Theodore Weisman

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Department of Mathematics
University of Michigan

CURRENT POSITION

Assistant professor (non-tenure) and research fellow
University of Michigan, Ann Arbor   *2022 – present*

EDUCATION

University of Texas at Austin, Austin, Texas
Ph.D. in Mathematics   *August 2022*
Advisor: Jeffrey Danciger
Thesis: Higher-rank generalizations of convex cocompact and geometrically finite dynamics

Yale University, New Haven, Connecticut
B.S. in Mathematics (intensive), magna cum laude   *May 2016*

AWARDS AND HONORS

NSF Postdoctoral Research Fellowship   *2022 – present*

Frank Gerth III Outstanding Dissertation Award   *2022*
University of Texas at Austin

Provost's Graduate Excellence Fellowship
University of Texas at Austin   *2016 – 2021*

Outstanding Presentation Award
MAA Mathfest Undergraduate Paper Sessions   *2014*

PUBLICATIONS AND PREPRINTS

1. *Stability of hyperbolic groups acting on their boundaries* (with K. Mann and J. Manning). arXiv:2206.14914, 2022 (18 pages).

2. *An extended definition of Anosov representation for relatively hyperbolic groups*. arXiv:2205.07183, 2022. (77 pages).

3. *Dynamical properties of convex cocompact actions in projective space*. arXiv:2009.10994, 2020 (submitted, 50 pages).

4. *Realization of Groups with Pairing as Jacobians of Finite Graphs* (with L. Gaudet, D. Jensen, D. Ranganathan, and N. Wawrykow). *Annals of Combinatorics*, 22.4 (2018), pp 781-801.

TEACHING EXPERIENCE

Teaching Assistant, University of Texas at Austin
    M427L (Advanced calculus for applications II)   *Spring 2022*
    M408C (Differential and integral calculus)   *Fall 2018, Spring 2020*
    M408S (Integral calculus for science)   *Spring 2019*

SI (Supplemental Instruction) Teaching Assistant, University of Texas at Austin
    M408C (Differential and integral calculus)   *Fall 2019*

In addition to taking on normal TA duties, SI teaching assistants meet weekly to develop better teaching strategies and discuss ways to improve classroom environment.

Peer Tutor, Yale University

| MATH 244 (Discrete mathematics) | *Fall 2014, Fall 2015* |
| MATH 222 (Linear algebra with applications) | *Spring 2016* |

OUTREACH

Mentor, Texas Geometry Lab
University of Texas at Austin   *Spring 2021, Fall 2021, Spring 2022*

Mentored a group of undergraduates on a computer visualization project. Met with students twice a week, provided guidance and suggestions for their programming project, and helped build the website for the lab.

Mentor, UT Directed Reading Program
University of Texas at Austin   *2017–2021*

Mentored an undergraduate student through the process of reading a mathematical text. Mentoring involved meeting the student weekly to discuss the text and coaching them through a 15-minute talk at the end of the semester.

Volunteer, Sunday Morning Math Group
University of Texas at Austin   *2019–2020*

Worked with Austin middle school and high school students biweekly on math problems, and gave a talk at one session on geometry of map projections.

Volunteer teacher, Splash at Yale
Yale University   *Summer/Fall 2014, Spring 2015*

Taught one-hour long minicourses to high school students. Each class met 1-4 times and had 20-30 students. Titles included *Abstract algebra, What is a number?,* and *The game of hex.*

MathCounts Coach, Columbus Family Academy
New Haven, CT   *2013*

Led weekly problem sessions for 7-10 students on the Columbus Family Academy middle school MathCounts team.

