

ROBERT GERSTNER

Montréal, QC, Canada ◊ robert.gerstner@mail.mcgill.ca

[Personal Website](#) ◊ [LinkedIn](#) ◊ [Google Scholar](#) ◊ [arXiv](#) ◊ [GitHub](#)

EDUCATION

Master of Science, Physics (Thesis-Based) 2024 - 2026
McGill University — 4.0/4.0 *Montréal, QC*

Bachelor of Science, Honours Specialization in Integrated Science with Physics 2020 - 2024
University of Western Ontario — 3.98/4.0 *London, ON*

RESEARCH EXPERIENCE

Graduate Researcher, [Prof. Bill Coish's Group](#) Sep. 2024 - Present
McGill University *Montréal, QC*

- Using neural networks to improve the simulation of spin qubit systems and study quantum integrability.

Undergraduate Thesis Student, [Prof. Mahi Singh's Group](#) Sep. 2023 - May 2024
University of Western Ontario *London, ON*

- Contributed to a theory of harmonic generation in plasmonic nanohybrid materials.

Undergraduate Research Assistant, [Prof. Jesko Sirker's Group](#) May 2023 - Jan. 2024 / May - Aug. 2024
University of Manitoba *Winnipeg, MB*

- Used operator growth to provide evidence for an absence of many-body localization in spin models.

PUBLICATIONS

[1] A. Weisse, **R. Gerstner**, and J. Sirker. Operator growth in disordered spin chains: Indications for the absence of many-body localization. [Phys. Rev. Research](#) **7**, 033018 (2025).

[2] Q. Meng, **R. Gerstner**, Y. Yan, J. E. MacDonald, R. F. Haglund, and M. Singh. Study of Nonlinear Plasmonic Properties of Metallic Nanohybrids. [Phys. Scr.](#) **100**, 075550 (2025).

SCHOLARSHIPS & AWARDS

Lorne Trottier Science Accelerator Fellowship , McGill University	Jul. 2025
FRQNT Master's Research Scholarship , Fonds de recherche du Québec (rank 3/29)	Apr. 2025
NSERC CGS-M , University of Manitoba (Declined), McGill University (Accepted)	Apr. 2024
NSERC USRA , University of Manitoba	Feb. 2024
S.R. Valluri Scholarship in Mathematical or Theoretical Physics , Western University	Nov. 2023
Kyle Brandon Traves Memorial Scholarship in Science , Western University	Nov. 2023
Dr. Gérard Hébert Scholarship in Physics , Western University	Nov. 2023
Faculty of Science USRA , University of Manitoba	Mar. 2023
Andrew and Sarah Hamilton Scholarship , Western University	Nov. 2022
Class of '49 Prize , Western University	Nov. 2022
Faculty Association Award , Western University	Nov. 2021
Chancellors' Scholarship , University of Manitoba (Declined)	Aug. 2020
Governor General's Medal , St. Paul's High School	Jun. 2020
President's Entrance Scholarship , Western University	Apr. 2020

SELECTED TALKS AND POSTERS

Spin Qubits Workshop at QTech 2025, Budapest, Hungary Sep. 22-24, 2025

Poster: *Neural-Network Solutions to Integrable Central-Spin Models*

MPI School for Master Students, Dresden, Germany Sep. 8-12, 2025

Poster: *Neural-Network Solutions to Integrable Central-Spin Models*

APS Global Physics Summit , Anaheim, CA	Mar. 17-21, 2025
Oral presentation: <i>Operator Growth and the Absence of Many-Body Localization</i>	
CAP Congress , London, ON	May 27-31, 2024
Oral presentation: <i>Second and Third Harmonic Generation in CuS/Au/Al Nanohybrids</i> (3rd prize in AMO)	
Canadian Undergraduate Physics Conference , Waterloo, ON	Oct. 28, 2023
Poster: <i>Operator Growth and Many-Body Localization via Graphs and Nested Commutators</i>	

SUMMER SCHOOLS

School for Master Students: From Quantum Matter to Quantum Computers	Sep. 8-12, 2025
Max Planck Institute for the Physics of Complex Systems	
RQEMP & AMA Summer School on Advanced Materials Science and Engineering	Aug. 6-8, 2025
Bishop's University	
	Sherbrooke, QC

SIDE PROJECTS

Band Structures with Graph Theory	Nov. - Dec. 2024
Paper GitHub Repository	

- Devised and analyzed a graph theory method for computing band structures of arbitrary 1D periodic materials.

WORK EXPERIENCE

Teaching Assistant	Sep. - Dec. 2024
McGill University	
Membership, Sales, and Experience Associate	Jun. - Aug. 2021 / May - Aug. 2022
YMCA-YWCA of Winnipeg	
General Store Employee	Jul. - Aug. 2020
Hnausa General Store	
Mathematics and Chemistry Tutor	Jun. 2017 - Jun. 2020
St. Paul's High School	
	Winnipeg, MB

SERVICE

Conference Volunteer. Volunteered at the 2025 Conference on Strongly Correlated Electron Systems in Montréal, managing the audio and timing systems for speakers.

Mentorship. Mentored four younger undergraduate students over two years.

Event Lead. Organized and led an information session about undergraduate summer research in science.

EnviroUSC Collaboration. As part of a group of students in Western's Integrated Science program, collaborated with campus environmental organization EnviroUSC to create an extensive study on Western's environmental policies and performance in comparison to other schools.

CERTIFICATIONS

Deep Learning Specialization , DeepLearning.AI	Jan. 2025
Advanced Badge , IBM Quantum Challenge Fall 2022	Nov. 2022

SKILLS

- Technical skills: Python, C++, Julia, Mathematica, Maple, JAX, TensorFlow, PyTorch, Qiskit, Git/GitHub, LaTeX, SLURM
- Soft skills: scientific writing, public speaking, problem solving, critical thinking, communication
- **National silver medalist in long jump:** time management in balancing training with academics