

Mukundan, Malavika

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Most recent update Apr 2024

EDUCATION **University of Michigan**, Ann Arbor, MI
PhD in Mathematics Sep 2018 - Present
Advisor: Sarah C. Koch
MS in Mathematics Sep 2018 - Aug 2020

Chennai Mathematical Institute, Chennai, India
BSc. (Hons.) in Mathematics and Computer Science Jul 2015 - Apr 2018

RESEARCH INTERESTS Holomorphic dynamics
Teichmüller theory
Computational social choice

GRANTS & AWARDS *AMS Graduate Student Travel Grant* Feb 2024

University of Michigan, Ann Arbor, MI
Rackham Conference Travel Grant Dec 2023, Jun 2023
Usha Sharma Bhalla Fellowship Fund Fall 2023, Summer 2022
Carroll V. Newsom Scholarship May 2023
Rackham Graduate Student Research Grant 2023
Departmental Fellowship Summer 2020, 2021, 2022

Lauter Program Associate Fellowship, MSRI, Berkeley, CA Jan - May 2022
Stipend, Chennai Mathematical Institute, Chennai, India 2015 - 2018
Summer Research Fellowship, JNCASR, Bengaluru, India May - Jun 2017

PUBLICATIONS & PREPRINTS • Marked cycle curves for quadratic polynomials and rational maps (joint with C. Davis, D. Stoll and G. Tiozzo)
In preparation.
• Dynamical approximation of post-singularly finite exponentials
Preprint (2023). [arXiv:2305.18245](https://arxiv.org/abs/2305.18245)
• Dynamical approximations of post-singularly finite entire functions (joint with N. Prochorov and B. Reinke)
Submitted (2023). [arXiv:2305.17793](https://arxiv.org/abs/2305.17793)
• Embedding unicritical connectedness loci
Accepted (2022). [arXiv:2209.02601](https://arxiv.org/abs/2209.02601)
• A solution to the degree- d twisted rabbit problem (joint with R. Winarski)
Submitted (2022). [arXiv:2209.06099](https://arxiv.org/abs/2209.06099)

TEACHING EXPERIENCE **University of Michigan**, Ann Arbor, MI
Math 116 (Calculus II) Winter 2024, 2023, 2021, 2020, Fall 2021
Math 105 (Data, Functions and Graphs) Fall 2020
Math 215 (Calculus III) Teaching Assistant Fall 2019
Math 115 (Calculus I) Winter 2019, Fall 2018

Chennai Mathematical Institute, Chennai, India
Analysis II Teaching Assistant Spring 2018
Analysis I Teaching Assistant Fall 2017

INVITED TALKS**Conference Talks & Presentations**

Joint Mathematics Meetings: Special Session on the Mathematics of Decisions, Elections and Games, San Francisco, Jan 2024
AMS Fall Southeastern Sectional Meeting: Special Session on Ergodic Theory and Dynamical Systems, University of South Alabama, Oct 2023
Early Career Complex Dynamics Workshop, Indiana University Bloomington, Jun 2023
CMS Summer Meeting: Session on Geometric Topology, pseudo-Anosov Maps and Complex Dynamics, Jul 2023
Midwest Dynamics Early Career Conference (poster presentation), University of Notre Dame, May 2022

Colloquium & Seminar Talks

<i>University of Illinois Chicago</i> Dynamics Seminar	Jan 2024
<i>Boston University</i> Dynamics Seminar	Jan 2024
<i>Quasiworld</i> Seminar (online)	Dec 2023
<i>Cornell University</i> Dynamics Seminar	Nov 2023
<i>University of Michigan</i> CADG Seminar	Nov 2023, Oct, Apr 2021, Nov 2020
<i>The Open University</i> Dynamical Systems Seminar (online)	Apr 2023
<i>University of Liverpool</i> Dynamical Systems Seminar	Mar 2023
<i>University of Warwick</i> Geometry and Topology Seminar	Mar 2023
<i>Institute of Mathematical Sciences</i> Chennai, Colloquium	Dec 2022
<i>University of Toronto</i> Dynamics Seminar	Nov 2022
<i>University of Chicago</i> Topology and Geometry Seminar	Oct 2022
<i>TIFR Infosys Chandrasekharan</i> Random Geometry Colloquium (online)	Oct 2022
<i>MSRI</i> Complex Dynamics Junior Seminar	Apr 2022
<i>IUPUI</i> Dynamical Systems Seminar	Nov 2021

