

Kathryn Mann

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Appointments

Manning Assistant Professor of Mathematics , Brown University	2017 –
Morrey Visiting Assistant Professor / NSF postdoctoral researcher , UC Berkeley	2014–2017
Postdoctoral research fellow , Mathematical Sciences Research Institute	Spring 2015
Visiting position: Professeur Invité, Inst. Math. Jussieu (Paris VI)	May–June 2016

Education

Ph.D. Mathematics , University of Chicago Advisor: Benson Farb	2014
B.Sc. Mathematics and Philosophy , University of Toronto	2008

Recognition and Grants

Mary Ellen Rudin young researcher award (annual Elsevier-sponsored award in topology)	2017
NSF Mathematical Sciences Postdoctoral Research Fellowship, DMS 1606254	2016–19
Distinguished teaching award , UC Berkeley mathematics	2016
Kowalsky Fellowship for Research Excellence , University of Chicago	2013
NSERC (Canada) Postgraduate Scholarship	2008–10; 2011–13
McCormick Fellowship , University of Chicago mathematics	2008–2010
Norman Stuart Robertson Scholarship in Mathematics , University of Toronto	2007–08

Research interests

Topology, geometry, geometric group theory, and dynamics in low dimensions.
I study groups acting on manifolds, the topology of moduli spaces of group actions, and the topology and algebraic structure of groups of homeomorphisms and diffeomorphisms, from a wide range of perspectives.

Publications

- 18. A characterization of Fuchsian actions by topological rigidity.**
With Maxime Wolff. arXiv:1711.05665 [math.GT]
- 17. Rigidity and geometricity for surface group actions on the circle.**
With Maxime Wolff. arXiv:1710.04902 [math.GT]
- 16. Unboundedness of some higher Euler classes.**
arXiv:1709.03359 [math.GT], submitted
- 15. Ping-pong configurations and circular orders on free groups.**
With Dominique Malicet, Cristobal Rivas, and Michele Triestino arXiv:1709.02348 [math.GR], submitted
- 14. On the number of circular orders on a group.**
With Adam Clay and Cristobal Rivas arXiv:1704.06242 [math.GR], under review.

13. Strong distortion in transformation groups.

With Frédéric Le Roux arXiv:1610.06720 [math.DS] Bulletin of the London Math. Soc.

12. The large-scale geometry of homeomorphism groups.

With Christian Rosendal. arXiv:1607.02106 Ergodic theory and Dynamical Systems

11. Group orderings, dynamics, and rigidity.

With Cristobal Rivas. arXiv:1607.00054 To appear in Annales de l'Institut Fourier.

10. $PL(M)$ has no Polish group topology.

Fundamenta Mathematicae 238 (2017), 285-296.

9. Automatic continuity for homeomorphism groups.

Geometry & Topology 20-5 (2016), 3033-3056. With an appendix with F. Le Roux.

8. Rigidity and flexibility of groups acting on the circle.

To appear in *Handbook of group actions*, L. Ji, A. Papadopoulos, and S.-T. Yau, eds.

7. A short proof that $Diff(M)$ is perfect.

New York J. Math 22 (2016), 49-55.

6. Components of spaces of surface group representations.

Inventiones Mathematicae. 201, no. 2 (2015), 669-710.

5. Left-orderable groups that don't act on the line.

Mathematische Zeitschrift 280, no. 3 (2015), 905-918.

4. Homomorphisms between diffeomorphism groups.

Ergodic Theory and Dynamical Systems 35-01 (2015), 192-214.

3. A counterexample to the simple loop conjecture for $PSL(2, \mathbb{R})$.

Pacific Journal of Math 269-2 (2014), 425-432.

2. Diffeomorphism groups of balls and spheres.

New York J. Math. 19 (2013) 583-596.

1. Bounded orbits and global fixed points for groups acting on the plane.

Algebraic & Geometric Topology 12 (2012) 421-433.

Teaching

At Brown University

Math 1230, Graph theory (undergraduate)

Spring 2018

At UC Berkeley

Math 141, Differential topology

2016

Math 113, Abstract algebra

2015, 2014

Math 130, The classical geometries

2015

At the University of Chicago

Math 161-2-3, *Inquiry Based Learning* honors calculus

2013-2014

Math 196, Linear algebra

2013

Math 195, Mathematical methods for the social sciences: Multivariable calculus

2012

Math 113, Introduction to groups and geometry for liberal arts students

2012

Math 112, Elementary number theory for liberal arts students

2011

Math 131-2-3, Single variable calculus

2010-2011

Teaching assistant for: Honors Calculus (Chicago) and Calculus, Symbolic Logic, Intro Philosophy (Toronto) 2007-09

Minicourses and lecture series

"Groups, geometry, and rigidity" 3-week minicourse for graduate students (MIT)	March 2017
"Groups of circle homeomorphisms" at Beyond Uniform Hyperbolicity 2015 (Olmue, Chile)	September 2015
"Algebraic structure of diffeomorphism groups" (Berkeley RTG grad student summer school)	June 2015

Student supervision

Undergraduate honors thesis of Sophia Elia, UC Berkeley.	2016
RISD collaborative study project on Projective geometry	2018 wintersession

Invited Conference Talks (including upcoming/scheduled)

