

# Andrew Putman

Curriculum Vitae  
September, 2023

Department of Mathematics  
University of Notre Dame  
255 Hurley Hall  
Notre Dame, IN 46556

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## Employment

- 2016– **University of Notre Dame**, Notre Dame, IN  
Notre Dame Professor of Topology, 2020–  
Professor, 2016–2020
- 2010–2016 **Rice University**, Houston, TX  
Associate Professor, 2013–2016  
Assistant Professor, 2010–2013
- 2007–2010 **Massachusetts Institute of Technology**, Cambridge, MA  
C. L. E. Moore Instructor
- 2007 (Fall) **Mathematical Sciences Research Institute**, Berkeley, CA  
Postdoctoral fellow

## Education

- 2007 **University of Chicago**, Chicago, IL  
Ph.D. in Mathematics (advisor: Benson Farb)
- 2002 **Rice University**, Houston, TX  
B.A. in Mathematics

## Awards and Honors

- 2023 Principal Speaker at 39<sup>th</sup> Annual Workshop in Geometric Topology
- 2018 Plenary address at AMS Fall Central Sectional Meeting
- 2018 Fellow of the American Mathematical Society
- 2014, Nov Séminaire Bourbaki talk by Djament, “La propriété noethérienne pour les foncteurs entre espaces vectoriels [d’après A. Putman, S. Sam et A. Snowden]”
- 2014 US Junior Oberwolfach Fellow
- 2013–2015 Sloan Research Fellowship
- 2007 NSF Postdoctoral Fellowship (awarded but declined)
- 2007 Finalist for the AIM 5-year fellowship

## Grants

- 2023–2026 NSF grant DMS-2305183 (pi, \$340,001)  
Topological aspects of infinite group theory
- 2018–2022 NSF grant DMS-1811322 (pi, \$217,000)  
Topology and group theory
- 2017–2018 NSF conference grant DMS-1664688 (pi, \$25,000)  
Braids in Algebra, Geometry, and Topology
- 2013–2019 NSF grants DMS-1255350 & DMS-1737434 (pi, \$515,385)  
CAREER: The topology of infinite groups
- 2013 NSF conference grant DMS-1308209 (co-pi, \$18,420)  
3-Manifolds: Heegaard Splittings, the Curve Complex, and Hyperbolic Geometry
- 2010–2013 NSF grant DMS-1005318 (pi, \$136,969)  
The algebra and topology of the mapping class group

## Accepted Papers

3. Z. Himes, J. Miller, S. Nariman, A. Putman  
The free factor complex and the dualizing module for the automorphism group of a free group to appear in Int. Math. Res. Not.

2. A. Putman  
Partial Torelli groups and homological stability  
to appear in *Algebr. Geom. Topol.*
1. T. Brendle, N. Broaddus, A. Putman  
The high-dimensional cohomology of the moduli space of curves with level structures II:  
punctures and boundary  
to appear in *Israel J. Math.*

