

## Dean's Round-up: August 2023

### FACULTY HIGHLIGHTS



The **Science Engagement Programs (SEP)** team welcomed over 500 students to campus this summer for Science Explorations Summer Camps (grade 3 to 8) and the Spark Lab Program (grade 9 to 12). With 27 unique camp themes, students engaged in a variety of topics including environmental chemistry, space adventures, forensic chemistry, structural engineering, and more. Popular programs this summer included Neuroscience; Mini-Med School; Pharmaceutical Chemistry, taught by **Kyle Belezorov** and **Derek Jackson** (Chemistry); Blood-Borne Diseases, taught by PhD student **Farwa Sajedi** (Biology); and Introduction to Genetics, taught by MSc student **Marishia Agard**. The SEP team is extremely thankful for the continued support from faculty and staff including, but not limited to Senior Lab Technicians **Maria Mazzurco** (Biology), **Michelle Barton** (Chemistry), **Mr. Wu** (HazMat Tech) and all the mentors who shared their research with our campers.



The SEP team also welcomed Member of Parliament Judy Sgro (Humber River-Black Creek) to York University on August 3 to discuss the importance of youth engagement in STEM. Along with her granddaughter and Constituency Office Manager, MP Judy Sgro was given a tour of SEP's camps and engaged with the instructors and campers.

**Bethune College** hosted Academic Orientation for all incoming Faculty of Science undergraduate students on August 30. Over 900 students came to campus for an afternoon of activities, including meeting with their departments, professors and senior students in their major. Students also had the option of campus tours and a consent workshop in the morning, and visits to the **Allan I. Carswell Observatory** in the evening. Thank you to all of the faculty, staff and students who made orientation possible.

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## CONGRATULATIONS

Twenty-two colleagues received a total of more than \$4 million from the NSERC Discovery Grants program. Recipients included **Mark Bayfield** (Biology), **Raymond Kwong** (Biology), **Emanuel Rosonina** (Biology), **Rui Wang** (Biology), **Jennifer Chen** (Chemistry), **Ryan Hili** (Chemistry), **Sergey Krylov** (Chemistry), **Jingyi Cao** (Mathematics & Statistics), **Huaxiong Huang** (Mathematics & Statistics), **Patrick Ingram** (Mathematics & Statistics), **Seyed Moghadas** (Mathematics & Statistics), **Kelly Ramsay** (Mathematics & Statistics), **Thomas Salisbury** (Mathematics & Statistics), **Woldegebriel Assefa Woldegerima** (Mathematics & Statistics), **Yuehua Wu** (Mathematics & Statistics), **Mike Zabrocki** (Mathematics & Statistics), **Patrick Hall** (Physics & Astronomy), **Deborah Harris** (Physics & Astronomy), **Marko Horbatsch** (Physics & Astronomy), and **Junwu Huang** (Physics & Astronomy).

At the Faculty of Science [Summer Undergraduate Research Conference](#), more than 60 students attended to present their research projects. The following science students received awards for their oral presentations:

- **Hannah Le**, won first place for the project "Value-Added Vat Orange 3 Dyes for Functional Materials Development," supervised by **Thomas Baumgartner** (Chemistry);
- **Chiara Di Scipio**, won second place for the project "Investigating the signaling cascade of a CAPA neuropeptide in the Malpighian tubules of the fruit fly, *Drosophila melanogaster*," supervised by **Jean-Paul Paluzzi** (Biology); and

- **Isaac Kogan**, won third place for the project “Using Machine Learning to Interpret LFIA Results,” supervised by **Sergey Krylov** (Chemistry).

The following science students received awards for their poster presentations:

- **Jessica Latimer**, won first place for the project “Practical Accuracy Assessment of Equilibrium Dissociation Constants,” supervised by **Sergey Krylov** (Chemistry);
- **Sarah Powell**, won second place for the project “Theoretical particle physics on quantum computers,” supervised by Randy Lewis (Physics & Astronomy); and
- **Yash Shrestha**, won third place for the project “Exploration of altered synaptic pruning in an autism model mouse,” supervised by **Steven Connor** (Biology).

