Tristan S. Lismer

PhD Candidate

Department of Physics & Astronomy
Institute for Quantum Computing
University of Waterloo
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Education

2022–present **PhD Candidate, Physics (Quantum Information)**, *Institute for Quantum Computing and Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada
Experimental tests of the principles of quantum theory. Advisor: Kevin Resch

2018–2022 **BSc Honours, Astrophysics**, *Department of Physics, Engineering Physics & Astronomy, Queen's University*, Kingston, Canada
Developed a new way to keep track of a balloon-borne telescope's orientation in real time. Advisor: Laura Fissel

Publications and Presentations

2025 **T. Lismer**, K. Felefele, K. Resch, R. Spekkens, *Experimental Test of the Principle of Tomographic Locality*, Institute for Quantum Computing.

2022 **T. Lismer**, *Real Time Attitude Determination of a Balloon-Borne Telescope Using Onboard Camera*, Undergraduate thesis poster presentation, Kingston, Canada.

2021 A. Micuda, **T. Lismer**, S. T. Horst, R. Wormington. *Examination of low temperature argon plasma by optical emission spectroscopy and comparison with Paschen's curve*, Queen's University, Department of Physics, Engineering Physics and Astronomy: PHYS 350 General Physics Laboratory Collection (2021).

Teaching and Employment Experience

Fall 2025 **Teaching Assistant, ECE 105 - Classical Mechanics**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Spring 2025 **Teaching Assistant, PHYS 342 - Electricity and Magnetism 2**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Spring 2025 **Teaching Assistant, PHYS 358 - Thermal Physics**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Winter 2025 **Teaching Assistant, PHYS 360L - Modern Physics Laboratory**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Fall 2024 **Teaching Assistant, PHYS 256 - Geometrical and Physical Optics**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Winter 2023 **Teaching Assistant, PHYS 761 - Laboratory on Photonic Quantum Technology**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Fall 2022 **Teaching Assistant, PHYS 121L - Mechanics Laboratory**, *Department of Physics & Astronomy, University of Waterloo*, Waterloo, Canada

Spring 2022 **Junior Officer, Canadian Nuclear Safety Commission**, *Darlington Regulatory Program Division*, Ottawa, Canada

Spring 2021 **Junior Officer, Canadian Nuclear Safety Commission**, *Pickering Regulatory Program Division*, Ottawa, Canada

Spring 2020 **Junior Project Officer, Natural Resources Canada**, *Canadian Forest Service*, Ottawa, Canada

Awards and Scholarships

2022-2024 **Marie Curie Award, CDN$5179**, *Based on academic excellence.*

2022-2023 **Science Graduate Award, CDN$4614**, *Based on internal and external funding the student is already in receipt of.*

2022 **Institute for Quantum Computing Entrance Award, CDN$5000**, *Based on academic excellence and research potential.*

2018 **Queen's University Excellence Scholarship, CDN$2000**, *Based on academic excellence going into an undergraduate program.*

Volunteering and Outreach

2023-Present **UW Triathlon Club**, *President*, Waterloo, Canada

2022-Present **Institute for Quantum Computing**, *Scientific Outreach*, Waterloo, Canada

2019-2020 **Canadian Association for Girls in Science**, *Science Outreach*, Kingston, Canada

2018-2020 **Physics Mentorship Program**, *Queen's University*, Kingston, Canada

Skills

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- Python (advanced): NumPy, SciPy, QuTiP, JAX.
- Implementation of custom Hamiltonians and dissipators for bosonic systems.
- High-performance scientific computing: vectorization, parallelization.
- Git version control, Jupyter notebooks.
- HPC experience: SLURM job scheduling and optimized numerical pipelines.

Quantum Optics

- Open quantum systems: Lindblad master equations, quantum trajectories.
- Experimental photonics: SPDC sources, interferometry, state preparation, and tomography.
- Polarization qubits: waveplate operations, Bloch sphere rotations, and realistic noise modeling.
- Hands-on optical table experience: alignment, measurement, and system diagnostics.