CLÉMENT FORTIN

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EDUCATION

McGill University, Montréal, Canada *Sep. 2023 –*
PhD Physics
Supervisors: Prof. Tami Pereg-Barnea, Prof. Kai Wang

McGill University, Montréal, Canada *May 2022 – May 2023*
MSc Mathematics
Supervisor: Prof. Vojkan Jakšić

CY Institute for Advanced Studies, Cergy-Pontoise, France *May 2022 – Jul. 2022*
Visiting MSc Student at the AGM Laboratory
Supervisor: Prof. Armen Shirikyan

McGill University, Montréal, Canada *Sep. 2019 – May 2022*
BSc Joint Honours in Physics and Mathematics, First Class Honours

RESEARCH INTERESTS

- Non-Hermitian systems, quantum condensed matter, quantum photonics.

PUBLICATIONS

Research

1. C. Fortin, K. Wang and T. Pereg-Barnea, *Unifying Anderson transitions and topological amplification in non-Hermitian chains*, preprint (2025). arXiv:2509.05842
2. C. Fortin, K. Wang and T. Pereg-Barnea, *Topological amplification of the bosonic Kitaev chain with nonuniform loss*, Phys. Rev. B **112**, 064208 (2025). arXiv:2412.09744
3. K.E.M. Church and C. Fortin, *Computer-assisted methods for analyzing periodic orbits in vibrating gravitational billiards*, Int. J. Bifurcation Chaos (2021). (Selected as a **Feature Article**)

Thesis

C. Fortin, *Central Limit Theorem and Large Deviations of the Maximum Likelihood Estimator.* Master's thesis. McGill University (2023).

PRESENTATIONS

- **APS Global Physics Summit 2025** in Anaheim, United States: *Mar. 2025*
  Non-Hermitian topological phase transition of the bosonic Kitaev chain.
- **CONFETI 2025, INTRIQ** in Bromont, Canada: *Jan. 2025*
  Non-Hermitian topology in bosonic systems.
- **Institute of Photonic Sciences (ICFO)** in the Quantum Optics Theory group in Barcelona, Spain: *Oct. 2024*
  Topological amplification in the bosonic Kitaev chain.

POSTER SESSIONS

- **Emerging Quantum Phenomena (RQMP)** at the Institut Quantique in Sherbrooke, Canada: *Oct. 2025*
  Lyapunov exponents in disordered non-Hermitian models
- **Grande Conférence de l'Institut Courtois** in Montréal, Canada: *Oct. 2025*
  Lyapunov exponents in disordered non-Hermitian models.
- **International Workshop on Topological Photonics and Beyond 2025** in Tianjin, China: *Sep. 2025*
  Lyapunov exponents in disordered non-Hermitian models.
- **ICTP Conference on Advances in Topological Condensed Matter** in Trieste, Italy: *Nov. 2024*
  Non-Hermitian topological phase transition of the bosonic Kitaev chain.

- **Fall 2024 INTRIQ meeting** in Bromont, Canada: *Oct. 2024*
  Non-Hermitian topological phase transition of the bosonic Kitaev chain.
- **MaQTech Annual Retreat** in Ottawa, Canada: *Jul. 2024*
  Non-Hermitian topology of the bosonic Kitaev chain.
- **PQS2D Annual Retreat** in Ottawa, Canada: *Jul. 2024*
  Non-Hermitian topology of the bosonic Kitaev chain.

AWARDS

- **Best Poster Award** at Topological Photonics and Beyond 2025, Nankai University: ¥1,000 CNY *Sep. 2025*
  Awarded by Nature Reviews Electrical Engineering
- **Chalk Rowles fellowship**: $11,120 CAD *Sep. 2025*
  McGill Faculty of Science fellowship awarded to two graduate students in physics.
- **Emily Ross Crawford scholarship**: $1,000 CAD *Sep. 2020*
  McGill Faculty of Science scholarship awarded to undergraduate candidates of high academic merit.

RELEVANT EXPERIENCE

Teaching Assistantships (McGill University)
Preparation of tutorial sessions. Substituting lectures. Holding office hours. Marking of assignments and examinations.
List of courses:
- PHYS 230 – Dynamics of Simple Systems *Sep. 2025 – Dec. 2025*
- PHYS 457 – Honours Quantum Mechanics II *Jan. 2025 – May 2025*
- PHYS 551 – Quantum Theory *Sep. 2024 – Dec. 2024*
- PHYS 457 – Honours Quantum Mechanics II *Jan. 2024 – May 2024*
- PHYS 352 – Honours Electromagnetic Waves *Sep. 2023 – Dec. 2023*
- MATH 141 – Calculus 2 *Jan. 2023 – May 2023*
- MATH 455 – Honours Analysis 4 *Jan. 2023 – May 2023*
- MATH 454 – Honours Analysis 3 *Sep. 2022 – Dec. 2022*

Teaching Assistantships (CY Institute for Advanced Studies)
Preparation of weekly lectures. Marking assignments. List of courses:
- Information-theoretic notions of entropy *May 2022 – Jul. 2022*
- Complex Analysis *May 2022 – Jul. 2022*
- Finite State Markov Chains *May 2022 – Jul. 2022*

CPM student committee (McGill University) *Sep. 2025 –*
- Event planner for the CPM (Centre for the Physics of Materials)

Volunteer for the Physics & TSI Outreach group (McGill University) *Sep. 2023 –*
- Helping run outreach activities for the general public and prospective graduate students.

SciLearn Peer Collaboration Teaching Assistant (McGill University) *Jan. 2023 – May 2023*
- Providing guidance to undergraduate students in mathematics.

UNDERGRADUATE RESEARCH EXPERIENCE

McGill University, Montréal, Canada *May 2021 – Aug. 2021*
Supervisor: Prof. Vojkan Jakšić
- Quantum information theory, parameter estimation of classical Markov chains.

McGill University, Montréal, Canada *Sep. 2020 – Dec. 2020*
Supervisor: Prof. Daryl Haggard
- Data analysis of the supermassive black hole Sgr. A* using the Bayesian Blocks algorithm.

McGill University, Montréal, Canada *May 2020 – Aug. 2020*
Supervisor: Prof. Jean-Philippe Lessard
- Computer-assisted methods for dynamical systems.

SCIENTIFIC ARTICLE REVIEWING

Journals: Physical Review Letters, Physical Review Research, Physical Review A.

PROGRAMMING

Languages: Mathematica, Python, MATLAB, Bash, LaTeX.

LANGUAGES

Fluent: French, English. **Intermediate**: Spanish, German. **Beginner**: Serbo-Croatian.