Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

International Year of Quantum Science and Technology (IYQ) 2025

- IYQ recognizes 100 years since the initial development of quantum mechanics, the importance of quantum science and the need for wider awareness of its past and future impact.
- Opening Ceremony took place at UNESCO Headquarters in Paris, February 4-5, 2025
  - Large Canadian presence, speakers, delegates, panelists

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INTERNATIONAL YEAR OF
Quantum Science
and Technology

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- Launched Canada wide task-force during 2024 Congress to coordinate activities with monthly meetings

- Applied to NSERC Special Opportunities Fund successful at $25,000

- Launched sponsorship opportunities at Platinum, Gold, Silver, Bronze level with corresponding value propositions

- Created website for IYQ Canada
  - Quantumcanada2025.ca

Co-chairs
Daria Ahrensmeier, Simon Fraser University (Chair of CAP's Division of Quantum Information)
Oliver Stelzer, TRIUMF (CAP's Director of International Affairs)
Task Force Members
Hemish Ahuja, York University (Student Advisory Council rep.)
Svetlana Barkanova, Memorial University of Newfoundland
Olivia Di Matteo, UBC/QuantumBC
John Donohue, University of Waterloo/IQC
Anna Dyring, University of Toronto
Francine Ford, Canadian Association of Physicists
Nir Rotenberg, Queen's University
Pamela Fuentes Peralta, University of Toronto
Shohini Ghose, Wilfrid Laurier University / IUPAP WG QS&T
Melissa Greene, Université de Sherbrooke/Curieux Quantique
Ania Harlick, University of Toronto (DPE)
Thomas Jennewein, Simon Fraser University
James LeBlanc, Memorial University
Lindsay LeBlanc, University of Alberta
Shahpoor Moradi, University of Calgary
Ben Newling, University of New Brunswick
Angela Olano, Quantum Industry Canada
Emily Petroff, Perimeter Institute
Damian Pope, Perimeter Institute
Sarah Purdy, University of Saskatchewan
Nicolás Quesada, Polytechnique Montréal
Chitra Rangan, University of Windsor
Fanny Rohrbacher, Science pour tous, QC
Julien Ross, Dalhousie University
Carlo Maria Scandolo, University of Calgary (DQI)
Jaclyn Semple, Yukon University
Scott Taylor (Let's Talk Science)
Dorina Verli (ISED)
Simon Viel, Carleton University/SNOLAB
William Whelan, University of Prince Edward Island

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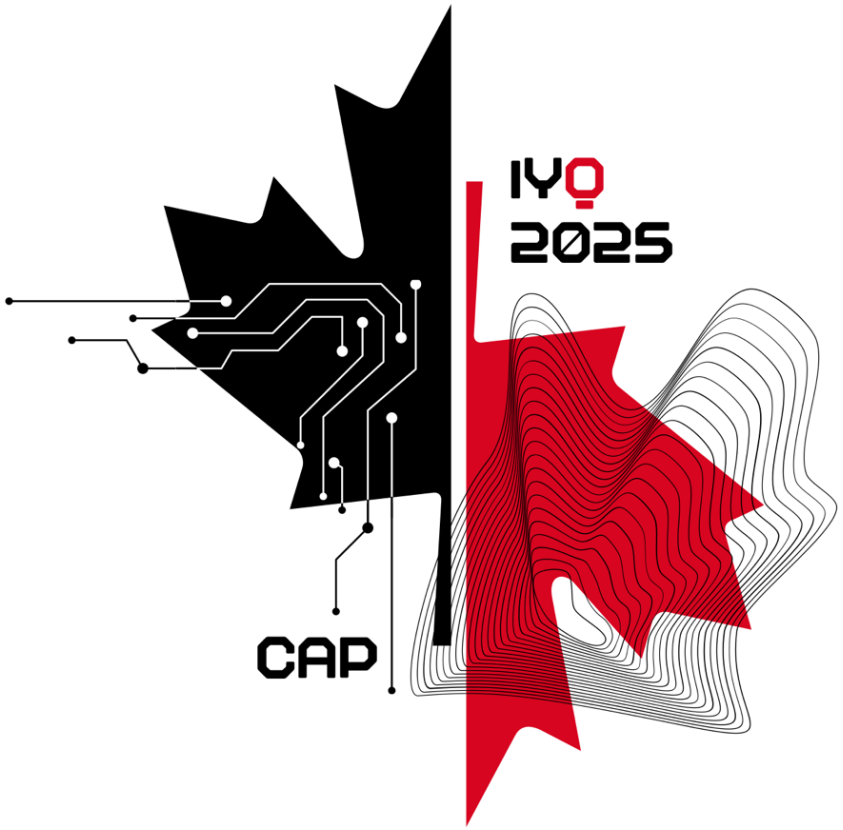
Winner of the IYQ Canada Design Competition



- We invited physics students in Canada to compete for the prize of $1000
- Our winner is Jasmine Zhang, a first-year PhD student (UBC/TRIUMF)

- *The design represents a superposition of quantum-driven technological advancements and the fundamental physics underlying the natural world*
- *The orientation of the two halves of the Canadian maple leaf is a nod to the familiar orthonormal basis for the spin-1/2 particle*

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Runner ups and honorable mentions

$300 Prize Runner-Up

Pierre Lefloïc from the University of Sherbrooke uses their design to highlight the work Canada has contributed to the international field of quantum physics. The focus of this design in particular is on quantum information, qubits, and current research in reducing quantum errors in computing fields.

