Siyan (Vivian) He

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RESEARCH INTERESTS

Low-Dimensional Topology, Teichmüller Theory, Geometric Group Theory

EDUCATION

University of Utah	Jan – Apr 2023
Exchange Visitor (Advisor: Mladen Bestvina)	
University of Toronto	2022 – current
Ph.D, Mathematics (Advisor: Kasra Rafi)	
University of Toronto	2021 – 2022
M.Sc, Mathematics (Advisor: Kasra Rafi)	
University of Toronto	2017 – 2021
B.Sc, Mathematics Specialist (High Distinction)	

PUBLICATIONS AND PREPRINTS

Sigma-compactness of Morse boundary in Morse local-to-global groups and applications to stationary measures
 (with Davide Spriano, Stefanie Zbinden)

Random walks on groups and superlinear divergent geodesics
arXiv:2310.18506 (with Kunal Chawla, Inhyeok Choi, Kasra Rafi)

Equivalent topologies on the contracting boundary
Glasnik Matematički Vol. 58(78)(2023), 75 - 83.

HONORS AND AWARDS

NSERC Canadian Graduate Scholarships - Doctoral Program (CGS-D) - CAD 120,000 over 36 months	2024–2026
City of Toronto Graduate Scholarship for Women in Mathematics - CAD 10,000	2024
Margaret Isobel Elliott Graduate Scholarship - CAD 4,000	2023
NSERC Michael Smith Foreign Study Supplement (MSFSS) - CAD 6,000	2023
Martin Shubik Graduate Award In Mathematics - CAD 8,900	2023
NSERC Canadian Graduate Scholarships - Master's Program (CGS-M) - CAD 17,500	2022
NSERC Undergraduate Student Research Awards (USRA) - CAD 6,000	2021
The Harry Boxen Memorial Scholarships In Mathematics - CAD 936	2019
Dean's List	2018,2019,2020
Later Life Learning Osotf Award - CAD 1500	2018,2019

TALKS

Research Talk: Counting curves intersecting a measured foliation	
Riemann Surfaces: Random, Flat, and Hyperbolic Geometry (Lightning Talk), Oberwolfach	Sep, 2024
Research Talk: (Lack of) Stationary Measure on the Morse boundary	
CMI-HIMR Summer School (Lightning Talk), Univ. of Bristol	Jul, 2024
Expository Talk: CAT(0) Cube Complexes from Sageev's Construction	
Riverside workshop on geometric group theory, UC Riverside	May, 2024
Research Talk: Random walks on groups and superlinear divergent quasi-geodesics	
Algebra, Geometry, and Topology Seminar, Heriot-Watt University	Jul, 2024
Spring Topology and Dynamical Systems Conference, Univ. of North Carolina	Mar, 2024

Dynamics Seminar, Univ. of Toronto	Jan, 2024
Graduate Student Seminar, Univ. of Toronto	Dec, 2023
Graduate Student Lecture Series, Univ. of Buffalo	Nov, 2023
Hyperbolic Lunch Seminar, Univ. of Toronto	Nov, 2023
Wasatch Topology Conference (Lightning Talk)	Oct, 2023

Research Talk: Generalizing the Gromov boundary

Xian Jiaotong-Liverpool University	May, 2023
Geometry, Topology, and Dynamics Grad Student Seminar, Univ. of Utah	Mar, 2023
Tech Topology Conference (Lightning Talk)	Dec, 2022
Geometric Topology Grad and Postdoc Seminar (Virtual)	Aug, 2022
Hyperbolic Lunch Seminar, Univ. of Toronto	Jul, 2022

TEACHING EXPERIENCE

Mentor 2024

Directed Reading Program - University of Toronto
- Topic: Introduction to geometric group theory
- Students: Sofia-Maria Bilinska, Summer Sun, Howard Xiao, Jimmy Xu

Mentor 2023

Reading Course - University of Toronto
- Topic: Hyperbolic Geomerty (with Kasra Rafi)
- Students: James Bona-Landry, Diba Heydary, Petar Jovasevic, Summer Sun, Charles Swaney

Course Instructor 2024 – Current

University of Toronto

MAT136: Integral Calculus	Summer 2024, Fall 2024

Teaching Assistant 2019 – Current

University of Toronto

MAT199: Aha! Mathematical Discovery and Creative Problem Solving	Winter 2024
MAT157: Analysis I	Fall 2023, Winter 2024
MAT224: Linear Algebra II	Summer 2023
MAT332: Introduction to Graph Theory	Fall 2022
MAT133: Calculus and Linear Algebra for Commerce	Summer 2022
MAT315: Introduction to Number Theory	Fall 2021, Winter 2022
MAT137: Calculus with Proofs	Winter 2021
Math Learning Center	Fall 2021, Winter 2022, Fall 2022
MAT136: Integral Calculus	Winter 2020, Winter 2021
MAT135: Differential Calculus	Fall 2019, Fall 2020

Counselor Summer 2017, 2018

Ross Mathematics Program

Service

Co-chair - Bird's Eye Conference 2024
Birds Eye Conference (Topology and Geometry Session) *University of Toronto*

Co-organizer - WiM 2023 - present
Women in Math *University of Toronto*

Academic Committee - MGSA 2023 - present
Mathematics Graduate Students Association *University of Toronto*

Co-organizer - GT GAPS 2023 - present
Geometric Topology Grad and Postdoc Seminar

Mentor - Math Mentorship Program 2021
Association of Women in Math *University of Toronto*

Vice President Communication - MU 2020
Math Union Toronto *University of Toronto*

Social Officer - MU 2019
Math Union Toronto *University of Toronto*