



**2022
UNDERGRADUATE
RESEARCH
CONFERENCE**

HOSTED BY

*The Arts and Science Students Union (ASSU)
At the University of Toronto
February 17, 2022*



2022 Undergraduate Research Conference

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2022 Undergraduate Research Conference

Letter from the Conference Directors

We are excited to have you join us for the fifth annual (and second ever virtual) ASSU Undergraduate Research Conference!

This conference has been in the works for many months and we have dedicated numerous hours to organizing this event. An event like this is a team effort and we would like to thank all the student presenters, volunteers, faculty members, programs, departments, and Course Unions who supported us along the way. We would especially like to thank the students of our Selections Committee, along with the committee chairs: Professors John De Backere, Rivanne Sandler, and Lynette Ong.

Our purpose is to showcase the research that is being undertaken by undergraduate students across all academic fields within the Faculty of Arts and Science. Presenters will have the opportunity to break barriers between disciplines and present their research to a wide audience; such opportunities are often few and far between for undergraduates. Audience members will have the opportunity to listen to expertise on the innovative research that is being done at U of T, engage with students, and think critically about the knowledge that is being shared.

Though COVID has presented many setbacks, we wanted to ensure that the conference was still able to go on. We believe that now more than ever, students can benefit from learning from and supporting their peers, and appreciate that accomplishments continue to be made despite barriers. We are truly inspired by the resilience and hard work of our students. Today's presentations will illuminate the work that our students continue to do and, most importantly, highlight their dedication to learning, finding solutions, and contributing to global change.

We hope that you enjoy the conference, and we cannot thank you enough for supporting our Arts and Science community.

Sincerely,

Sidrah Rana
Chemistry | Physics | Mathematics
Executive, Arts & Science Students' Union

Cianna Choo
Neuroscience | Molecular Genetics | Microbiology
Treasurer, Arts & Science Students' Union

Arts & Science Students' Union | University of Toronto | Room 1068, 100 St George Street, Toronto | 416-978-4903 | assu.ca

The University of Toronto is situated on the territory of the Huron-Wendat and Petun First Nations, the Seneca, and most recently, the Mississaugas of the Credit River.



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Keynote Address

Is Spacetime Fundamental? A Progress Report on Black Holes and Quantum Information.

A grand goal of modern theoretical physics is to figure out the operating system of the universe - for subatomic particles, forces, and the fabric of spacetime. Einstein's General Relativity, which describes heavy things, and Quantum Mechanics, which describes small things, are remarkably successful theories from an experimental perspective. But several deep puzzles still remain unsolved. In their talk Professor A.W Peet seeks to provide an accessible introduction to how investigations at the intersection between black holes and quantum information has led to significant recent advances in our understanding of the fundamentals of spacetime. No prior experience with any of these topics will be expected.

About the Keynote Speaker

A.W Peet is a Professor of Physics at the University of Toronto. They hold a B.Sc.(Hons) from the University of Canterbury and a Ph.D. from Stanford University. Their research expertise is in theoretical subatomic physics, where they investigate questions about the quantum nature of spacetime using black holes as a theoretical laboratory. Their awards include a Radcliffe Fellowship from Harvard and a Research Fellowship from the Alfred P. Sloan Foundation. They are also an advocate for equity on and off campus, and were awarded the Arts & Sciences Students' Union Terry Buckland Award for Diversity and Equity in Education. They grew up in the South Pacific island nation of Aotearoa/New Zealand and have lived experience of misogyny, ableism, and transphobia.