View the full design here

$200 Prize Runners-Up

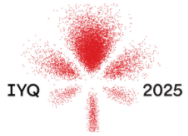
Sareen Sabra, an undergraduate at the University of Windsor, chose to do a diffraction pattern in the shape of a Canadian maple leaf as a nod to the quantum-physical nature of particles. Sareen chose to draw out the diffraction lines to highlight how the current understanding of the quantum mechanical nature of the world is still incomplete, and the future of our understanding that Canada can will contribute.

View the full design here

Isaac Bahler from Dalhousie University was inspired by Louis Taillefer, the first Canadian winner of the Simon Memorial Prize in 2017. Isaac nods to the lattice structure of cuprate superconducting materials, as well as the superpositional nature of particles according to quantum theory. Isaac also used the DALL-E 3 generative engine to aid in the design process, drawing inspiration from various related scientific papers.

View the full design here

$100 Prize Runners-Up



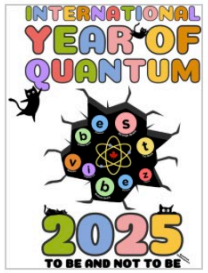
Shane Ackerley, who holds a B.Sc. in Astrophysics from Western University, submitted this design as a versatile, minimal, and meaningful design for the International Year of Quantum in Canada. The maple leaf, an icon of Canada, is re-imagined through the lens of quantum physics. Shane made the design with Python using a custom script to plot solutions to the Schrödinger equation of a Hydrogen 4fz orbital and modified it slightly to represent the stem of the maple leaf.

View the full design here

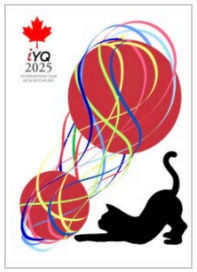
Ryan Naderi at Simon Fraser University produced a design which prominently features the Canadian Flag, as well as the classical model of an atom devised by Ernest Rutherford. Although newer and more accurate models of atomic interactions have been developed, this design outlines that it is important to understand the steps physics has made to get where we are today.

View the full design here

We would also like to highlight the following honourable mentions:

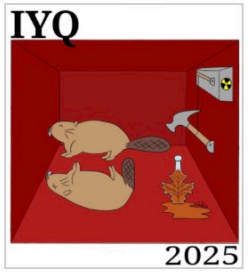


Erwan Pierre, Franco-Cité



Harshit Choudhary, Simon Fraser University

Shahrzad Taheri, University of Calgary



Sarah Cao, Simon Fraser University

IYQ Events in Canada

- **Quantum Canada Open Doors**
  - A coast-to-coast-coast celebration of quantum science and technology on May 3rd with 11 participating universities/institutes/museums that were able to request up to $300 of promotional material
- **Public talks, Science Rendezvous, lectures, conferences, Quantum Fests, Quantum schools**
  - See full list on our Events Page
- **Canadian Wide Science Fair, CAP Congress**
  - Outreach and promotional material
- **Planning for one more Canada wide event in the Fall**
  - At the intersection of Arts and Science?
  - Suggestions welcome!

IYQ Activities in Canada

- **IQC's Canadian Quantum Explorations Student Toolkit**
  - Are you looking to bring quantum activities to your community in a hands-on way?
  - The Quantum Explorations Student Toolbox (QuEST) is a collection of accessible activities
  - Supported by the APS Innovation Fund
  - Apply or contact John Donohue

- **Special Issue of Physics in Canada (PIC)**
  - The goal of this special issue is to create an overview of Canadian research in quantum science and technology, broadly construed, showcasing its diversity and impact.
  - Guest Editors: John Donohue (IQC), Ben Newling (UNB) and Neil J. Ross (Dalhousie U.)

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The IYQ Canada Team thanks our Sponsors and Supporters

Platinum-level sponsor/partner

Gold-level sponsors

Silver-level sponsors

In kind contributor

We acknowledge the support of the Natural Sciences and Engineering Research Council of Canada (NSERC).

Nous remercions le Conseil de recherches en sciences naturelles et en génie du Canada (CRSNG) de son soutien.

Learn more? Visit quantumcanada2025.ca

G7 2025 KANANASKIS

- We, the Leaders of the G7, recognize that quantum technologies – which include computing, sensing and communications – have the potential to bring significant and transformative benefits to societies worldwide.
- In this International Year of Quantum Science and Technology, we will work together and with likeminded partners to make concrete progress on this agenda.
- Full declaration