### Published Papers

43. A. Putman, A. Snowden  
The Steinberg representation is irreducible  
*Duke Math. J.* 172 (2023), no. 4, 775–808.
42. T. Brendle, N. Broaddus, A. Putman  
The mapping class group of connect sums of  $S^2 \times S^1$   
*Trans. Amer. Math. Soc.* 376 (2023), 2557–2572.
41. A. Putman, S. Sam  
VIC-modules over noncommutative rings  
*Selecta Math. (N.S.)* 28 (2022), no. 5, Paper No. 88.
40. A. Putman  
The commutator subgroups of free groups and surface groups  
*Enseign. Math.* 68 (2022), no. 3-4, 389–408.
39. T. Church, M. Ershov, A. Putman  
On finite generation of the Johnson filtrations  
*J. Eur. Math. Soc.* 24 (2022), no. 8, 2875–2914.
38. A. Putman, D. Studenmund  
The dualizing module and top-dimensional cohomology group of  $GL_n(\mathcal{O})$   
*Math. Z.* 300 (2022), no. 1, 1–31.
37. J. Miller, P. Patzt, A. Putman  
On the top dimensional cohomology groups of congruence subgroups of  $SL_n(\mathbb{Z})$   
*Geom. Topol.* 25 (2021), no. 2, 999–1058.
36. D. Margalit, A. Putman  
Surface groups, infinite generating sets, and stable commutator length  
*Proc. Roy. Soc. Edinburgh Sect. A.* 150 (2020), no. 5, 2379–2386.
35. A. Putman, S. Sam, A. Snowden  
Stability in the homology of unipotent groups  
*Algebra & Number Theory* 14 (2020), no. 1, 119–154.
34. N. Fullarton, A. Putman  
The high-dimensional cohomology of the moduli space of curves with level structures  
*J. Eur. Math. Soc.* 22 (2020), no. 4, 1261–1287.
33. M. Kassabov, A. Putman  
Equivariant group presentations and the second homology group of the Torelli group  
*Math. Ann.* 376 (2020), no. 1-2, 227–241.
32. J. Malestein, A. Putman  
Simple closed curves, finite covers of surfaces, and power subgroups of  $\text{Out}(F_n)$   
*Duke Math. J.* 168 (2019), no. 14, 2701–2726.
31. T. Church, B. Farb, A. Putman  
Integrality in the Steinberg module and the top-dimensional cohomology of  $SL_n \mathcal{O}_K$   
*Amer. J. Math.* 141 (2019), no. 5, 1375–1419.
30. A. Ash, A. Putman, S. Sam  
Homological vanishing for the Steinberg representation  
*Compos. Math.* 154 (2018), no. 6, 1111–1130.

29. A. Putman  
The Johnson homomorphism and its kernel  
J. Reine Angew. Math. 735 (2018), 109–141.
28. A. Putman, S. Sam  
Representation stability and finite linear groups  
Duke Math. J. 166 (2017), no. 13, 2521–2598.
27. M. Day, A. Putman  
On the second homology group of the Torelli subgroup of  $\text{Aut}(F_n)$   
Geom. Topol. 21 (2017), no. 5, 2851–2896.
26. T. Church, A. Putman  
The codimension-one cohomology of  $\text{SL}_n\mathbb{Z}$   
Geom. Topol. 21 (2017), no. 2, 999–1032.
25. M. Day, A. Putman  
A Birman exact sequence for the Torelli subgroup of  $\text{Aut}(F_n)$   
Internat. J. Algebra Comput. 26 (2016), no. 3, 585–617.
24. J. Malestein, A. Putman  
Pseudo-Anosov dilatations and the Johnson filtration  
Groups Geom. Dyn. 10 (2016), no. 2, 771–793.
23. A. Putman  
Stability in the homology of congruence subgroups  
Invent. Math. 202 (2015), no. 3, 987–1027.
22. T. Church, A. Putman  
Generating the Johnson filtration  
Geom. Topol. 19 (2015), 2217–2255.
21. T. Brendle, D. Margalit, A. Putman  
Generators for the hyperelliptic Torelli group and the kernel of the Burau representation at  $t = -1$   
Invent. Math. 200 (2015), no. 1, 263–310.
20. T. Church, B. Farb, A. Putman  
A stability conjecture for the unstable cohomology of  $\text{SL}_n\mathbb{Z}$ , the mapping class group, and  $\text{Aut}(F_n)$   
in *Algebraic Topology: Applications and New Directions*, 55–70, Contemp. Math., 620, Amer. Math. Soc., Providence, RI.
19. A. Putman, B. Wieland  
Abelian quotients of subgroups of the mapping class group and higher Prym representations  
J. London Math. Soc. (2) 88 (2013), no. 1, 79–96.
18. M. Day, A. Putman  
The complex of partial bases for  $F_n$  and finite generation of the Torelli subgroup of  $\text{Aut}(F_n)$   
Geom. Dedicata 164 (2013), 139–153.
17. M. Day, A. Putman  
A Birman exact sequence for  $\text{Aut}(F_n)$   
Adv. Math. 231 (2012), 243–275
16. A. Putman  
Small generating sets for the Torelli group  
Geom. Topol. 16 (2012), 111–125.
15. A. Putman  
The second rational homology group of the moduli space of curves with level structures  
Adv. Math. 229 (2012), 1205–1234.
14. T. Church, B. Farb, A. Putman  
The rational cohomology of the mapping class group vanishes in the virtual cohomological dimension  
Int. Math. Res. Not. (2012), no. 21, 5025–5030.

