

Sayantankhan Khan

University of Michigan
Department of Mathematics
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Education

University of Michigan

Ph.D., Mathematics, Expected 2024

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*. (Journal of Modern Dynamics; arXiv:2110.0003)
- *Pseudo-Anosov homeomorphisms of punctured non-orientable surfaces with small stretch factor*. With Caleb Partin and Rebecca R. Winarski. (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))

Mentorship	<ul style="list-style-type: none"> - <i>MathDRP@UM</i> (Fall 2022) <p>Mentored an undergraduate student in a directed reading of Willian Fulton's 'Algebraic Curves'.</p> <ul style="list-style-type: none"> - <i>Lab of Geometry at Michigan</i> (Winter 2021) <p>Mentored a group of undergraduate students who implemented the Lelièvre-Weiss convexity test in Sage for squared-tiled surfaces in $H(2)$.</p> <ul style="list-style-type: none"> - <i>University of Michigan REU</i> (Summer 2020) <p>Graduate student mentor for the REU hosted by Alex Wright in the summer of 2020.</p> <ul style="list-style-type: none"> - <i>QR study group leader</i> (Summer 2021) <p>Led the real analysis study group to help incoming grad students prepare for the qualifying review.</p>
Service	<ul style="list-style-type: none"> - Mentor for LOG(M), Winter 2021 - Co-organizer for Student Dynamics, Geometry, and Topology Seminar, 2020-2021
Conferences	<ul style="list-style-type: none"> - Salt Flats Teichmüller dynamics research cluster, January 2023 - 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	<ul style="list-style-type: none"> - Haskell - Python (including Sage) - Rust - Lean theorem prover - C (including CUDA)