Colleagues received nearly \$50K from the Academic Innovation Fund for the project “Inclusive Laboratory Experiences: Is Science at York Accessible?” The focus of the project is to learn more about the needs and experiences of students and instructors receiving/providing accommodation within the laboratory setting. The overall goal is to share best practices and improve accessibility and equity in undergraduate science labs. Co-applicants are **Tamara Kelly** (Biology), **Paula Wilson** (Biology), Educational Development Specialist **Ashley Nahornick**, **Nicole Nivillac** (Biology), **Chris Jang** (Biology), **Gloria Orchard** (Physics & Astronomy), **Ozzy Mermut** (Physics & Astronomy), and **Sarah Rugheimer** (Physics & Astronomy).

PhD student **Jordan Krywonos** (supervised by Matthew Johnson, Physics & Astronomy) received a [Vanier Canada Graduate Scholarship](#).

Undergraduate students **Arman Sadr** and **Mustafa Abdulkadhim** received [Robert J. Tiffin Student Leadership Awards](#).

MSc student **Eric Vanhauwaert** (co-supervised by Trevor VandenBoer and Cora Young, Chemistry) received the Student Poster Award for his presentation at the Canadian Chemistry Conference and Exhibition in June. The title of his presentation was “A passive air sampling technique for ultra-trace quantitation of gas-phase perfluoroalkyl carboxylic acids.”

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## MORE NEWS

The Faculty of Science hosted the first annual [Conversations on Science Education Symposium](#). The event centred on facilitating conversations among Faculty of Science instructors, drawing on their collective knowledge of teaching and learning to share best practices and identify ways to improve science teaching within the Faculty. The keynote speaker, Michelle Hogue (University of Lethbridge), spoke about “Decolonizing Teaching and Learning in STEM.” The event was co-organized by Pedagogical Innovation Chair in Science Education **Tamara Kelly** (Biology), Educational Development Specialist **Ashley Nahornick** and **Paula Wilson** (Biology).

The **Department of Physics and Astronomy** hosted the [22nd International Symposium on Correlation, Polarization and Ionization in Atomic and Molecular Collisions](#) at Schulich ELC on August 4-6. The symposium was supported by the FSc. Dean's Office and Office

of the VPRI. Forty participants from around the world attended the event, which was a satellite to a much larger [conference](#) held in Ottawa. **Marko Horbatsch** (Physics & Astronomy) was the local Chair for the symposium at York, and **Tom Kirchner** (Physics & Astronomy) was the local Chair for the conference in Ottawa.

The Faculty of Science collaborated with the Asian Business and Management Program to host Shanghai University's "Jump to Start Summer Camp" July 25-August 6.

The **Office of International Collaborations and Partnerships** hosted the York Science SDGs Summer Camp for Global Leaders of York Science (GLYS) 2023-2024 cohort. Charles Hopkins, UNESCO Chair UNESCO Chair in Reorienting Education towards Sustainability at York University and Katrin Kohl, Executive Coordinator, both shared their insight and knowledge. The recording can be watched here:

<https://youtu.be/hbakkCYUuVE>

**Ilijas Farah** (Mathematics & Statistics) co-organized the [Workshop on Operator Algebras and Applications: Connections with Logic](#) at The Fields Institute on August 28-September 1. This workshop was the first of several events in the [Thematic Program on Operator Algebras and Applications](#) at The Fields Institute that he is also co-organizing.

At the Western Conference on Science Education, the following sessions were offered by our biology colleagues:

- **Tamara Kelly, Nicole Nivillac** and **Paula Wilson** (Biology) presented a workshop entitled "Adjusting teaching loads to recognize the new reality of teaching;"
- **Kelly** and colleagues from U Calgary, UBC, Thomson Rivers U and U of T gave a presentation entitled "The Canadian Consortium of Science Equity Scholars – a multi-institutional approach to improving equity and sense of belonging in the classroom;"
- **Kelly** and **Tanya Da Sylva** (Biology) gave a presentation entitled "Embracing the authentic complexity of phenotypes to enhance belonging;"
- Undergraduate students **Jacqueline DaSilva** and **Svati Balaji**, with **Kelly** and **Da Sylva**, presented a poster entitled "Complexity genetics: Determining levels of genetic deterministic thinking of undergraduate biology students."



