptional Leadership in Student Governance Award](#), which recognizes and celebrates students and their impact on governance at York. Her many contributions include the Science Student Caucus, Faculty Council, various Faculty committees, Science Student Ambassador, Student Senator, Senate Appeals, and the Senate T&P Committee. At Bethune College, she has been a peer mentor to new students, is supporting new student advising this summer and is currently the Executive Vice President of Bethune College Council.

**John McDermott** (Biology) and co-applicant **Jorg Grigull** (Mathematics & Statistics) received an NSERC Alliance grant for about \$0.5 million in total for a four-year project entitled "Genomic Analysis of Virus Infected Cultured Cells", with Sanofi Pasteur Limited.

**Adam Muzzin** (Physics & Astronomy) was awarded a [44-hour program on the James Webb Space Telescope](#). His project, entitled "JWST in Technicolor: Finding and Mapping the Most Extreme Star Forming Galaxies in the Epoch of Reionization with Medium and Narrow Bands," was the second-largest successful Canadian program in terms of time granted with the telescope.

A research project led by **Woldegebriel Assefa Woldegerima** (Mathematics & Statistics) and another co-led by **Iain Moyles** (Mathematics & Statistics) were [among 13 projects](#) selected for funding by the Canadian Institutes of Health Research to advance research on mpox and other zoonotic diseases to improve health outcomes. Woldegerima (principal investigator) received \$480,000 for his project entitled “Modelling, predicting and risk assessment of mpox and other (re)emerging zoonotic threats to inform decision-making and public health actions.” Moyles is co-principal investigator, along with Professors Bouchra Nasri (Université de Montréal) and Monica Malta (University of Toronto), on a project entitled “Epidemiological modelling of behavioural impact on Mpox mitigation strategies,” which received \$412,000.

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## MORE NEWS

The **Science Engagement Programs** team is collaborating with Skills for Change, Black Community Access Program (SfC BCAP) to offer an after-school and weekend STEM program at York University for black youth in underserved communities across the GTA who are interested in pursuing STEM (science, technology, engineering, and mathematics). From May 4 to July 6, youth will be engaged in STEM topics, including sustainability, space science, science of sports, and wearable technology.

**Thomas Baumgartner** (Chemistry) was an invited speaker at the third From Carbon Rich Molecules to Carbon-Based Materials Conference. He presented “(Un)usual phosphorus-based concepts for organic materials.”

**Kyle Belozarov** and **Derek Jackson** (Chemistry) served as panelists at the Open Educational Resources Adoption & Adaptation Panel held during the Virtual Learning Strategy Collection Open House. The event was organized by eCampusOntario.

**Jairo Diaz-Rodriguez** (Mathematics & Statistics) presented “Spatial estimation of virus infection propensity from GPS spatio-temporal locations” at the 2023 Statistical Society of Canada (SSC) Annual Meeting. He was also runner-up for the SSC New Investigator Presentation Award.

**Ilijas Farah** (Mathematics & Statistics) presented an invited lecture on Corona rigidity at the Nankai Logic Colloquium.

**Hanna Jankowski** (Mathematics & Statistics) was elected to the Board of Directors of the Statistics Society of Canada.

**Jude Kong** (Mathematics & Statistics) organized the session “Fairness in Machine Intelligence for Global Health” at the Consortium of Universities for Global Health 2023 conference, presented a talk at the Next Einstein Forum Webinar series on leveraging responsible artificial intelligence methods for population health and health systems, and delivered a presentation to South African university leaders on mobilizing AI to build



equitable, resilient governance strategies and increase societal preparedness for future global pandemics and climate disasters.

[YFile](#) profiled **OneWATER**, a new organized research unit at York directed by **Sylvie Morin** (Chemistry). OneWATER brings together York's experts on water-related issues in multiple disciplines across several Faculties and units.

**Kelly Ramsay** (Mathematics & Statistics) presented "FKWC tests for differences in the covariance structure of functional data" at the 2023 International Conference on Robust Statistics and the 2023 Statistical Society of Canada Annual Meeting.

**Paul Skoufranis** (Mathematics & Statistics) gave a presentation on Majorization in  $C^*$ -Algebras at the Canadian Operator Symposium (May 22-26) at Western University.

Undergraduate students **Chenyang Yue** and **Arghavan Sammak Moghaddam**, also members of the Global Leaders of York Science, were selected to attend the Life Science Ontario Awards Gala; their table was sponsored by Moderna.

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## RESEARCH HIGHLIGHTS

PhD student **Nayanthara Asok**, undergraduate student **Benjamin A. Zondag**, postdoc **Ekadashi Pradhan**, undergraduate exchange student **Mary Odagwe**, PhD student **Jesse LeBlanc**, Joshua C. Walsh, Graham J. Bodwell, **Tao Zeng**, and **Thomas Baumgartner** (Chemistry) published [Exploring the Lewis Acidity of Neutral Pentacoordinate Dithienophospholes](#) in *Chemistry - A European Journal*.

Abdalghani Daaoub, James Morris, former postdoc **Vanessa Béland**, former postdoc **Paul Demay-Drouhard**, MSc student **Amaar Hussein**, Simon Higgins, Hatef Sadeghi, Richard Nichols, Andrea Vezzoli, **Thomas Baumgartner** (Chemistry), and Sara Sangtarash published [Not so Innocent after all: Interfacial Chemistry Determines Charge-Transport Efficiency in Single-Molecule Junctions](#) in *Angewandte Chemie International Edition*.

