

Zhi Hua Han

M.Sc. PHYSICS STUDENT

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Education

Simon Fraser University

Vancouver, BC

M.Sc. PHYSICS STUDENT

Sept 2021

- Supervisor: Kero Lau
- Expected graduation date: August 2023

University of Alberta

Edmonton, AB

B.Sc. HONORS IN MATHEMATICAL PHYSICS, FIRST CLASS HONORS

Sept 2016 - April 2020

- Dean's list
- In major GPA: 3.73
- Cumulative GPA: 3.74
- Graduated June 2020

Honors & Awards

2022	NSERC CREATE Quantum BC Scholar , Scholarship	SFU
2021	Dean's Graduate Fellowship , Research Funding	SFU
2021	BC Graduate Scholarship , Research Funding	SFU
2020	NSERC USRA (2020, 2019) , Research Funding	University of Alberta
2020	Lloyd G. Elliott University Prize Exam (National - 8th Place, 1st at U of A) , National Physics Competition	University of Alberta
2020	Dean's Silver Medal in Science , University of Alberta Academic Award	University of Alberta
2020	Faculty of Science Undergraduate Scholarship (2020, 2019, 2018) , Academic Scholarship	University of Alberta
2019	Jason Lang Scholarship (2019, 2017) , Academic Scholarship	University of Alberta
2017	Undergraduate Academic Scholarship Competition , Academic Scholarship	University of Alberta
2016	Rutherford Scholarship , Entrance Scholarship	University of Alberta
2016	Governor General's Academic Medal , Blessed Oscar Romero High School	Edmonton, AB
2016	CEMC Euclid Math Contest 2016 School Champion and Certificate of Distinction , Euclid Math Competition	Edmonton, AB

Research Experience

Xanadu AI

Remote

INTERN

August 2021 - November 2021

- Contributed to XanaduAI/MrMustard
- Implemented entropic measures, Gaussian channels, multi-mode gates, and the pytorch backend

Information Geometry in Physics (Prof. Eric Woolgar)

University of Alberta

SENIOR UNDERGRADUATE THESIS

January 2020 - August 2020

- Theoretical study of geometric methods applied to quantum information theory

Interaction Driven Topological Superconductivity (Prof. Joseph Maciejko)

University of Alberta

RESEARCH ASSISTANT

May 2019 - Sept 2019

- Showed the existence of a topological quantum phase transition in a many-body quantum model, using both numerical simulation and analytical methods

Reconstructing Particles with IceCube (Prof. Darren Grant, Prof. Kopper Claudio)

University of Alberta

RESEARCH ASSISTANT

April 2018 - August 2018

- Helped write and optimize numerical algorithms for reconstructing particles

Computer Skills

Numerical Methods

- 4 years experience with Python/Mathematica
- Skilled at numerical modeling, optimization, regression, linear algebra problems

Machine Learning

- 1 year experience in machine learning and data analysis with pandas, scikitlearn, pytorch, tensorflow, git

Presentations

Canadian Undergraduate Physics Conference 2019 at McGill University

Montreal, QC

PRESENTER

Nov. 2019

- Interaction Driven Topological Superconductivity
- <https://slides.com/zhihan/topology>
- Both Oral and Poster Presentation

Show and Tell: A Student Research Celebration

Edmonton, AB

POSTER PRESENTER

Sept. 2019

- Interaction Driven Topological Superconductivity

Undergraduate Summer Research Poster Session

Edmonton, AB

POSTER PRESENTER

Aug. 2019

- Interaction Driven Topological Superconductivity

Undergraduate Research Symposium

Edmonton, AB

ORAL PRESENTER

Aug. 2018

- Reconstructing Particles with IceCube

Leadership/Volunteering

LEADERSHIP

Canadian Undergraduate Physics Conference 2018 Planning Committee

Edmonton, AB

VP SOCIAL/COMMUNICATIONS

2017-2018

- Planning and hosting social events, as well as managing social media, advertising, and building external relationships all in preparation for CUPC 2018 at the University of Alberta

Undergraduate Physics Society

Edmonton, AB

VP SOCIAL

2017

- Planning and hosting club social events, advertising and doing class talks

Blessed Oscar Romero High School Graduation Ceremony

Edmonton, AB

MASTER OF CEREMONIES

2016

- Hosted and spoke at Blessed Oscar Romero graduation ceremony at the Jubilee Auditorium in front of 400 people

VOLUNTEERING

2017 **Public Relations Volunteer**, Interdepartmental Science Students Society

Edmonton, AB

2014-2016 **Piano Therapy Volunteer**, Misericordia Hospital

Edmonton, AB

Interests

Research Interests

- I am interested in quantum computing and understanding the role of quantum information in theoretical physics.
- Also interested in using modern numerical techniques to better understand/visualize/share theoretical physics in addition to using traditional analytical approaches.

Miscellaneous

University of Alberta

Edmonton, AB

TA FOR MATH 146: CALCULUS 2

January 2020 - April 2020

Professional Developments

Quantum Computing Roadmapping Workshop

Virtual

SUMMER SCHOOL

September 2, 2021

- Overview of the quantum computing landscape

TRIUMF Summer Institute 2021: Cornerstone Models of Quantum Computing

Virtual

SUMMER SCHOOL

August 2-13, 2021

- Introduction to various models of quantum computing

QuantumBC/CMC: Superconducting circuits and qubits

SUMMER SCHOOL

- Workshop on fabrication and testing of superconducting qubits and circuits

QSciTech Virtual Summer School

SUMMER SCHOOL

- Workshop on quantum machine learning

Deep Learning and Reinforcement Learning Summer School 2019

SUMMER SCHOOL

- As a student attended a prestigious invitation-only workshop with leaders of machine learning

Western Summer School in Algebra

SUMMER SCHOOL

- Workshop on modern algebra

Virtual

July 19-30, 2021

Virtual

July 5-9, 2021

University of Alberta

July 24-August 2, 2019

University of Alberta

August 12-16, 2019