

Priyam Patel

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RESEARCH INTERESTS	My research interests lie in the fields of low-dimensional topology, hyperbolic geometry, and geometric group theory. In particular, I study hyperbolic manifolds, the mapping class groups of surfaces (of both finite and infinite type), separability properties of groups, right-angled Artin groups, cube complexes, Teichmüller theory, the combinatorics of 3-manifolds, and representations of surface and 3-manifold groups.	
POSITIONS	University of Utah , Associate Professor University of Utah , Assistant Professor University of California, Santa Barbara , Visiting Assistant Professor Purdue University , Golomb Visiting Assistant Professor	2023–present 2019–2023 2016–2019 2013–2016
EDUCATION	Rutgers University, New Brunswick , Ph.D. in Mathematics (Advisor: Feng Luo) New York University , B.A. in Mathematics (Magna Cum Laude with Honors)	May 2013 May 2008
GRANTS	NSF CAREER Grant DMS-2046889, PI <i>CAREER: The Algebra, Geometry, and Topology of Infinite Surfaces</i> , \$600,000 NSF Grant DMS-2332419, PI <i>Conference: Wasatch Topology Conference</i> , \$48,900 NSF RTG Grant DMS-1840190, Co-PI <i>Algebra, Geometry, and Topology at the University of Utah</i> , \$2,492,843 NSF Grant DMS-1812014 & 1937969, PI <i>The Covers, Symmetries, and Combinatorics of Manifolds</i> , \$124,997 NSF-AWM Travel Grant, \$2000 AMS-Simons Travel Grant, \$4000	2021-2026 2023-2026 2019-2024 2018-2021 2018 2015–2017
AWARDS	University of Utah Faculty Fellows Award Mochizuki Memorial Award for Outstanding Contributions to Teaching Spira Teaching Award for Excellence in Undergraduate Teaching National Society for Collegiate Scholars Inspiring Integrity Award Teaching Excellence Award	2022 2019 2016 2016 2011
PUBLICATIONS & PREPRINTS	18. Shifts maps are not type-preserving <i>Submitted</i> (with C. Abbott and N. Miller) Available at: arXiv:2212.09156 [math.GT] 17. Constructing endperiodic loxodromics of infinite-type arc graphs <i>Submitted</i> (with S. Taylor) Available at: arXiv:2211.00678 [math.GT] 16. Thurston’s Theorem: Entropy in Dimension One <i>Accepted Math. Res. Lett.</i> (with R. Dickmann, G. Domat, T. Hill, S. Kwak, C. Ospina, and R. Rechkin) Available at: arXiv:2209.15102 [math.GT] 15. Infinite-type loxodromic isometries of the relative arc graph <i>Submitted</i> (with C. Abbott and N. Miller) Available at: arXiv:2109.06106 [math.GT] 14. Finding and combining indicable subgroups of big mapping class groups <i>Submitted</i> (with C. Abbott, H. Hoganson, M. Loving, and R. Skipper) Available at: arXiv:2109.05976 [math.GT]	

13. **Stable commutator length on big mapping class groups**
Bull. London Math. Soc. **54**, 2492-2512 (2022) (with E. Field and A. Rasmussen)
12. **Free products from spinning and rotating families**
Enseign. Math. **69** (2023) no. 3/4 235-260 (with M. Bestvina, R. Dickmann, G. Domat, S. Kwak, and E. Stark)
11. **Isometry groups of infinite-genus hyperbolic surfaces**
Math. Ann. **381**(1) 459-498 (2021) (with T. Aougab and N.G. Vlamis)
10. **Covers of surfaces, Kleinian groups, and the curve complex**
Accepted to J. Topol. (with T. Aougab and S. Taylor) Available at: arXiv:1810.12953 [math.GT]
9. **Effective virtual and residual properties of some arithmetic hyperbolic 3-manifolds**
Trans. Amer. Math. Soc. **373** (2020), no. 11, 8219-8257. (with J. Deblois and N. Miller)
8. **The first integral cohomology of pure mapping class groups**
Int. Math. Res. Notices. **2020** (2020), no. 22, 8973-8996. (with J. Aramayona and N.G. Vlamis)
7. **Algebraic and topological properties of big mapping class groups**
Algebr. Geom. Topol. **18-7** (2018), p. 4109-4142 (with N.G. Vlamis)
6. **Building hyperbolic metrics suited to closed curves and applications to lifting simply**
Math. Res. Lett. **24** (2017), no. 3, p. 593-617. (with T. Aougab, J. Gaster, and J. Sapir)
5. **Zariski closures and subgroup separability**
Selecta Math. **23** (2017), Issue 3, p. 2019-2027. (with L. Louder and D.B. McReynolds)
4. **Quantifying separability in virtually special groups**
Pacific J. Math. **284-1** (2016), p. 103-120. (with M.F. Hagen)
3. **On the residual finiteness growths of particular hyperbolic manifold groups**
Geom. Dedicata. **185** (2016), Issue 1, p. 87-103.
2. **Residual finiteness growths of virtually special groups**
Math. Z. **279** (2015), no. 1-2, p. 297-310. (with K. Bou-Rabee and M.F. Hagen)
1. **On a theorem of Peter Scott**
Proc. Amer. Math. Soc. **142** (2014), p. 2891-2906.