13. A. Putman  
The Torelli group and congruence subgroups of the mapping class group  
in *Moduli spaces of Riemann surfaces (Park City, UT, 2011)*, 167–194, IAS/Park City Math. Ser.,  
20 Amer. Math. Soc., Providence, RI.
12. A. Putman  
The Picard group of the moduli space of curves with level structures  
Duke Math. J. 161 (2012), no. 4, 623–674.
11. A. Putman  
Abelian covers of surfaces and the homology of the level  $L$  mapping class group  
J. Topol. Anal. 3 (2011), no. 3, 265–306.
10. A. Putman  
Obtaining presentations from group actions without making choices  
Algebr. Geom. Topol. 11 (2011), 1737–1766.
9. N. Broaddus, B. Farb, A. Putman  
Irreducible  $\mathrm{Sp}$ -representations and subgroup distortion in the mapping class group  
Comment. Math. Helv. 86 (2011), 537–556.
8. J. Malestein, A. Putman  
On the self-intersections of curves deep in the lower central series of a surface group  
Geom. Dedicata. 149 (2010), no. 1, 73–84.
7. A. Putman  
A note on the abelianizations of finite-index subgroups of the mapping class group  
Proc. Amer. Math. Soc. 138 (2010), no. 2, 753–758.
6. A. Putman  
An infinite presentation of the Torelli group  
Geom. Funct. Anal. 19 (2009), no. 2, 591–643.
5. J. Birman, D. Johnson, A. Putman  
Symplectic Heegaard splittings and linked abelian groups  
in *Groups of Diffeomorphisms*, Adv. Stud. Pure Math., 52, Math. Soc. Japan, Tokyo, 135–220.
4. A. Putman  
A note on the connectivity of certain complexes associated to surfaces  
Enseign. Math. (2) 54 (2008), no. 3–4, 287–301.
3. N. Broaddus, B. Farb, A. Putman  
The Casson invariant and the word metric on the Torelli group  
C. R. Math. Acad. Sci. Paris 345 (2007), no. 8, 449–452.
2. A. Putman  
Cutting and pasting in the Torelli group  
Geom. Topol. 11 (2007), 829–865.
1. A. Putman  
The rationality of sol manifolds  
J. Algebra 304 (2006), no. 1, 190–215.

#### Submitted Papers

4. J. Malestein, A. Putman  
Word length versus lower central series depth for surface groups and RAAGs  
2023 preprint.
3. M. Boggi, A. Putman, N. Salter  
Generating the homology of covers of surfaces  
2023 preprint.
2. A. Putman  
The stable cohomology of the moduli space of curves with level structures  
2022 preprint.

1. A. Putman  
A new approach to twisted homological stability, with applications to congruence subgroups  
2021 preprint.

#### Lecture Series

- 07.2023 Stability in Topology, Arithmetic, and Representation Theory, Purdue University  
*Representation stability and homological stability* (3 lectures)
- 06.2023 Geometric Topology Workshop, Colorado College, Colorado Springs, CO  
*Principal Speaker, The Topology of Moduli Spaces* (3 lectures)
- 06.2019 Summer School on Representation Stability, MSRI, Berkeley, CA  
*The prehistory of representation stability* (5 lectures)
- 04.2019 Redbud Topology Conference, Norman, OK  
*The cohomology of the mapping class group* (2 lectures)
- 06.2017 Summer school of the IMJ-PRG, Paris, France  
*On the virtual first Betti number of the mapping class group* (4 lectures)
- 05.2017 Master Class: Cohomology of arithmetic groups, Copenhagen, Denmark  
*Buildings, duality, and the high-dimensional cohomology of arithmetic groups* (4 lectures)
- 05.2013 Arithmetic groups in topology and number theory, Chicago, IL  
*Homological stability* (2 lectures)
- 07.2011 Park City Math Institute  
*Mapping class groups and Torelli groups* (4 lectures)
- 03.2008 Center for the topology and quantization of moduli spaces, Aarhus, Denmark  
*Master Class on the Torelli group* (20 lectures)

