

# Sayantankhan

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University of Michigan  
Department of Mathematics  
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<https://www.saytantankhan.io>

## Education

### University of Michigan

Ph.D., Mathematics, Expected 2023

### Indian Institute of Science

B.Sc. (Research), Mathematics, 2018

Honors Thesis : *The Laplacian on Riemannian manifolds*

## Research

### Research interests

Teichmüller theory, mapping class groups, hyperbolic geometry

### Papers

- *The limit set of non-orientable mapping class groups*. (Submitted; arXiv:2110.0003)
- *Pseudo-Anosov homeomorphisms of punctured non-orientable surfaces with small stretch factor*. With Caleb Partin and Rebecca R. Winarski. (To appear in Algebraic and Geometric Topology; arXiv:2107.04068)

## Teaching

### University of Michigan

- Instructor for Math 116 (Calculus II) (Fall 2021, Winter 2020, Fall 2019)
- Teaching assistant for Math 215 (Multivariable Calculus) (Fall 2020)
- Instructor for Math 115 (Calculus) (Winter 2019)
- Instructor for Math 105 (Precalculus) (Fall 2018)

## Awards

- Rackham Predoctoral Fellowship, 2022-2023
- UMich Math Department Graduate Fellowship, Summer 2019-2020
- DAAD-WISE Fellowship at University of Münster, 2017
- KVPY Fellowship, 2014-2018

## Talks

### Invited talks

- *The limit set of non-orientable mapping class groups* (Topology Students Workshop (Summer 2022), Rice University Topology Seminar (Fall 2021), CUNY Geometry and Topology Seminar (Fall 2021))
- *A tour through the proof of Margulis Superrigidity* (University of Michigan Topology Seminar (Fall 2019))
- *The strange dynamics of non-orientable surfaces* (BUGCAT 2020 (Fall 2020))

### Student seminars

- *What is Quantum Unique Ergodicity?*
- *A proof of Mostow Rigidity*
- *Counting orbit points and Patterson-Sullivan measures*
- *Upgrading ergodicity to mixing*
- *The geodesic flow on symmetric spaces*
- *Constructing complex structures on surfaces via the Beltrami equation*

## Mentorship

- *Lab of Geometry at Michigan* (Winter 2021)  
Mentored a group of undergraduate students who implemented the Lelièvre-Weiss convexity test in Sage for squared-tiled surfaces in  $H(2)$ .
- *University of Michigan REU* (Summer 2020)  
Graduate student mentor for the REU hosted by Alex Wright in the summer of 2020.
- *QR study group leader* (Summer 2021)  
Led the real analysis study group to help incoming grad students prepare for the qualifying review.

## Service

- Mentor for LOG(M), Winter 2021
- Co-organizer for Student Dynamics, Geometry, and Topology Seminar, 2020-2021

## Conferences

- Topology Students Workshop, July 2022
- Park City Math Institute Summer Graduate School, July 2021
- CMI-HIMR Dynamics and Geometry Online Summer School, Clay Mathematics Institute, Heilbronn Institute for Mathematical Research, June 2021
- Midwest Dynamical Systems, Fall 2021 and Fall 2019
- Nearly Carbon Neutral Geometry and Topology Conference, 2022 and 2021
- MSRI Summer School on 'Random and arithmetic structures in topology', June 2019
- Houston Summer School on Dynamical Systems, June 2019
- AIS on algebraic geometry, IISER Pune, July 2018
- BMS Student Conference, Freie Universität Berlin, February 2018
- Geometry, Groups, and Dynamics, ICTS Bangalore, November 2017
- ITCSC-INC Winter School, Chinese University of Hong Kong, January 2017

## Technical skills

- Haskell
- Python (including Sage)
- Rust
- Lean theorem prover
- C (including CUDA)