MENTORING	Thomas Hill, Ph.D. student at University of Utah (advisor)	2022-present
	Rebecca Rechkin, Ph.D. student at University of Utah (advisor)	2022-present
	Sanghoon Kwak, Ph.D. student at University of Utah (co-advising w/ M. Bestvina)	2021-present
	Elizabeth Field, NSF Postdoc at University of Utah (sponsoring scientist: M. Bestvina)	2020-present
	Alexander Rasmussen, NSF Postdoc at University of Utah (sponsoring scientist: P. Patel)	2020-present
	Yassin Chandran, undergraduate at UCSB	2019
	Mark Pengitore, Ph.D. student at Purdue University (advisor: Ben McReynolds)	2013-2016
	Milana Golich, undergraduate at Purdue University	2014-2016
UPCOMING TALKS	Joint Mathematics Meetings <i>Special session on Geometric Group Theory</i>	Jan 2024
	Joint Mathematics Meetings <i>Panel on Building a Successful Research Career in Mathematics</i>	Jan 2024
INVITED TALKS (CONFERENCES & COLLOQUIA)	Groups, Actions, and Geometries Conference, Tufts University	Aug 2023
	Groups around 3-manifolds, CRM (Montreal)	Jun 2023
	Interactions between Algebraic Topology and Geometric Group Theory, BIRS Oaxaca	May 2023
	Workshop on the Geometry & Dynamics of Groups of Transformations, Fields Institute	Jan 2023
	Rice University Colloquium	Dec 2022

Big Mapping Class Groups and Diffeomorphism Groups, CIRM (Marseille, France)	Oct 2022
Geometry, Arithmetic, and Groups, UT Austin	Jun 2022
University of Washington Colloquium	May 2022
Pauline Sperry Undergraduate Lecture, UC Berkeley	Apr 2022
Celebration of Women in Mathematics Day Plenary Talk , ASU	Mar 2022
University of Wisconsin, Madison Colloquium	Apr 2022
Cascade Topology Conference	Oct 2021
Haverford College Colloquium	Oct 2021
Summer Surfacing Conference Plenary Talk	Aug 2021
Nearly Carbon Neutral Geometric Topology Conference Plenary Talk	Jun 2021
University of Wisconsin, Milwaukee Colloquium	Mar 2021
Joint Mathematics Meetings <i>Special session on Women of Color in Topology and Algebra</i>	Jan 2021
Joint Mathematics Meetings <i>Special session on Geometry and Topology in Dimensions 3 and 4</i>	Jan 2021
University of Denver Colloquium	Nov 2020
In and Around Hyperbolic Geometry Barco de Avila, Spain (<i>Cancelled due to COVID-19</i>)	Jun 2020
Low-dimensional Topology Conference, Oberwolfach, Germany	Feb 2020
5th Annual Graduate Student Conference in AG&T, Temple University	Jun 2019
Geodesics on real hyperbolic manifolds, Connecticut College	Aug 2018
Thin groups in Number Theory, Geometry and Topology, Rice University	May 2018
Geometry of Teichmüller space and mapping class groups, University of Warwick	Apr 2018
Graduate Student Topology and Geometry Conference, UIC	Apr 2018
Mathematical Congress of the Americas, Special Session on Geometric Group Theory	Jul 2017
Shanks Conference on Low-dimensional Topology and Geometry, Vanderbilt	May 2017
Redbud Geometry/Topology Conference, University of Arkansas	Apr 2017
AWM Research Symposium <i>Special session on Geometric Group Theory, UCLA</i>	Apr 2017
Spring Topology and Dynamics Conference <i>Special session on Geometric Group Theory, NJCU</i>	Mar 2017
Bowdoin College Colloquium	Jan 2017
Louisiana State University Colloquium	Jan 2017
University of Fribourg Colloquium	Dec 2016
Temple University Colloquium	Nov 2016
Effective and Algorithmic Methods in Hyperbolic Geometry and Free Groups	May 2016
Women and Math Research Seminar Series, Institute for Advanced Study	May 2016
Eastern Illinois Geometry, Dynamics and Topology Conference	Apr 2016
Bloomington Geometry Workshop	Apr 2016
Sectional AMS Meeting, Rutgers University <i>Special session on Geometry of groups, surfaces and 3-manifolds</i>	Nov 2015
Wasatch Topology Conference, Park City, UT	Aug 2015
Sectional AMS Meeting, Michigan State University <i>Special session on Interactions Between Geometry, Group Theory & Number Theory</i>	Mar 2015