Former PhD student **Daniel Calderón** and **Ilijas Farah** (Mathematics & Statistics) published [Can you take Akemann–Weaver's diamond away?](#) in the *Journal of Functional Analysis*.

Jenna C. Ditto, former postdoctoral fellow **Leigh R. Crilley**, former MSc student Melodie Lao, **Trevor C. VandenBoer** (Chemistry), Jonathan P. D. Abbatt, and Arthur W. H. Chan published [Indoor and outdoor air quality impacts of cooking and cleaning emissions from a commercial kitchen](#) in *Environmental Science: Processes & Impacts*.

MSc student **Amaar Hussein**, PhD student **Nayanthara Asok**, former postdoc **Vanessa Béland**, former postdoc **Joshua Gaffen**, PhD student **Jesse LeBlanc**, and **Thomas Baumgartner** (Chemistry) published [Development of the P-Arylation of Dithieno\[3,2-](#)

[b:2',3'-d\]phosphole with Aryl Iodonium Salts](#) in *ChemPlusChem*.

PhD student **E. Ali McKnight**, PhD student **Dusty Cadwallader**, and **Christine M. Le** (Chemistry) published [Carbofluorination of  \$\pi\$ -Bonds and Related Reactions Involving Tandem C–C/C–F Bond Formation](#) in the *European Journal of Organic Chemistry*. This was an invited contribution as a part of EurJOC's #NextGenOrgChem issue to highlight rising talent in organic chemistry.

PhD student **E. Ali McKnight**, Ramon Arora, postdoc **Ekadashi Pradhan**, undergraduate student **Yuriko H. Fujisato**, Ayonitemi J. Ajayi, Mark Lautens, **Tao Zeng**, and **Christine M. Le** (Chemistry) published [BF<sub>3</sub>-Catalyzed Intramolecular Fluorocarbonylation of Alkynes via Halide Recycling](#) in the *Journal of the American Chemical Society*.

Former postdoc **Jeta Molla**, Idriss Sekkak, Ariel Mundo Ortiz, **Iain Moyles** (Mathematics & Statistics), and Bouchra Nasri published [Mathematical modeling of mpox: A scoping review](#) in *One Health*.

Marina Banuet-Martinez, Yang Yang, Behnaz Jafari, Avneet Kaur, Zahid A. Butt, Helen H. Chen, Svetlana Yanushkevich, **Iain R. Moyles**, **Jane M. Heffernan** and postdoc **Chapin S. Korosec** (Mathematics & Statistics) published [Monkeypox: A review of epidemiological modelling studies and how modelling has led to mechanistic insight](#) in *Epidemiology & Infection*.

Francis Borceux, Federico Campanini, Marino Gran, and **Walter Tholen** (Mathematics & Statistics) published [Groupoids and skeletal categories form a pretorsion theory in Cat](#) in *Advances in Mathematics*.

Davide Carpentiere, Alfio Giarlotta, and **Stephen Watson** (Mathematics & Statistics) published [Modal preference structures](#) in the *Journal of Mathematical Psychology*.

PhD student **RenXi Ye**, Robert A. Di Lorenzo, PhD student **Jessica T. Clouthier**, **Cora J. Young** (Chemistry), and **Trevor C. VandenBoer** (Chemistry) published [A novel derivatization method for the separation and quantitation of C<sub>2</sub>-C<sub>14</sub> perfluorocarboxylic acids from aqueous matrices by gas chromatography-mass spectrometry](#) in *Analytical Chemistry*.

**\*For a full list of publications from the Faculty of Science, see our [website](#).\***

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## MEDIA

Research by former PhD student **Sabour Baray** and **Robert McLaren** (Chemistry) on methane emissions in Canada was highlighted in a [La Presse](#) article exploring human versus natural methane emissions.

Research by **Elizabeth Clare** (Biology) was mentioned in a story in [Science](#) about axolotl, the “salamander of the gods,” which may be extinct in the wild, and the team’s attempts to find the last remnant populations in Mexico using eDNA.

**Dasantila Golemi-Kotra** (Biology) spoke to *CTV News* and *Newstalk 800 CJAD* about research that found ammonium compounds in products such as wipes and hand sanitizers.

**Neal Madras** and **Thomas Salisbury** (Mathematics & Statistics) were quoted in an article in [The Star](#) about the Raptors’ odds of winning the NBA draft lottery.

Research by **Sandra Rehan** (Biology) on the impact of urbanization on wild bees was covered by [Forbes](#), [CTV News](#), [Toronto.com](#) and other media outlets.

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## EVENTS

**Aug 16:** [Summer Research Conference](#), Life Sciences Building Lobby.

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## INTERNATIONAL PARTNER INSTITUTION PROFILE

The Faculty of Science has established multiple partnerships with various international institutions. In order to better inform the York Science community of these international partner institutions, we will provide a brief profile of each of them in our Dean’s Round-up.



Founded in 1981, the University of Macau (UM) is an international public comprehensive university in Macao. Eighty per cent of the faculty members are from outside Macao, and English is the main medium of instruction.

Currently, there are more than 12,500 students at UM. For undergraduate education, the university adopts a '4-in-1' collaborative education model, which consists of discipline-specific education, general education, research and internship education, and community and peer education. With a credit system and a collegiate system, the University offers over 100 degree programs at bachelor's, master's, and doctoral levels, covering a variety of fields, including literature, language, business administration, marketing, accounting, finance, international integrated resort management, science, education, biomedical science, law, history, economics, psychology, sociology, communication, engineering, computer science, and Chinese medical sciences.