

ETHAN ROSS

Canadian Citizen

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<https://ethanross.ca/>

EDUCATION

University of Alberta
Bachelor of Science with Honours

September 2012-April 2016

University of Toronto
Masters of Science

September 2018 - September 2019

University of Toronto
PhD (expected)

September 2019- Present

RESEARCH EXPERIENCE

Undergraduate Researcher, University of Alberta
Studied combinatorial structures from supersymmetry called Adinkras under Dr. Charles Doran. Produced classes of Quantum Error Correcting Codes from these Adinkras.

August - May 2015 and 2016

Undergraduate Researcher, SSTPRS
Computed properties of supersymmetric systems under Dr. Sylvester James Gates.

June - August 2015

Master's Project, University of Toronto
Synthesized various proofs of the Kostant-Souriau pre-quantization condition under Dr. Lisa Jeffrey.

May - September 2019

PhD Research, University of Toronto
Independently researched various topics in symplectic geometry including geometric quantization and the intersection cohomology of reduced spaces. I have one published paper and another sent in for publication.

September 2019 - Present

ORGANIZATIONAL EXPERIENCE

University of Toronto Symplectic Geometry Seminar
Organizer.

2023-2024

2024 Bird's Eye Conference
Topology and Geometry co-chair.

March 2024

PUBLICATIONS

- Gates, S.J., Grover, T., Miller-Dickson, M.D. et al. J. High Energ. Phys. (2015) 2015: 113. [https://doi.org/10.1007/JHEP11\(2015\)113](https://doi.org/10.1007/JHEP11(2015)113)
- Ethan Ross. *Invariance of Polarization Induced by Symplectomorphisms*. Proceedings of the Fields Institute Thematic Program on Toric Topology. Submission number: 2021-2406. No. of pages: 17.
- Ethan Ross. *Stratified Vector Bundles: Examples and Constructions*. Journal of Geometry and Physics. No. of pages: 25.

TALKS GIVEN

1. *Singular Reduction of Polarizations*
Canadian Mathematical Society Winter Meeting (December 2023)
2. *Stratified Vector Bundles*
University of Toronto Symplectic Seminar (March 2023)
3. *Stratified Vector Bundles*
Gone Fishing (March 2023)
4. *Stratified Vector Bundles*
Canadian Mathematical Society Winter Meeting (December 2022)
5. *Invariance of Polarization Induced by Symplectomorphisms*
Local Poisson Seminar (January 2022)

TEACHING EXPERIENCE

Course Instructor, University of Toronto

2021-present

1. MAT135: Calculus I (Summer 2021)
 - Designed and built the course.
 - Wrote and assigned homework problem sets and exams.
 - Wrote and performed lectures.
 - Managed TAs by assigning them tutorials, grading, and office hours.
2. MAT224: Linear Algebra (Summer 2022)
 - Designed and built course.
 - Wrote and assigned homework problem sets and exams.
 - Managed TAs by assigning them tutorials, grading, and office hours.
 - Incorporated Computer Science material into the course materials.
3. MAT136: Calculus II (Winter 2023)
 - This course was coordinated by Dr. Bernardo Galvo-Sousa.
 - Incorporated active learning techniques like polling and problem sessions into my lectures
 - Wrote exam problems.
 - Managed regrade requests.
4. MAT136: Calculus II (Summer 2023)
 - Designed and built course.
 - Still maintained active learning elements.
 - Designed tutorial worksheets for the students.
 - Wrote and assigned homework problem sets and exams.
 - Managed TAs by assigning them tutorials, grading, and office hours.

- Courses
 - MAT133: Calculus and Linear Algebra for Commerce Students.
 - MAT135: Calculus I
 - MAT136: Calculus II
 - MAT334: Complex Variables.
 - MAT235: Multivariable Calculus.
 - MAT301: Groups and Symmetries.
 - MAT327: Introduction to Topology
- Held tutorial sessions where I guided students through standard mathematical techniques for problem solving.
- Graded quizzes and exams.

AWARDS

Jason A. Lang Scholarship	2014-2016
NSERC Undergraduate Student Research Award	2015-2016
Graduated with First Class Honors	2016
Domestic Graduate Entrance Award	2019
Department Of Mathematics Graduate Program Award	2019
Blyth Fellowship	2019
Ontario Graduate Scholarship	2020-2023

MEMBERSHIPS

Canadian Mathematical Society
American Mathematical Society