



Workshop Notes

WELCOME TO SCHRÖDINGER'S CLASS

Hosted by the IQC Scientific Outreach team
Contact: iqc-outreach@uwaterloo.ca



Institute for Quantum Computing
University of Waterloo
200 University Avenue West
Waterloo, Ontario, Canada N2L 3G1

uwaterloo.ca/iqc



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IQC

Institute for
Quantum
Computing



**Schrödinger's
Class**

Welcome to Schrödinger's Class!

Welcome to the 8th Schrödinger's Class, a quantum professional development workshop for high-school teachers held by the Institute for Quantum Computing. We'll learn how to measure quantum superpositions, use the quantum uncertainty principle positively, and introduce cutting-edge quantum advances in computing and cryptography to your classroom.

We expect all participants to treat the presenters, organizers, and each other respectfully. Please read the Code of Conduct at the end of this program. Please reach out to us with any suggestions or concerns.

Health & Safety

The University of Waterloo strongly encourages the use of tight-fitting, well-constructed masks. N95 masks will be made available for all participants and will be mandatory during the lab tours.

If you have symptoms of COVID-19 or think you were exposed to the virus, please take the [Ontario Self-Assessment](#) for advice on appropriate precautions.

Workshop Location

Schrödinger's Class will take place at the [Quantum-Nano Centre](#) (QNC) on the University of Waterloo main campus, in room QNC 0101.

Parking on campus: [Lot M](#) is available for visitor parking with Pay & Display tickets. The cost is \$6 per day and the machine accepts coins, Visa, or MasterCard. The map on the right shows Lot M relative to QNC.



Accommodations and Shuttle

Guests from out-of-town will stay at The Crown Plaza Hotel in Downtown Kitchener (105 King St E). Breakfast tickets will be provided at check-in.

We have arranged **shuttle** for the following times:

Friday November 18

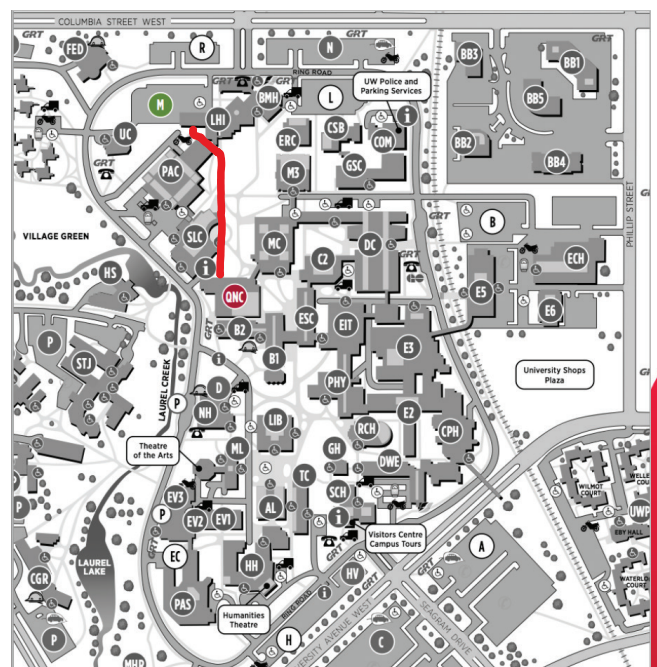
- 8:30 am Depart Crowne Plaza Hotel for QNC
- 5:30 pm Depart QNC for Heuther Hotel
- 8:00 pm Depart Heuther Hotel for Crowne Plaza Hotel

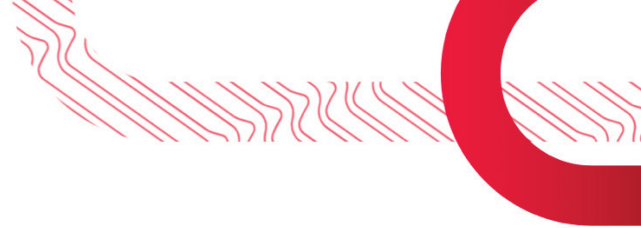
Saturday, November 19

- 8:30 am Depart Crowne Plaza Hotel for QNC
- 9:00 pm Depart QNC for Crowne Plaza Hotel

