

Jenya (Eugenia) Sapir

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Research Interests:

Low Dimensional Topology, Geometric Group Theory, Teichmuller Theory

Education:

Ph.D., Stanford University, Stanford, CA 2009 - 2014
Advisor: Maryam Mirzakhani

B.S. with honors in Mathematics, University of Chicago, Chicago, IL 2004 - 2008

Academic Appointments:

Assistant Professor, Binghamton University, Binghamton, NY 2017 - present

Postdoctoral Fellow, Max Planck Institute for Mathematics, Bonn, Germany 2018

Viterbi Postdoctoral Fellow, Geometric Group Theory program, MSRI, Berkeley, CA Fall 2016

J. L. Doob Assistant Professor, University of Illinois at Urbana-Champaign, Urbana, IL 2014 - 2017

Awards and Fellowships:

AIM SQuaRE Grant with Jayadev Athreya, Francisco Arana-Herrera, Aaron Calderon 2024
Project: How do simple closed geodesics cut up a hyperbolic surface?

Simons Foundation: Collaboration Grant for Mathematics September 2022- August 2027
Project: Coarse and Fine Geometry of Negatively Curved Surfaces

Research member at MSRI November 13 - December 13, 2019
Program on Holomorphic Differentials in Mathematics and Physics

Visiting scientist June, 2019
Max Planck Institute for Mathematics- Bonn

NSF Graduate Research Fellowship 2009 - 2014

Fulbright U.S. Student Scholarship to France for study at ENS-Lyon, Lyon, France 2008 - 2009
under Etienne Ghys

Selected Papers and Preprints:

Sapir, J. *An extension of the Thurston metric to projective filling currents*. Geom Dedicata. **218** (2024), 78, 1-18.

Dozier, B., Sapir, J. *Simple vs non-simple loops on random regular graphs*. J. Graph Theory. **105** (2024), 4, 562-579.

Dozier, B., Sapir, J. *Counting geodesics on expander surfaces*. arXiv:2304.07938.

Hensel, S., Sapir, J. *A projection from filling currents to Teichmuller space*. Proc. Amer. Math. Soc. **151** (2023), 8, 3621-3633.

Sapir, J. *A length comparison theorem for geodesic currents*. arXiv:2210.00925.

Dozier, B., Sapir, J. *Coarse density of subsets of moduli space*. Ann. Inst. Fourier (Grenoble) **71** (2021), 3, 1121-1134.

Athreya, J., Lalley, S., Sapir, J., Wroten, M. *Local geometry of random geodesics on negatively curved surfaces*. Ann. H. Lebesgue **4** (2021), 187-226.

Sapir, J. *A Birman-series type result for geodesics with infinitely many self-intersections*. Transactions of the American Mathematical Society, **374** (2021), 11, 7553-7568.

Aougab, T., Gaster, J., Patel, P., & Sapir, J. *Building hyperbolic metrics suited to closed curves and applications to lifting simply*. Mathematical Research Letters, **24** (2017), 3, 593-617.

Sapir, J. *Orbits of non-simple closed curves on a surface*. arXiv:1602.09093.

Sapir, J. *Bounds on the number of non-simple closed geodesics on a surface*. International Mathematics Research Notices, **2016** (2016), 24, 7499-7545.

Sapir, J. *Lower bound on the number of non-simple closed geodesics on surfaces*. Geom Dedicata, **184** (2016), 1-25.

Bleak, C., Bowman, H.E., Lynch, A.G., Graham, G., Hughes, J., Matucci, F., & Sapir, E. *Centralizers in the R. Thompson group V_n* . Groups, Geometry, and Dynamics, **7** (2013), 821-865.

Chestnut, J., Sapir, J., & Swartz, E. *Enumerative properties of triangulations of spherical bundles over S^1* . Eur. J. Comb., **29** (2008), 662-671.

Graduate students:

Garrett Proffitt (current),

Meenakshy Jyothis (current),

Arman Aminipanah (current),

Marwa Mosallam (current),

Postdocs:

John Abou-Rached

Committees at Binghamton University:

Calculus Advisory Committee Delegates	Spring 2025
Calculus Committee	2018-25
PhD Student Recruiting Committee	2021-25
Undergraduate Advising Committee	2021-25
Graduate Committee	2021-22
Undergraduate Committee	2018-21

Teaching at Binghamton University:

