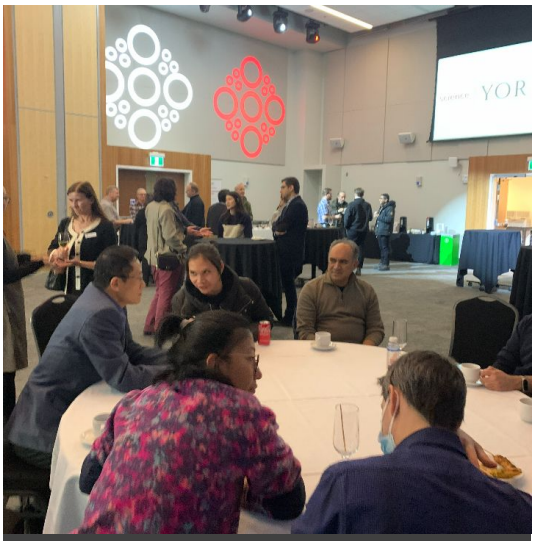
science | YORK

Dean's Round-up: January 2023

We hosted our annual Honours & Awards Ceremony on January 30 to congratulate more than 230 Science students and trainees who had received awards and scholarships in 2021-2022. We also announced and celebrated the recipients of the Faculty of Science Dean's Special Recognition Awards, Excellence in Teaching Awards, and Excellence in Research Awards (recipients listed below). Read the recap of the ceremony.



On January 23, we hosted our York Science Social in the Second Student Centre. The event, part of the Community 2022 initiative, is a bi-monthly, informal social gathering for faculty, staff, and graduate students to connect with their peers. The next York Science Social will be held on March 28, 2023; you can RSVP here.

CONGRATULATIONS

At our 2023 Honours & Awards Ceremony, the following staff and faculty members received Faculty of Science awards:

- **Hugo Chen**, director of International Collaborations & Partnerships – Dean's Special Recognition Award
- **Stephen Watson** (Mathematics & Statistics) – Dean's Special Recognition Award
- **Christopher Jang** (Biology) – Excellence in Teaching Award in the Junior Tenure Stream Faculty category
- **Alireza Rafiee** (NATS) – Excellence in Teaching Award in the Contract Faculty category
- Graduate student **Farwa Sajadi** (Biology) – Richard Jarrell Excellence in Teaching at the Graduate Level Award
- Graduate student **Evangelia Tzamali** (Lassonde) – Richard Jarrell Excellence in Teaching at the Graduate Level Award
- **Jude Kong** (Mathematics & Statistics) – Excellence in Research Award in the Early Career Researcher category
- **Neal Madras** (Mathematics & Statistics) – Excellence in Graduate Mentorship Award

Thomas Baumgartner (Chemistry) received an Alexander von Humboldt Fellowship for previous award winners, allowing him to spend up to three months at the University of Regensburg and complete a lecture tour through Europe.

Andrew Skelton (Mathematics & Statistics) received a York University Teaching-Learning Development Grant for the project "Longitudinal Analysis of a First-Year Learning Skills Class for At Risk Students."

The Department of Mathematics & Statistics ran its first Bernoulli Challenge, a contest based on the first-year mathematics curriculum at York. With over 50 students from across Science and Lassonde registered for the event, the winners were Science students **Joe Tran** (first place), **On Yi Lui** (second place) and **Tien Phan** (third place).

MORE NEWS

The **Chemistry Society** at York and **Department of Chemistry Recruiting Committee** organized an Undergraduate Research Orientation and Graduate Open House joint event, which attracted over 100 undergraduate students and tens of graduate students and faculty members. The event featured talks by 14 faculty members and poster presentations by chemistry graduate students, as well as tours of chemistry and biochemistry labs at the Petrie, Chemistry and Life Sciences Buildings. The event was a great opportunity to showcase the cutting-edge research conducted in the department and to orient students on current undergraduate research opportunities and future graduate studies.

York Science collaborated with York International to participate in a virtual international fair hosted by international partner Sup'Biotech Paris (France). Over 100 prospective students attended.

Kyle Belozerov (Chemistry) presented his team's work on introducing virtual reality into

the biochemistry classroom at the Champions in Higher Education for XR (CHEX) online meeting.

Director of International Relations & Partnerships **Hugo Chen**, Science International Recruiting Coordinator **Mingming Li** and undergraduate student **Arghavan Sammak Moghaddam** hosted an orientation for the second intake of Global Leaders of York Science (GLYS). The ten new ten GLYS members include **Sarah Damiani**, **Raha Pishrow**, **Amna Imran**, **Irtiqu Zafar**, **Gregory Churkin**, **Ahmed Dar**, **Vanessa Rapang**, **Gurkiran Bhathal**, **Rainee Del Rosario**, and **Seray Koçyiğit**.