**Robin Marushia** (NATS) successfully ran the first ever field course for the Division of Natural Science. Her course, NATS1665 Plants in the City, aims to cure "plant blindness" by engaging students in hands-on plant identification labs and walking excursions in and around the York campus.

**Kevin McGregor** (Mathematics & Statistics) gave a talk at the Joint Statistical Meetings in Toronto entitled "Proportionality-based association measures in count-based compositional data."



At the 2023 International Congress on Industrial and Applied Mathematics (ICIAM) in Tokyo, Japan, August 19-26, **Iain Moyles** (Mathematics & Statistics) represented Canada on behalf of the Canadian Applied and Industrial Mathematics Society at the President's meeting, which has a representative from all international member societies to discuss ICIAM initiatives and society business. As well, he presented the talk "An analysis of a model of fear in disease transmission," and his graduate student **Laura Keane** presented their joint work, "Simulation and analysis of space charge layers in a solid electrolyte."

**Kelly Ramsay** (Mathematics & Statistics) presented the poster "FKWC tests for differences in the covariance structure of functional data" at the Joint Statistical Meetings.

**Walter Tholen** (Mathematics & Statistics) organized and chaired a special session in honour of the late F. William Lawvere at the annual international conference Category Theory, held at UCLouvain in Louvain-la-Neuve, Belgium. At the same conference, visiting PhD student **Matheus Duzi** (University of Sao Paulo) presented "Categorical incarnations of infinite games," based on joint work with **Paul Szeptycki** and **Tholen**.

At the [Applied Mathematics, Modeling and Computational Science Conference](#) hosted at Wilfrid Laurier University August 14-18, **Woldegebriel Assefa Woldegerima** (Mathematics & Statistics) presented a contributing talk entitled "Machine Learning Models to Classify and Predict Subclinical Atherosclerosis" at the Mathematics and Computation in Biological Sciences and Medicine session, which he also chaired; and presented an invited talk entitled "Investigating the Impact of Novel Transmission-Blocking Anti-malarial Drugs: A Mathematical Modelling Approach" at the Modelling NPI and PI in Epidemics/Pandemics session. The latter session was organized by **Iain Moyles** and **Jane Heffernan** (Mathematics & Statistics).

**Huaiping Zhu** (Mathematics & Statistics) chaired the organizing committee of the [4th International Conference on Dynamics of Differential Equations](#), in Memory of Jack K. Hale, held at The Fields Institute August 14-17. The conference was financially supported by the Faculty of Science and York University, the Fields Institute, NSF and NSERC. Fifty-nine speakers presented their research at the conference, including two Hale memorial Lectures, 10 plenary lectures and 48 invited lectures, and 112 people participated. **Jianhong Wu** was a plenary speaker, and **Jane Heffernan** and postdoc **Pei Yuan** were invited speakers.

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## RESEARCH HIGHLIGHTS

Former undergraduate student **Stanslav Baltchev** and **Paul Szeptycki** (Mathematics & Statistics) published [Finite betweenness relational structures are not Fraïssé](#) in *Sarajevo Journal of Mathematics*.

Xiaoming He, Ling Chen, and **Thomas Baumgartner** (Chemistry) published [Modified Viologen- and Carbonylpyridinium-Based Electrodes for Organic Batteries](#) in *ACS Applied Materials & Interfaces*.

Former undergraduate and PhD student **Voislav Blagojevic** and Professor Emeritus

**Diethard K. Böhme** (Chemistry) published [Relativistic Effects on Rate and Product Formation in the Gas-Phase Methane Chemistry of Late Atomic Transition Metal Cations](#) in the Special Issue: New Frontiers in Gas Phase Chemistry and Catalysis of the *Israel Journal of Chemistry*.

Former postdoc **Jorge Bruno** and **Paul J. Szeptycki** (Mathematics and Statistics) published [A proof of the tree alternative conjecture under the topological minor relation](#) in the *Journal of Combinatorial Theory, Series B*.