#### Invited Talks

- 05.2023 Moduli and Algebraic Cycles, Institut Mittag-Leffler, Sweden  
*The stable cohomology of the moduli space of curves with level structures*
- 05.2023 Opponent for Erik Lindell PhD Defense, Stockholm University  
*Mapping class groups and automorphism groups of free groups*
- 03.2023 Purdue Geometry and Geometric Analysis Seminar  
*The automorphism group of a free group is not virtually a Kähler group*
- 02.2023 University of Chicago Geometry/Topology Seminar  
*The stable cohomology of the moduli space of curves with level structures*
- 02.2023 University of Minnesota Topology Seminar  
*The stable cohomology of the moduli space of curves with level structures*
- 01.2023 Homotopie chromatique, K-théorie et foncteurs, CIRM Luminy  
*A new approach to twisted homological stability*
- 11.2022 Rice University Colloquium  
*The stable cohomology of the moduli space of curves with level structures*
- 09.2022 Joint Georgia Tech and University of Georgia Geometry/Topology Seminar  
*The stable cohomology of the level- $\ell$  subgroup of the mapping class group*
- 08.2022 Notre Dame RTG Undergraduate Workshop  
*The geometry of tilings*
- 07.2022 Oberwolfach workshop on “Topologie”  
*The stable cohomology of the moduli space of curves with level structures*
- 06.2022 Workshop on Cohomology, Geometry and Explicit number theory, Institut Fourier  
*The Steinberg representation*
- 04.2022 University of Oklahoma Colloquium  
*The Steinberg representation*
- 03.2022 Groups and Geometry in the South East, University of Warwick  
*The Steinberg representation*
- 02.2022 Andrews University Colloquium  
*The geometry of tilings*

- 02.2022 University of Minnesota Colloquium  
*The mapping class group of a surface*
- 10.2021 Indiana University Topology Seminar  
*The Steinberg representation*
- 10.2021 Cohomology of Arithmetic Groups, Banff International Research Station  
*The Steinberg representation is irreducible*
- 06.2021 WWU Münster Oberseminar Topologie  
*The topology at infinity of an arithmetic group*
- 05.2021 University of Oregon Colloquium  
*The mapping class group of a surface*
- 05.2021 University of Glasgow Geometry and Topology Seminar  
*The topology at infinity of an arithmetic group*
- 05.2021 TAPIRS: Talks About Progress In Representation Stability  
*The Steinberg representation is irreducible*
- 04.2021 Institut Mathématique d’Orsay Geometry, Topology, and Dynamics Seminar  
*The topology at infinity of an arithmetic group*
- 04.2021 No boundaries seminar  
*Lie algebras and group theory*
- 03.2021 Ohio State University Topology and Geometric Group Theory Seminar  
*The mapping class group of connect sums of  $S^2 \times S^1$*
- 12.2020 Brandeis-Harvard-MIT-Northeastern Joint Mathematics Colloquium  
*The topology at infinity of an arithmetic group*
- 10.2020 Trends in Low-Dimensional Topology  
*The topology of the mapping class group of a surface*
- 08.2020 KAIST and KIAS Joint Virtual Seminar on Geometry and Topology, Korea  
*The topology of the moduli space of curves*
- 07.2020 Oberwolfach workshop on “Topologie”  
*Cancelled due to COVID-19*
- 05.2020 University of Oregon Topology Seminar  
*Cancelled due to COVID-19*
- 05.2020 University of Oregon Colloquium  
*Cancelled due to COVID-19*
- 03.2020 University of Waterloo Colloquium  
*The stable cohomology of the moduli space of curves with level structures*
- 10.2019 Purdue Topology Seminar  
*The stable cohomology of the moduli space of curves with level structures*
- 10.2019 Clay Research Conference, Oxford University, UK  
*The stable cohomology of the moduli space of curves with level structures*
- 06.2019 Workshop on Arithmetic Topology, PIMS, Vancouver, Canada  
*The stable cohomology of the moduli space of curves with level structures*
- 05.2019 Caltech Geometry/Topology Seminar  
*The stable cohomology of the moduli space of curves with level structures*
- 05.2019 Caltech Colloquium  
*The Johnson filtration is finitely generated*
- 03.2019 Special Session on Mapping Class Groups, AMS Sectional Meeting  
*The stable cohomology of the moduli space of curves with level structures*
- 03.2019 Plenary Address, 53rd Spring Topology and Dynamics Conference  
*The mapping class group of a surface*
- 03.2019 MIT Topology Seminar  
*The Johnson filtration is finitely generated*
- 02.2019 University of Michigan Topology Seminar  
*The stable cohomology of the moduli space of curves with level structures*