Jude Kong (Mathematics & Statistics) presented "Adaptive changes in sexual behaviour in the high-risk population in response to mpox can control the outbreak: insights from an epidemic model" at the Joint Mathematics Meetings in Boston; co-organized a MfPH workshop at the Fields Institute on Early Warning Systems for Emerging and Re-emerging Diseases; and presented a talk to grades 7-8 students in St Joseph Catholic School Toronto on "How Mathematics Can Save Lives." He was also spotlighted by the Temerty Centre for AI Research and Education in Medicine, University of Toronto.

YFile featured research by Distinguished Research Professor **Sergey Krylov** (Chemistry) and postdocs **Vasily Panferov** and **Nikita Ivanov** whereby they invented an enhancement step for lateral flow immunoassay that increases sensitivity by 25 to near 100 per cent.

Organized by **Neal Madras** with assistance by **Ann-Marie Carless**, **Alexey Kuznetsov**, **Tom Salisbury** (Mathematics & Statistics) and staff at Bethune, York hosted the annual Winter Training Seminar (a.k.a. "Winter Camp") of the Canadian Mathematical Society. Twenty of Canada's top high school math competitors stayed on campus for five days and honed their mathematical problem-solving skills in Bethune College. Attendees included the leading prospects for the 2023 Canadian teams at the International Mathematical Olympiad in Japan and the European Girls' Mathematical Olympiad in Slovenia.

Robin Metcalfe (Science, Technology & Society) presented "Adventures in Nightscaping: The Milky Way, Star Trails, an Eclipse and a Bear" to the Royal Astronomical Society Mississauga Branch.

Daniela Monaldi (Science, Technology & Society) was invited to be a speaker at the two-day Colloquium on History and Foundations of Quantum Mechanics at Paris City University on the occasion of the publication of *The Oxford Handbook of the History of Interpretations of Quantum Mechanics*, to which she contributed a chapter.

Iain Moyles (Mathematics & Statistics) was the keynote speaker at The Infectious Disease Modeling Colloquium hosted by the Centre de recherches mathématiques at the University of Montreal.

Undergraduate student **Gina Quan** represented Science in the "Ask Me Anything- York Recruitment Event in China," attended by 40 prospective students and their parents.

Ilijas Farah (Mathematics & Statistics) was one of four speakers/panelists at the Second European Set Theory Colloquium.

Cora Young (Chemistry) was named to the Editorial Board of the Royal Society of Chemistry journal *Environmental Science: Processes and Impacts*.

RESEARCH HIGHLIGHTS

Former postdoc **Leigh Crilley**, former MSc student **Melodie Lao**, PhD student **Leyla Salehpoor** and **Trevor C. Vandenboer** (Chemistry) published Emerging investigator series: An instrument to measure and speciate the total reactive nitrogen budget indoors: description and field measurements in *Environmental Science: Processes & Impacts*.

Former PhD student **Teles C. Furlani**, current PhD student **RenXi Ye**, former Mitacs visiting PhD student **Jordan Stewart**, former postdoc **Leigh R. Crilley**, Peter M. Edwards, Tara F. Kahan, and **Cora J. Young** (Chemistry) published Development and validation of a new in situ technique to measure total gaseous chlorine in air in *Atmospheric Measurement Techniques*.

MSc student **Nina R. Garrett**, Jonathan Watkins, Nancy B. Simmons, Brock Fenton, Alejandro Maeda-Obregon, Daniel E. Sanchez, Emma M. Froehlich, Faith M. Walker, Joanne E. Littlefair, and **Elizabeth L. Clare** (Biology) published Airborne eDNA documents a diverse and ecologically complex tropical bat and other mammal community in *Environmental DNA*.

Mark D. Johnson, Matthew A. Barnes, MSc student **Nina R. Garrett**, and **Elizabeth L. Clare** (Biology) published Answers blowing in the wind: Detection of birds, mammals, and amphibians with airborne environmental DNA in a natural environment over a yearlong survey in *Environmental DNA*.

Joel Dapello, **Kohitij Kar** (Biology), Martin Schrimpf, Robert Geary, Michael Ferguson, David D. Cox, and James J. DiCarlo. “Aligning model and macaque inferior temporal cortex representations improves model-to-human behavioral alignment and adversarial robustness,” selected for an oral presentation at the International Conference on Learning Representations.