	Sectional AMS Meeting, University of Alabama <i>Special session on Geometric Group Theory and Topology</i>	Mar 2015
	Third Annual Midwest Women in Mathematics Symposium <i>Special session on Algebraic and Geometric Topology</i> , Dominican University	Mar 2015
	Geometry, Groups and Dynamics, Rose–Hulman Institute	Feb 2015
	Young Geometric Group Theory in the Midwest, Madison, WI	Nov 2014
	Topology Students Workshop Research Talk, Georgia Tech	Jun 2014
	Geometric Groups on the Gulf Coast Conference	Mar 2013
	Joint Meetings of the AMS Special Session <i>Topics in geometric and analytic methods in Teichmüller theory and hyperbolic geometry</i>	Jan 2013
INVITED TALKS (SEMINARS)	Big Surf Seminar • UC Santa Barbara • Yale University • CUNY • Talk Math w/ Your Friends	2021
	Ohio State University • Virtual Trends in Low-dimensional Topology Seminar	2020
	Australian Geometric Topology Webinar • UC Davis • Warwick G&T Online Seminar	
	University of Washington • UC Berkeley • Rice University	2018
	Rutgers University • UC Santa Barbara • University of Southern California • Caltech	2017
	University of Glasgow • University of Chicago • San Francisco State University Rutgers University • CUNY	2016
	UT Austin • Temple University • Rutgers University Cornell University • University of Toronto • Purdue University	2015
	Stanford University • UC Berkeley • University of Illinois Urbana-Champaign Arizona State University • Michigan State University	2014
	Indiana University • CUNY • Purdue University • University of Michigan	2013
TEACHING EXPERIENCE	University of Utah	
	Math 2200 Discrete Mathematics	Fall 2024
	Math 7853 Graduate Topics Course: <i>3-manifolds and Geometrization</i>	Spring 2023
	Math 6910, RTG Seminar	Spring 2022
	Math 5510 Intro to Topology I	Fall 2021
	Math 6910, RTG Seminar	Fall 2021
	Math 6520 Intro to Algebraic Topology	Spring 2021
	Math 5510 Intro to Topology I	Fall 2020
	Math 7853 Graduate Topics Course: <i>Mapping class groups, big and small</i>	Spring 2020
	Math 2200 Discrete Mathematics	Fall 2019
	University of California, Santa Barbara	
	Calculus for the Life and Social Sciences (250 students)	Spring 2019
	Transition to Higher Mathematics	Winter 2019
	Non-Euclidean Geometry	Fall 2018
	Calculus for the Life and Social Sciences (275 students)	Spring 2018
	Calculus for the Life and Social Sciences (300 students)	Winter 2018
	Non-Euclidean Geometry	Fall 2017
	Transition to Higher Mathematics and Math 6A Multi-Variable Calculus	Spring 2017
	Transition to Higher Mathematics	Winter 2017
	Multi-Variable Calculus	Fall 2016
	Purdue University	
	Linear Algebra for Engineers	Spring 2016
	Elementary Linear Algebra	Fall 2015
	Elementary Linear Algebra	Spring 2015
	Elementary Linear Algebra	Fall 2014
	Elementary Linear Algebra	Spring 2014