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Selections Committees

SCIENCES SELECTIONS COMMITTEE

Academic Chair: **Dr. John De Backere**
Associate Professor | Chemistry

Student Members: **Thomas Hall**
Ecology & Evolutionary Biology | Human Biology | Forest Conservation

Ryan Ripsman
Physics | Mathematics | Statistics

Wenyuan (Kevin) He
Molecular Genetics | Physiology

HUMANITIES SELECTIONS COMMITTEE

Academic Chair: **Dr. Rivanne Sandler**
Associate Professor Emerita | Near and Middle Eastern Studies

Student Members: **Sabrina Ren**
Art History | Book Media Studies

Yi Le Zachary Lo
Philosophy

Sarah Rana
Contemporary Asian Studies

SOCIAL SCIENCES SELECTIONS COMMITTEE

Academic Chair: **Dr. Lynette Ong**
Associate Professor | Political Science | Munk School of Global Affairs
and Public Policy

Student Members: **Aida Zarghami**
Political Science | Environmental Studies

Madison Skoblo
Political Science | History | European Studies

Zoheir Asnaashary
Political Science | Near and Middle Eastern Studies



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Day Schedule

Thursday, February 17, 2022

Time	Location (within Zoom)	Item
10:00 AM – 10:30 AM EST	Main Room	Opening Remarks
10:30 AM – 11:30 AM EST	Various Breakout Rooms	Morning Session
11:30 AM – 12:00 PM EST	--	BREAK
12:00 PM – 1:00 PM EST	Main Room	Keynote Address
1:00 PM – 2:00 PM EST	Various Breakout Rooms	Afternoon Session
2:00 PM – 2:30 PM EST	Various Breakout Rooms	Poster Presentations
2:30 PM – 2:45 PM EST	Main Room	Closing Remarks

Registration Link: <https://zoom.us/meeting/register/tJAvcu6rqj8rE9yCK0zt6FJthB12el-1sqLD>

Detailed Itinerary

- 10:00 AM – 10:30 AM Opening Remarks
Melanie Woodin, Dean of the Faculty of Arts & Science
Conference Directors
- 10:30 AM – 11:30 AM Morning Session
Room I: Social Injustices & Impacts
Room II: Languages & Interpretations
Room III: Ecology & Psychology
- 11:30 AM – 12:00 PM BREAK
- 12:00 PM – 1:00 PM Keynote Address
- 1:00 PM – 2:00 PM Afternoon Session
Room IV: Equity & Solidarity
Room V: Science & Exploration
Room VI: International Crises & Policy
Room VII: Investigations & Reflections
- 2:00 PM – 2:30 PM Poster Presentations
- 2:30 PM – 2:40 PM Closing Remarks



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Morning Session: 10:30 AM – 11:30 AM

Room I: Social Injustices & Impacts

Room Moderator: Anusha Madhusudanan

10:30 AM

A Carceral Solution That Maintains Violence – Legal Regulation of Sex Work (Bill C-36)

Neel Desai

10:45 AM

Un Violador En Tu Camino: A collective cry

Raquel Serrano

11:00 AM

George Bryce's Story of Canada: Archeology and Geology as Tools of Indigenous Erasure

Kendall Sneyd

Room II: Language & Interpretation

Room Moderator: Shaina Sharma

10:30 AM

An Exploration of Rhetoric in Anti-Mask and Pro-Mask Movements

Juliette Blais-Savoie

10:45 AM

Tubiel's Phoenix: On the Transference of the Identity of the Fallen Angel

Rion Levy

11:00 AM

How do Different Interpretations of Filial Piety Affect the Child-Parent Relationship?

Sophia Zhang

11:15 AM

Children's Understanding of Possibility in the Past and Future

Jeanne Polochansky

Room III: Ecology & Psychology

Room Moderator: Micah Kalisch

10:30 AM

How Climate Change Affects Oyster Growth and Survival

Aaron MacDonald



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10:45 AM

Online Psychological Testing using Executables: A Case Study on Visual Memory Resolution

James Yuan

11:00 AM

Road mortality and mitigation measures to reduce impacts on amphibian species in the Greater Toronto Area

Nicole Regimbal

11:15 AM

Optogenetic Stimulation of the Locus Coeruleus Enhances Extinction of Reward Seeking

Ashleigh Brink

Afternoon Session: 1:00 PM – 2:00 PM

Room IV: Equity & Solidarity

Room Moderator: Fatemeh Nami

1:00 PM

Adaptation of Lebanese Muslims to the Albertan town of Lac La Biche: Strategies and Experiences of Discriminated Migrants and their Solidarity with Local Indigenous Peoples