Graduate student **Taylor P.L. Cosby** and **Christopher B. Caputo** (Chemistry) published [Exploration of bis\(pentafluorophenyl\)borinic acid as an electronically saturated, bench-top stable Lewis acid catalyst](#) in *RSC Sustainability*.

Zilin Zhou, former postdoc **Leigh R. Crilley**, Jenna C. Ditto, **Trevor C. VandenBoer** (Chemistry), and Jonathan P. D. Abbatt published [Chemical Fate of Oils on Indoor Surfaces: Ozonolysis and Peroxidation](#) in *Environmental Science & Technology*.

Former postdoc **Vinicius de Oliveira Rodrigues**, Victor dos Santos Ronchim, and **Paul J. Szeptycki** (Mathematics & Statistics) published [Special sets of reals and weak forms of normality in Isbell-Mrowka spaces](#) in *Commentationes Mathematicae Universitatis Carolinae*.

**B. Radics** (Physics & Astronomy), L. Molina-Bueno, L. Fields, H. Sieber and P. Crivelli published [Sensitivity potential to a light flavor-changing scalar boson with DUNE and NA64 \$\mu\$](#)  in *The European Physical Journal C*.

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

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## MEDIA

Professor Emeritus **Paul Delaney** (Physics & Astronomy) spoke to *CP24*, *Global TV*, *CTV News*, *Sirius XM*, *NewsTalk 1010*, *AM640* and *AM900* about a number of topics, including the blue supermoon, Chandrayaan-3 landing on the Moon, Voyager 2 communication issue, space tourism, the Perseid meteor shower, and the Luna 25 probe crash.

**Dasantila Golemi-Kotra** (Biology) spoke to *105.9 The Region* about the faster-spreading EG.5 variant of COVID-19.

**Elaina Hyde** (Physics & Astronomy) spoke to *AM900* about India's and Russia's moon missions, and to *CBC Radio* and *CBC News* about the blue supermoon.

**Patricia Lakin-Thomas** (Biology) weighed in on a [Global News](#) story about how changes in sleep schedules are potentially linked to harmful gut bacteria and other negative health impacts.

**Jesse Rogerson** (Science, Technology & Society) spoke to *CBC Radio* and *CBC News* about the peak of the Sturgeon moon, the blue supermoon, moon missions and what Canada can learn as it prepares for its 2024 launch with the US.

**Sarah Rugheimer** (Physics & Astronomy) spoke to *Newstalk 1010* about extraterrestrial life and the Perseid meteor showers.

**Cora Young** (Chemistry) spoke to *CBC Radio*, [CityNews](#), *AM640*, *AM900* and [Toronto.com](#) about the THE CIX (Toronto Halogens, Emissions, Contaminants, and Inorganics eXperiment) project she is leading to examine and analyze the components contributing to the city's air pollution. In an article in [Chemical & Engineering News](#), Young also weighed in on global pollutants that are contaminating the Arctic as climate change threatens to intensify the problem.

**Amro Zayed** (Biology) was interviewed by [The Weather Network](#) about why wasps tend to show up in higher numbers near the end of the Summer season.

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## EVENTS

**Sept 28:** Exploring Open Education in the Sciences, workshop delivered by Stephanie Quail, Director of the Open Scholarship Department at York University Libraries. 2:00-4:00pm on Zoom. [More details and registration](#).

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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.



### The University of York

The University of York (United Kingdom) was established in 1963 and has expanded to more than thirty departments and centers, covering a wide range of subjects. They are a member of the prestigious Russell Group of 24 leading UK universities, ranked 167<sup>th</sup> in the QS World University Rankings 2024, and had seven world top 100 subjects in the QS World University Rankings by subject in 2023. They were also ranked joint 10<sup>th</sup> in the UK for the quality of their research in the Times Higher

Education (THE) ranking of the Research Excellence Framework in 2021.

University of York students become a member of one of the University's 11 colleges, and a wide variety of clubs and societies make it easy for new students to integrate and feel at home throughout their studies. York has more than 22,000 students from more than 150 different countries and over 130,000 alumni from all over the world.