Robert Cornea

Curriculum Vitae

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robertlica

Main Interests

- Complex Geometry
- Moduli of Higgs Bundles
- Algebraic Geometry
- Mathematical Physics
- Differential Geometry

Education

2022-Current	**Doctor of Philosophy in Pure Mathematics**, *University of Waterloo*
Doctoral Thesis	*In Progress*
Supervisor	Prof. Ruxandra Moraru
2021-2022	**Masters of Mathematics in Pure Mathematics**, *University of Waterloo*
Masters Paper	*Dimensional Reduction of Vafa-Witten Systems*
Supervisor	Prof. Ruxandra Moraru
2016-2021	**Bachelor of Science**, *with High Honours*, University of Saskatchewan, Majoring in Mathematical Physics
Honours Thesis	*Asymptotics of the Moduli Space of Higgs Bundles*
Supervisor	Prof. Steven Rayan

Scholarships and Awards

May 1, 2021	quanTA Undergraduate Summer Research Award (USRA)
May 1, 2020	quanTA Undergraduate Summer Research Award (USRA)
Jan 28, 2020	The Willa and Stuart Woods Awards in Physics
Nov 25, 2019	College of Arts and Science Interdisciplinary Scholarship for Mathematical Physics

Jan 24, 2019	Roger Phillips Scholarship in Physics
Oct 6, 2018	Golden Key International Honour Society Scholar

Research Experience

Fall 2021 - Winter 2022	Worked on the dimensional reduction of Vafa-Witten systems during my Masters degree with Prof. Ruxandra Moraru
Summer 2020	Worked on the topology and compactification of the moduli space of Higgs bundles with Prof. Steven Rayan, *was funded by a quanTA USRA*

Talks and Presentations

Nov 2020	**Polygons and Magnetic Monopoles**, *talk given for the Mathematics and Statistics Student Society*
Jan 2020	**Yang-Mills Equations - Rewriting Maxwell's Equations**, *fourth year student Physics seminars*
Nov 2019	**Homology Groups**, *talk given for the Mathematics and Statistics Student Society student talks*
Nov 2018	**Yang-Mills Equations**, *third year students Math seminars*

Conferences Attended

June 2024	**Canadian Mathematical Society - Summer Session**, *Held at the University of Saskatchewan*
October 2023	**Complex Lagrangians, Mirror Symmetry, and Quantization**, *Held by the Banff International Research Station in Banff, Canada*
June 2023	**Workshop and School on Complex Lagrangians, Integrable Systems, and Quantization**, *Held at the University of Oxford*
May 2023	**The Geometry, Algebra, and Physics of Higgs Bundles**, *Held by the Banff International Research Station at the University of British Columbia, Okanagan Campus*
June 2022	**Geometric Structures (re)United**, *held at the University of Illinois Chicago*
June 2019	**Summer School on Algebraic Geometry in High-Energy Physics**, *held at the University of Saskatchewan*
Apr 2019	**Flows on the Saskatchewan: a workshop on integrability and inverse problems**, *held at the University of Saskatchewan*
July 2018	**Canadian Undergraduate Mathematics Conference (CUMC)**, *held at the University of Saskatchewan*

Relevant Work Experience

Fall 2021 - Current	Worked as a TA for various undergraduate math and pure math courses at the University of Waterloo
Fall 2020	Grader for Math 276: Vector Calculus I
Fall 2020	Grader for for Math 238: Introduction to Differential Equations
Winter 2020	Grader for Math 277: Vector Calculus II
Fall 2019	Grader for Math 276: Vector Calculus I
Winter 2019	Grader for Math 266: Linear Algebra II
Fall 2018	Grader for Math 266: Linear Algebra II

Volunteering and Service

June 2024	**Co-organized the scientific session "Moduli Spaces in Complex and Algebraic Geometry: Recent Developments"**, *for the Canadian Mathematical Society - Summer Session*
June 2024	**Co-organized the scientific session "Geometry and Representation Theory - Early Career Researchers"**, *for the Canadian Mathematical Society - Summer Session*
June 2020-June 2021	**Vice President Internal**, *for the Mathematics and Statistics Student Society*
June 2019-June 2020	**Academic Coordinator**, *for the Mathematics and Statistics Student Society*

Skills

Advanced	LaTeX
Intermediate	Wolfram Mathematica, Python

Languages

English	Native
French	Fluent
Romanian	Basic