Course	Semesters taught
Math 601 Ergodic Theory	Fall 2025
Math 513 Graduate Point Set Topology	Fall 2024, Fall 2023, Fall 2021, Fall 2019
Math 304 Linear Algebra	Fall 2023, Spring 2022, Fall 2020, Fall 2017
Math 323 Multivariable Calculus, course coordinator	Spring 2023
Math 463 Differential Geometry	Spring 2022, Spring 2020
Math 330 Number Systems	Spring 2021, Spring 2020, Spring 2019
Math 601 Teichmuller Theory	Fall 2020
Math 601 Mapping Class Groups	Spring 2019

Select invited research talks at conferences and seminars

Event	Location	Date	Title
Joint meeting AMS-UMI Special Session on Developments in Hyperbolic Geometry	Palermo, Italy	07/25/2024	Geometry of geodesic currents
CUNY-Graduate Center Geometry and Topology Seminar	New York, NY	03/19/2024	Expander surfaces and the birth- day problem
University of Oklahoma Geometry and Topology Seminar	Norman, OK	02/21/2024	Geodesics on high genus surfaces
Vanderbilt University Topology and Group Theory Seminar	Nashville, TN	02/07/2024	Geodesics on high genus surfaces
CUNY- Graduate Center Complex Analysis and Dynamics Seminar	New York, NY	02/02/2024	Geodesics on high genus surfaces
University of Chicago Geometry and Topology seminar	Chicago, IL	03/30/2023	Geometry of geodesic currents
Yale University Geometry and Topology seminar	New Haven, CT	12/06/2022	The geometry of projective geodesic currents
Billiards and Surfaces à la Teichmüller and Riemann, Online (BISTRO)	Online	4/30/2022	A projection from geodesic cur- rents to Teichmuller space
Bristol University Geometry and Topology seminar	Online	4/22/2022	A projection from geodesic cur- rents to Teichmuller space
U. Wisconsin, Milwaukee Colloquium	Milwaukee, WI	11/19/2021	A length minimizing projection to Teichmuller space
Queen's University Colloquium	Kingston, Canada	11/12/2021	A projection from geodesic cur- rents to Teichmuller space
Geometric and Asymptotic Group Theory and Applications (GAGTA) Plenary speaker	Online	7/10/2021	Coarse density of subsets of moduli space
ETH Zurich Online geometry seminar	Online	4/13/2020	Tessellations from long geodesics on surfaces
Yale University Geometry and Topology seminar	New Haven, CT	10/22/2019	Tessellations from long geodesics on surfaces
U. Michigan, Ann Arbor Topology seminar	Ann Arbor, MI	10/17/2019	Tessellations from long geodesics on surfaces
Cornell University Topology Seminar	Ithaca, NY	5/9/2019	Tessellations from long geodesics on surfaces
Columbia University Geometry and Topology Seminar	New York, NY	4/9/2019	Tessellations from long geodesics on surfaces

Conferences and seminars organized

Event organized	Coorganizers	Location	Date
Ergodic Theory reading group For Binghamton and Cornell grad students, meeting bimonthly		Binghamton and Cornell Universities	Spring-Fall 2024
Fall Eastern Sectional meeting of the AMS: Special Session on the Geometry of Groups and Spaces	Johanna Mangahas, Joel Louwsma	Buffalo University Buffalo, NY	9/9-10/2023
Binghamton Geometry and Topology Seminar	Matthew Haulmark, Cary Malkiewich	Binghamton University Binghamton, NY	Spring 2019, Fall 2020
Fall Eastern Sectional meeting of the AMS: Special Session on Effective and Quantitative Advances in Low Dimensional Topology and Geometric Group Theory	Edgar Bering	Binghamton University Binghamton, NY	10/12-13/2019
Conference on Geometric and Combinatorial Methods in Group Theory In honor of Mark Sapir's 60th birthday	Gili Golan, Kate Juschenko, Curtis Kent, Alexander Olshanskiy, Denis Osin	UIUC Urbana, IL	5/16-18/2017

Outreach talks

Event	Location	Date	Title
Women in Math inspired by Maryam Mirzakhani	Online panel event	1/09/2021	Panelist
Women in Mathematical Physics Workshop (online) Hosted by the Banff Interna- tional Research Station	Online conference	9/22/2020	Tribute to Mirzakhani: Talk about the work of Maryam Mirzakhani
Young Geometric Group Theory Conference	Bilbao, Spain	6/30 - 7/5, 2019	Tessellations from long geodesics on surfaces
Fields medal symposium on the work of Maryam Mirzakhani Hosted by the Fields Institute Public opening	Toronto, Canada	11/05/2018	Introduction
Graduate Topology and Geome- try Conference at UIC	Chicago, IL	4/07/2018	Counting curves on a hyperbolic surface