Student Talks

<i>University of Michigan</i> Student DGT Seminar	Winter 2020
<i>University of Michigan</i> Student Topology Seminar	Fall 2019
<i>University of Michigan</i> Student Analysis Seminar	Winter 2018

CONFERENCES & WORKSHOPS

Thematic Program on Randomness and Geometry, Fields Institute, Toronto, Canada, April 2024
Big Ideas in Dynamics (online participation), Fall 2023
Randomization, Neutrality, and Fairness Workshop, Simons Laufer Mathematics Institute, Berkeley, California, Oct 2023
Quasiworld Workshop, University of Helsinki, Helsinki, Finland, Aug 2023
Around the Mandelbrot set: A conference celebrating the 60th birthday of Mitsuhiro Shishikura (online participation), Tokyo, May 2023
Midwest Dynamical Systems Early Career Conference, University of Notre Dame, May 2022
Complex Dynamics School: Building a Bridge to Higher Dimensions, IUPUI, Mar 2022
Complex Dynamics: from Special Families to Natural Generalizations in One and Several Variables, MSRI, Berkeley, CA, Jan - May 2022
Midwest Dynamical Systems Conference, Northwestern University, Nov 2021
Advancing Bridges in Complex Dynamics (online participation), CIRM, Luminy, France, Sep 2021
Midwest Dynamical Systems Conference, University of Illinois Chicago, Nov 2019
Summer School on Dynamical Systems, University of Houston, Jun 2019
School on Low-Dimensional Geometry and Topology: Discrete and Algorithmic Aspects, Institut Henri Poincaré, Paris, France, Jun 2018

SERVICE

<i>Volunteer Artist</i> , AWM EvenQuads Deck 2	2023
<i>Participating Mentor</i> , AWM Mentor Network	2021, 2023
<i>Lecturer</i> , Monsoon Math Camp	2021

University of Michigan, Ann Arbor, MI

Co-Chair, Graduate Student Advisory Committee Sep 2022 - Present
Grad Member, Math Department Climate Committee Sep 2022 - Aug 2023
Co-Organizer, Jobs in Academia for Mathematics (JAMS) Sessions Apr 2023
Leader, Michigan Math Circle Apr 2022, Feb 2021, Feb 2020, Nov 2019
Board Member, AWM Student Chapter Sep 2020 - Aug 2022
Steward, Graduate Employees' Organization (GEO) 3550 Sep 2021 - Aug 2022
Co-Organizer, MREG Workshop Jun 2022
Teacher's Assistant, MREG Workshop Jun 2021
Volunteer, F.E.M.M.E.S Capstone Jun 2020
Volunteer, Math Corps summer camp July 2020

Chennai Mathematical Institute, Chennai, India
Guest Lecturer, EGMO Training Camp Dec 2022

INTERNSHIPS **MGGG Redistricting Lab** Jun - Aug 2023
Tufts University, Medford, MA

- o The mathematics of ranked choice voting
- o Software development: VoteKit package for alternative voting
<https://pypi.org/project/votekit/>

Research Lab in Computer Science (ReLaX) Initiative May - Jun 2018
LIGM, L'Université Paris-Est Marne-la-Vallée, Paris, France

- o Parameterized algorithms in computational geometry
- o Discrete systolic geometry

Undergraduate Summer Research Internship Jun - Jul 2017
Jawaharlal Nehru Center for Advanced Scientific Research, Bengaluru, India

- o Techniques in probability and functional analysis

COMPUTER SKILLS Python
 Julia
 Git
 C++
 Haskell

LANGUAGES English (fluent)
 Tamil (native)