Workshop on Groups, Geometry and Dynamics (Montevideo)	July 2018
First Canadian geometry and topology seminar (Fields Inst., Toronto)	March 2018
New Methods for Zimmer's Conjecture (IPAM)	Jan. 2018
No Boundaries: Groups in Algebra, Geometry, and Topology (Chicago)	October 2017
GEAR (Geometric structures and representation varieties) senior retreat (Stanford)	August 2017
Summer conference on topology and its applications (Dayton, OH) – <i>Plenary lecture</i>	June 2017
Approximation, deformation, quasification (Isaac Newton Inst.)	May 2017
Georgia International Topology Conference (Athens, GA)	May 2017
Spring topology and dynamics conference (New Jersey City) – <i>Plenary lecture</i>	March 2017
Workshop: Groups of Dynamical Origin (UNAM, Mexico City)	February 2017
Amenability, coarse embeddability and fixed point properties (MSRI)	December 2016
Surfaces in Luminy (CIRM)	October 2016
Foliations, Laminations and Contact structures (Munich)	September 2016
Foliations 2016 (Bedlewo, Poland)	July 2016
Groups acting on manifolds (Teresopolis / UFF, Brazil)	June 2016
AMS western sectional meeting (Descriptive Set Theory and Topology special session)	April 2016
Redbud Topology Conference (U. Oklahoma)	April 2016
Young Geometric Group Theory V (Karlsruhe, Germany)	February 2016
Dynamics on Moduli Spaces of Geometric Structures (MSRI)	April 2015
Connections for Women: Dynamics on Moduli Spaces (MSRI)	January 2015
Tech Topology Conference (Georgia Tech)	December 2014
Geometry, Topology and Physics (University of Pittsburgh)	May 2014
Groups and Dynamics II (University of Santiago, Chile)	April 2014
Geometric Groups on the Gulf (G^3)	March 2014
AMS Sectional Meeting (special session "geometric aspects of topology and group theory")	October 2013
Wasatch topology conference (Utah)	August 2013
GEAR Network junior retreat (UIUC)	July 2012
Recent progress on hyperbolic 3-manifolds (Michigan)	May 2012
Workshop on Cartan Connections, Geometry of Homogenous Spaces and Dynamics (ESI)	July 2011

Invited Seminar Talks

- 2017:** Stanford (colloquium), Stanford informal geometry seminar, Caltech topology seminar, Caltech Logic seminar, Tufts geometric group theory, U. Chicago dynamics seminar, UC Davis, Jussieu (Paris VI), Orsay, IHES, Brandies geometry seminar, Indiana U. Bloomington x2, MIT algebraic topology.
- 2016:** Cornell topology seminar, CCNY (colloquium), Inst. Math. Jussieu seminar Analyse Algébrique, UW Madison (colloquium), Cornell (colloquium), Brown (colloquium), University of Michigan, MIT (colloquium).
- 2015:** UIC geometry-topology-dynamics, UIC logic seminar, IMJ Jussieu (Paris), LMU (Munich), Sonoma state university math colloquium, Utah Topology RTG seminar, U Penn.
- 2014:** UCSB topology, UCSB hypatian seminar (colloquium), Stanford ($\times 2$) Berkeley, Princeton, Philadelphia Area PATCH seminar, Rice, UT Austin.
- Earlier** University of Maryland, Yale, Purdue, Ohio State University, Caltech, Northwestern. UW Madison, SUNY Buffalo, EPFL, Caltech.

Service

I. Conferences and seminars co-organized

Ordered groups and rigidity in dynamics and topology (BIRS workshop)	2019 (scheduled)
UC Berkeley Topology Seminar	2014-17
Foliations seminar (Joint Stanford-Berkeley seminar/reading group)	Spring 2016
RTG Graduate Student Summer School in topology (UC Berkeley)	July 8-12, 2015
Groups, Geometry and 3-manifolds, conference in honor of Daryl Cooper (local organizer)	May 21-22, 2015
Cohomology of diffeomorphism groups (Joint Stanford-Berkeley research seminar)	2014-15
Special session on geometry of real projective structures (AMS Joint Meetings)	January 4-7, 2012
Graduate student geometry/topology seminar (University of Chicago)	2010-11

On scientific committee for:

Young Geometric Group Theory VI (2017), Groups acting on manifolds workshop (UFF Brazil, 2016).

II. Mathematical outreach

- Faculty advisor for Brown graduate-undergraduate mathematics *Directed Reading Program* 2017–
- Canada/USA Mathcamp (high-school advancement program) *visiting speaker* Summer 2015, 2018
- Research Experience for Undergraduates (U. Chicago) 2009, 2011
Mentor for 8 undergraduate students
- University of Chicago Directed Reading Program 2010-2013
Supervised 7 independent study projects for undergraduates
- Undergraduate/general–audience talks given at: Chicago, Berkeley, UCSB, Sonoma state

III. Mentorship

- Mentor, Berkeley Science Network/Women in Mathematics retreat March 2015
- Invited panelist, women in science discussion for the University of Chicago physical sciences March 8, 2014
- Keynote speaker on women in academics and participation in the classroom April 14, 2014
“Women Speak Up” conversation series, University of Chicago

IV. Committees

Brown mathematics department diversity committee
Mathematics colloquium committee

2017-present
2017-present

V. Referee for

Geometry & Topology, Journal of Topology, Alg. & Geom. Topology, Comment. Math. Helvet, Proceedings LMS, Groups Geometry Dynamics, Trans. AMS, Journal of Modern Dynamics, and others.