	Linear Algebra for Engineers	Fall 2013
	Rutgers University	
	Topics in Math for the Liberal Arts	Fall 2012
	Introductory Linear Algebra	Summer 2011
	Calculus I	Summer 2010
SERVICE (CONFERENCES & SEMINARS)	Co-organizer , Roots of Unity Workshop <i>Professional and research development workshop for women of color graduate students.</i>	2021–present
	Co-organizer , Max Dehn Seminar	2019–present
	Co-organizer , Wasatch Topology Conference (annual conference)	2020–present
	Co-organizer , Topology Learning Seminar	2020–2022
	Co-organizer , AMS Sectional Meeting Special Session, UVA (<i>Cancelled due to COVID-19</i>)	Mar 2020
	Co-organizer , RTG Conference, University of Utah	Feb 2020
	Co-organizer , AIM Workshop “Surfaces of infinite type”	Apr 2019
	Organizer , UCSB Topology Seminar	2018–2019
	Co-organizer , Topology Students Workshop, Georgia Institute of Technology <i>Professional development workshop for graduate students.</i>	Jun 2016
	Co-organizer , Geometry, Groups, and Dynamics Conference, Indianapolis, IN	Mar 2016
	Co-organizer , Purdue University Geometry Seminar	2013–2016
SERVICE (COMMITTEES)	Faculty Chair of the Association for Women in Math, University of Utah Chapter	2021–present
	Selection Committee , AWM Mathematical Endeavors Revitalization Program	2023–present
	Thesis Committee , <i>Hanna Astephan, Matthew Goroff, Emily Smith, Kristen Lee, George Domat, Ryan Dickmann, Hannah Hoganson, Leslie Mavrakis (UCSB), Andy Huynh (Rutgers)</i>	2019–present
	Scientific Committee Young Geometric Group Theory (YGGT) Conference, Germany	2022
	Oral Exam Committee , <i>Sanghoon Kwak, Catherine Warner</i>	2021–2022
	EDI Committee , University of Utah Mathematics Department	2020–2021
	Graduate Admissions Committee , Mathematics Department	2020–2021
	Development Committee , Mathematics Department	2019–2021
	Search Committee , Assistant VP for Faculty Equity & Diversity, University of Utah	Apr 2020
	Colloquium Committee , Mathematics Department	2019–2020
SERVICE (OTHER)	Co-organizer , MEET and SHARE: a mathematicians’ storytelling event at the JMM	Jan 2024
	Organizer , <i>Represent: STEM Voices</i> , speaker series at the University of Utah <i>Highlighting accomplishments of individuals from marginalized groups in STEM</i>	2021–present
	Referee Work , <i>Int. Math. Res. Not., Algebr. Geom. Topol., New York J. Math., Q. J. Math., Geom. Topol., Proc. Amer. Math. Soc., J. Lond. Math. Soc., Trans. Amer. Math. Soc., Michigan Math J., Discrete Anal., Topol. Appl., J. Eur. Math. Soc.</i>	2015–present
	Panelist , National Science Foundation DMS Topology & Geometric Analysis, 3 panels	2019–2022
	Speaker , University of Utah Science Research Initiative Career Paths Talk Series	Nov 2022
	Panelist , Math for All “Creating a new math world out of the shell of the old one”	Feb 2022
	Leader , NCNGT Conference Open Problem Session on Infinite-type Surfaces	Jun 2021
	Speaker , Summer ACCESS Program, University of Utah	2020 & 2021
	Mentor , Topology Students Workshop, Georgia Institute of Technology	Jul 2020

	Panelist , "Funding opportunities for postdoctoral researchers", University of Utah	Sep 2019
	Panelist , UCSB Promise Scholar Panel "How to talk to your professors."	Aug 2018
	Panelist , UCSB AWM Panel "Graduate school and beyond."	Apr 2018
	Host , UCSB Faculty Nights, "An uncensored discussion about gender discrimination." <i>Interactive event bringing together students & faculty through the exploration of a hot topic.</i>	Feb 2018
	Speaker , UCSB AWM Research Talk for Undergraduates	Feb 2018
	Speaker , Research talk for REU at UCSB	Jul 2017
	Co-organizer , UCSB AWM and Hypatian Seminar joint events	2016–2017
	Panelist , Women in STEM Mentorship Program, Life in Academia Panel, UCSB	Mar 2017
	Teaching Assistant , Institute for Advanced Study Women and Mathematics Program	May 2016
	Speaker , Basic Skills Workshop- Networking, CVs, and webpages, Purdue University	Oct 2015
	Panelist , Basic Skills Workshop - Job Market Panel, Purdue University	Sep 2014
	Mentor , Topology Students Workshop, Georgia Institute of Technology	Jun 2014
	Founder and organizer , Math Women's Tea, Rutgers University	2011–2013
	Co-organizer , Rutgers University NSF ADVANCE Women in Math Dinners	2011–2013
EDUCATIONAL OUTREACH	Presenter , Science Day at the U, University of Utah	Nov 2019
	Workshop Leader , Defining Your Path, Middle school outreach event at University of Utah	Nov 2019
	Volunteer , Math outreach event at The Wolf Museum of Exploration + Innovation	May 2018
	Speaker , High school outreach, Avenues: The World School, New York, NY	Dec 2017
	Instructional assistant , NJ Partnership for Excellence in Middle School Mathematics <i>Middle school teachers training and outreach program.</i>	2012 & 2013
IN THE PRESS	Kevin Hartnett. "Math After COVID-19", <i>Quanta Magazine</i>	Apr 2020
	Kevin Harnett. "Mathematics as a Team Sport", <i>Quanta Magazine</i>	Mar 2020
REFERENCES	Alan Reid alan.reid@rice.edu	
	Mladen Bestvina bestvina@math.utah.edu	
	Ruth Charney charney@brandeis.edu	
	Feng Luo fluo@math.rutgers.edu	
	Christopher Leininger cjl12@rice.edu	
	Maria Isabel Bueno Cachadina (Teaching reference) mbueno@math.ucsb.edu	
MISCELLANEOUS	Citizenship: United States of America	