Conor M.W. Douglas (Science, Technology & Society) published International Experiences and Made-in-Canada “Social Pharmaceutical Innovations” as Responses to Challenges Facing Drugs for Rare Diseases in a special issue of *Healthcare Papers* entitled “Expensive drugs for rare diseases in Canada: what value and at what cost?”

Ilijas Farah and former PhD student **Alessandro Vignati** (Mathematics & Statistics) published Obstructions to countable saturation in corona algebras in the *Proceedings of the American Mathematical Society*.

Former postdoc **Amir Homajoun Nejah** and **Walter Tholen** (Mathematics & Statistics) published A categorical review of complete regularity in *Topology Proceedings*.

Zhongzheng Fu, Amirsaman Sajad, Steven P. Errington, **Jeffrey D. Schall** (Biology) and Ueli Rutishauser published Neurophysiological mechanisms of error monitoring in human and non-human primates in *Nature Reviews Neuroscience*.

Ian Charlesworth and **Paul Skoufranis** (Mathematics & Statistics) published Analogues of Entropy in Bi-Free Probability Theory: Microstates in the *International Mathematics Research Notices*.

PhD student **Lucas C. Torres**, postdoc **Amandeep Brar**, PhD student **Jesse LeBlanc**, previous undergraduate student **Clive Boateng Ameyaw**, and **Christopher B. Caputo** (Chemistry) published Reactivity of Alkynyl Phosphines with Lewis Acids for the Synthesis of Allenic Phosphonium Borate Zwitterions in *Zeitschrift für anorganische und allgemeine Chemie*.

PhD student **Shuangshuang Yin**, **Jianhong Wu** and postdoc **Pengfei Song** (Mathematics & Statistics) published Optimal control by deep learning techniques and its applications on epidemic models in the *Journal of Mathematical Biology*.

For a full list of publications from the Faculty of Science, see our website.

MEDIA

Collectively, Professor Emeritus **Paul Delaney** (Physics & Astronomy), **Elaina Hyde** (Physics & Astronomy), **Jesse Rogerson** (Science, Technology & Society) and **Sarah Rugheimer** (Physics & Astronomy) were featured in more than 40 media interviews and/or stories about the rare green comet that approached Earth for the first time in 50,000 years. Their engagement included *CTV News*, *Global News*, *Toronto Sun*, *CBC Radio*, *Newstalk 1010*, and many more radio, tv and online news programs and stories. Additionally, **Delaney** was interviewed by *CTV* about a radio signal from a distant galaxy, and *Global TV* and *Newstalk 1010* about an asteroid flyby. And, **Hyde** spoke to *CBC Radio* about what to look forward to in space events in 2023, to *AM 640* about space tourism and light pollution impacting night sky viewing, and to *Newstalk 1010* about a radio signal from a distant galaxy.

Research by **Sapna Sharma** (Biology) and her team on how the safety of lake ice is changing across the Northern Hemisphere due to climate change received extensive media coverage, including by *CBC Radio* and *CBC News* (republished by *Yahoo News* and *MSN*), *The Weather Network*, *CP24*, and more. Read the press release from York University and *yFile* story.

Trevor VandenBoer (Chemistry) spoke to *Global News* and *Corus Radio Network* about pollutants from gas stoves and their link to respiratory conditions.

EVENTS

Feb 23: EDI Reading Group, topic: Impostor phenomenon and mental health: the influence of racial discrimination and gender. 10-11am on Zoom.

Feb 24: 7 years, 17 goals, 5 dimensions – teaching STEM with purpose: education for sustainable development at the core. 1-2pm on Zoom. Please RSVP.

Feb 27: Science Graduate Students Teaching & Learning Chat, 11am-noon on Zoom.

For a full list of events, visit our Community 2022 website.

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.

Nanyang Technological University

Nanyang Technological University (NTU) is one of the top public universities in Singapore and ranked 19th in QS World University Rankings 2023. NTU has 33,000 undergraduate and postgraduate students in engineering, business, science, humanities, arts, social sciences, education and medicine.

Ranked the top university in the world for citations in artificial intelligence (Nikkei and Elsevier 2017) for the period 2012-2016, NTU is embracing digital technologies for

better learning and living as part of its Smart Campus vision. It has partnerships with the world's leading technology companies such as Alibaba, Rolls-Royce, BMW, Volvo, Delta Electronics, and Singtel in many areas of societal importance and impact that include artificial intelligence, data science, robotics, smart transportation, computing, personalised medicine, healthcare and clean energy. NTU has 61 Green Mark Platinum awards for its building projects.

In addition to its main campus in the western part of Singapore, NTU also has a medical campus in Novena, Singapore's healthcare district, and has a joint medical school with Imperial College London.