INVITED TALKS

1. "Extended geometrically finite representations"
   AMS-SMF-EMS Joint International Meeting special session (deformation spaces of geometric structures) July 2022

2. "Extended geometrically finite representations"
   Spring Topology and Dynamical Systems Conference: Special Session on Geometric Topology   March 2022

3. "Relative Anosov representations and convex projective structures"
   University of Virginia geometry seminar   February 2022

4. "Extended convergence dynamics and relative Anosov representations"
   NUS Topology and Geometry seminar   February 2022

5. "Extended convergence dynamics and relative Anosov representations"
   Heidelberg University differential geometry seminar   December 2021

6. "Relative Anosov representations and convex projective structures."
   University of Wisconsin dynamics seminar   October 2021

7. "Relative Anosov representations and convex projective structures."
   Rice University topology seminar   September 2021

8. "Relative Anosov representations and convex projective structures."
   Florida State University geometry and topology seminar   September 2021

9. "Extended convergence dynamics, relative Anosov representations, and stability"
   IHES   September 2021

10. "Anosov representations: the relatively hyperbolic case." (Expository talk)
    Workshop on Anosov representations in Aussois   September 2021

11. "Group actions on boundaries of convex divisible domains."
    AMS Fall Southeastern Sectional Meeting special session (geometric structures on manifolds)   November 2019

Contributed Talks

"Expansion/contraction dynamics for non-strictly convex projective manifolds."
GTA Philadelphia   *May 2021*

"Jacobians of finite graphs," with L. Gaudet and N. Wawrykow.
MAA Mathfest Undergraduate Paper Sessions   *August 2014*

Outreach Talks

1. "Basics of the probabilistic method." *UT undergraduate math club*   *Spring 2022*
2. "Geometry in Minkowski space." *UT undergraduate math club*   *Spring 2021*
3. "Solving the word problem with geometry." *UT undergraduate math club*   *Fall 2020*
4. "Map projections." *UT Sunday morning math group*   *Fall 2019*

Service

Minicourse leader
   "Boundaries of Groups and Spaces"   *June 2020*
   "Hyperbolic Groups"   *August 2019*

Led weeklong courses for graduate students as part of a University of Texas summer minicourse program

Co-organizer, Learning seminar on geometric group theory
University of Texas at Austin   *Fall 2021, Spring 2022*

Organizer, Learning seminar on relative Anosov representations
University of Texas at Austin   *Summer 2020*

Organizer, Junior Topology Seminar
University of Texas at Austin   *Fall 2019*

Co-organizer, Geometric topology seminar
University of Texas at Austin   *2018 - 2021*

Co-founder, SUMS
Yale University   *2014 – 2016*

Co-organized weekly meetings for math talks given by a small group of undergraduates

Conferences attended

1. Graduate Student Geometry and Topology Conference, Michigan State University   *April 2017*
2. Graduate Student Conference in Algebra Geometry and Topology, Temple University   *May 2017*
3. Texas Geometry and Topology Conference, University of Texas at Austin   *Novermber 2017*
4. Thin Groups in Number Theory, Geometry, and Topology, Rice University   *May 2018*
5. Representation Varieties and geometric structures in low dimensions, University of Warwick   *July 2018*
6. Young Topologists Meeting, University of Copenhagen   *July 2018*
7. Young Geometric Group Theory, UPV/EHU   *June 2019*
8. Aspects of Geometric Group Theory, IHES   *July 2019*
9. Nearly Carbon Neutral Geometric Topology (virtual)   *June 2020*
10. Virtual Topology Festival, NUS   *January 2021*
11. Graduate Student Geometry and Topology Conference (virtual), University of Indiana Bloomington   *April 2021*
12. GTA Philadelphia (virtual)   *May 2021*

13. Nearly Carbon Neutral Geometric Topology (virtual) *June 2021*

14. Beyond Hyperbolicity, The Ohio State University *July 2021*

15. Workshop on Anosov representations in Aussois, France *August-September 2021*

16. Virginia Topology Conference (Geometry and dynamics in hyperbolic space), University of Virginia *November 2021*

17. Texas Geometry and Topology Conference, University of Texas Dallas *February 2022*

18. Spring Topology and Dynamical Systems Conference, Baylor University *March 2022*

19. Geometry, Arithmetic, and Groups, University of Texas at Austin *June 2022*

20. AMS-SMF-EMS International Meeting *July 2022*