Timothy Boudoumit

1:15 PM

Strengthening Legal Equity: Muslim Women in Family Law

Lina Lashin and Leena Badri

1:30 PM

Transformative Resilience through collective action: A study on migrant led organizing in Toronto

Tenzin Chime

Room V: Science & Exploration

Room Moderator: Mariam Ali

1:00 PM

Employing galaxy morphology to decode galaxy evolution

Daniella Morrone



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1:15 PM

The Differential Influence of Schema and Category Knowledge on Memory in Age-Related Cognitive Decline

Miranda Chang

1:30 PM

Effect of Impulsiveness on Traumatic Brain Injuries

Christina Choo

1:45 PM

Root colonization patterns of a novel *Bacillus* strain isolated from Canadian soil in protection of plants against fungal pathogen *Botrytis cinerea*

Miya Tseng-West

Room VI: International Crises & Policy

Room Moderator: Basmah Ramadan

1:00 PM

Internationalizing the War: The FLN and the Algerian War of Independence, 1954-1962

Tessa Di Vizio

1:15 PM

Refugee Integration During Economic Crisis: A Case Study in Turkey

Oya Darici

1:30 PM

Women, Climate Change and Peacebuilding: The Kenyan Story

Shreya Vohra

1:45 PM

Addressing the State of International Healthcare: An Analysis of Health Inequities in Developed Nation

Samraggi Hazra

Room VII: Investigations & Reflections

Room Moderator: Jolie Gan

1:00 PM

I Won't Be Like: An Investigation of the Use of Constructed Dialogue in the Greater Toronto Area (GTA)

Mechelle Wu



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1:15 PM

Investigating the Effect of COVID-19 on the 2020 US Presidential Election

Isabella Giancola

1:30 PM

Determining the status of [v] and [w] in Urdu: A case study

Aiman Khan

1:45 PM

"Locke on Natural Law and Natural Rights"

Radheesh Ameresekere

Poster Session: 2:00 PM – 2:30 PM

[Breakout Room 8]

On detecting face cycles in incrementally constructed planar graphs

Vishnu Nittoor

Photoperiodism sensitivity in Ivyleaf morning glory, *Ipomoea hederacea*, reveals important considerations for climate change-mediated range shifts

Jessie Wang

Review of Types and Applications of Bioplastics

Jahnavi Dalmia

[Breakout Room 9]

Why are bones abnormal in babies who stop growing before they're born?

Tsz Wing Chu

Subjective well-being shapes U.S. presidential, Senate, and House election outcomes

Elizabeth Chan

Kilonovae: We don't know what we don't know.

Utkarsh Mali



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[Breakout Room 10]

Regulation of Runx3 expression in early proprioceptor development
Jenny Jiahuan Liu

Parent-Child Kinship Detection in Preschool-Aged Children
Elida Nexha & Anastassiya Tregubenko

[Breakout Room 11]

Analysis of Stem Cell Self-Renewal and Differentiation in the Drosophila Ovary
Jacky Jia Jie Liu

Validation of a Lipoxin B4 Receptor Interaction Using the Cellular Thermal Shift Assay
Mahdieh Golzari – Sorkheh

Broaden-and-Build Model: A Pilot Study on Positive Mood and Change Detection for Visual Scenes
Emily Wang:

[Breakout Room 12]

Identifying Bilingual Children's Use of Strategies in English and French Word Categorization: A Comparative Case Study
Hasaan Sobaan

The Impact of Personal Cost and Need on Children's Helping Behaviour
Elisabetta Canaletti

Granular Analysis of Pretrained Object Detectors
Eric Xue:

[Breakout Room 13]

Suspension based induction of human lung organoids
Jocelyn Nurtanto

Building RNAi library for RNA binding proteins in C.elegans nervous system
Congrong He

Design and optimization of an on-axis microscope system for integration into PIRL-DIVE-MS (Picosecond Infrared Laser-Desorption by Impulsive Vibrational Excitation-Mass Spectrometry)
Lubna Burki