Sunday, November 20

- 8:30 am Depart Crowne Plaza Hotel for QNC





Schedule

Time	Fri Nov 18	Sat Nov 19	Sun Nov 20
	QNC 0101	QNC 0101	QNC 0101
8:30	Shuttle	Shuttle	Shuttle
9:00	Introduction to Schrödinger's Class and Quantum Info.	Wave-Particle Duality and Interferometers	Quantum Entanglement
9:30	Roundtable Discussion: Quantum in Class		
10:00	Group Photo		Snack Break
10:30	Snack Break	Snack Break	One Week of Quantum
11:00	The Two Golden Rules of Quantum Mechanics	Keynote Alan Jamison on Laser Cooling and Quantum Chemistry	
11:30			
12:00	Lunch	Lunch	Lunch
12:30			
1:00	Quantum Cryptography	Quantum Computing	Curriculum Discussion
1:30			
2:00			Experiment Free-Play and Goodbyes
2:30	Quantum Coins	Qubit Zoo	
3:00	Snack Break	Snack Break	End of Schrödinger's Class
3:30	Quantum Spin & Stern-Gerlach	The Uncertainty Principle	
4:00	QNC Lab Tours	Labs QKD Interferometers Uncertainty	
4:30			
5:00			
5:30	Move Uptown		
6:00	Dinner Uptown Huether Hotel	Dinner @ QNC	
6:30			
7:00		Gustav Bakos Observatory Tour	
7:30	Shuttle to Hotel @ 8pm	(Late Shuttle @ 9:00pm)	



Materials and Discussion via Slack

All materials will be shared through the Schrödingers's Class 2022 Slack channel, which can be joined [at this link](#) (or <https://tinyurl.com/Schro22Slack>).

Slack organizes discussions into different channels, listed on the left with “#” symbols. Channels include:

- #announcements, where IQC staff will post updates and workshop materials
- #resources, to share where to find lab materials, virtual simulators, and other useful items
- #introductions, where you can introduce yourself and your class to the group
- #quantum-questions, where any open questions about quantum or the workshop live
- #schrodingers-chat, an off-topic forum to blow off steam and share pictures of your pets

Note that the Code of Conduct applies to both public and private messages. Please exercise caution when sharing private information over Slack, and do not share this link with others.

After the Workshop

Materials on the Slack channel will remain available for 90 days.

IQC will be sending a survey to all participants both before the workshop begins and after the workshop finishes. Any feedback is greatly appreciated and will help us continue to deliver and improve upon our online workshops. You will receive invitations to the survey from Survey Monkey on our behalf.

The pre-workshop and post-workshop surveys contain some conceptual quantum questions designed to evaluate the effectiveness of Schrödinger's Class. Any results will only be reported anonymously and aggregated with responses from other workshop participants.

Workshop Presenter



Dr. John Donohue, Workshop Leader

Senior Manager, Scientific Outreach

In his role with IQC's Scientific Outreach team, John has worked to bring quantum science out of the labs and into classrooms, through lesson plans, presentations, articles, and exhibits. John's research speciality is quantum optics and ultrafast lasers, especially how to use nonlinear optics to manipulate photons and measure properties like entanglement. John earned his PhD in Physics from the University of Waterloo, and his BSc from the University of Windsor.

Contact: jdonohue@uwaterloo.ca



Code of Conduct

Schrödinger's Class (SC) is a workshop based on collaboration. We will be learning about complex phenomenon using tools that most will be learning for the first time. We hope to foster a productive learning environment, where all are able to participate, feel heard, and get help when needed, from both the workshop leaders and their peer group. We expect all participants to show respect to the presenters, organizers, and most importantly each other.

SC and the Institute for Quantum Computing (IQC) are dedicated to providing a harassment-free workshop experience for everyone, regardless of gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, age, or religion. We do not tolerate harassment of workshop participants in any form. Sexual language and imagery is not appropriate for any workshop venue, including talks. Workshop participants violating these rules may be sanctioned or expelled from the workshop at the discretion of the workshop organizers.

Harassment includes, but is not limited to:

- Verbal comments that reinforce social structures of domination related to gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, age, or religion.
- Sexual images in public spaces
- Deliberate intimidation, stalking, or following
- Harassing via photography or recording
- Sustained disruption of talks or other events
- Unwelcome sexual attention
- Unwelcome (actual or threatened) physical behaviour
- Advocating for, or encouraging, any of the above behaviour

If a participant engages in harassing behaviour, event organisers retain the right to take any actions to keep the event a welcoming environment for all participants. This includes warning the offender or expulsion from the workshop.

Event organisers may take action to redress anything designed to, or with the clear impact of, disrupting the event or making the environment hostile for any participants.

We expect participants to follow these rules at all activities related to the workshop and on all virtual platforms associated with the workshop. We think people should follow these rules outside event activities too!

If someone makes you or anyone else feel unsafe or unwelcome, please report it as soon as possible. Harassment and other code of conduct violations reduce the value of our event for everyone.

You can make a personal report by contacting [Kimberly Kuntz](mailto:kkuntz@uwaterloo.ca) (kkuntz@uwaterloo.ca).