- 02.2019 University of Michigan RTG Seminar on Geometry, Dynamics and Topology  
*The Johnson filtration is finitely generated*
- 02.2019 Colloquium, IUPUI  
*The mapping class group of a surface*
- 12.2018 Tech Topology Conference  
*The stable cohomology of the moduli space of curves with level structures*
- 10.2018 Invited Address, AMS Sectional Meeting  
*The mapping class group of a surface*
- 07.2018 ICM Satellite Conference in Geometric Group Theory, Campinas, Brazil  
*The Johnson filtration is finitely generated*
- 05.2018 International Conference on Manifolds, Groups and Homotopy, Gaelic College Sabhal Mor Ostaig  
*The Johnson filtration is finitely generated*
- 04.2018 Geometry of Teichmüller space and mapping class groups, Warwick, UK  
*The Johnson filtration is finitely generated*
- 03.2018 Johns Hopkins University Topology Seminar  
*The Johnson filtration is finitely generated*
- 02.2018 Purdue University Topology Seminar  
*The Johnson filtration is finitely generated*
- 10.2017 No Boundaries: Groups in Algebra, Geometry, and Topology, Chicago, IL  
*Covers and simple closed curves*
- 10.2017 University of Virginia Geometry Seminar  
*Covers and simple closed curves*
- 09.2017 University of Chicago Geometry/Topology Seminar  
*The Johnson filtration is finitely generated*
- 05.2017 Georgia International Topology Conference  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 02.2017 Colloquium, Purdue University  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 02.2017 Math For Everyone, University of Notre Dame  
*The geometry of tilings*
- 01.2017 Northwestern Topology Seminar  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 01.2017 Special Session, Mapping Class Groups and Their Subgroups, AMS/MAA Joint Meeting  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 12.2016 Vanderbilt Topology and Group Theory Seminar  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 12.2016 Oberwolfach workshop on “Surface bundles”  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 11.2016 IU/PU/IUPUI Joint Topology Seminar, Indianapolis, IN  
*The high dimensional cohomology of the moduli space of curves with level structures*
- 10.2016 Undergraduate Mathematics Symposium, University of Illinois at Chicago  
*The geometry of tilings (Plenary Lecture)*
- 04.2016 Free Resolutions, Representations, and Asymptotic Algebra, Banff International Research Station  
*Stability in the homology of congruence subgroups*
- 02.2016 Colloquium, University of Oklahoma  
*The topology of lattices*
- 02.2016 Geometry and Topology Seminar, University of Oklahoma  
*The high-dimensional cohomology of the moduli space of curves with level structures*
- 12.2015 Colloquium, University of Notre Dame  
*The topology of lattices*

- 11.2015 Workshop on the cohomology of  $\text{Aut}(F_n)$ , University of Copenhagen  
*The high-dimensional cohomology of the moduli space of curves with level structures*
- 10.2015 University of Minnesota Topology Seminar  
*Stability in the homology of congruence subgroups*
- 06.2015 Oberwolfach workshop on “New Perspectives on the Interplay between Discrete Groups in Low-Dimensional Topology and Arithmetic Lattices”  
*The high dimensional cohomology of  $SL_n\mathcal{O}$*
- 05.2015 Conference on the mapping class group and  $\text{Aut}(F_n)$ , University of Texas at Austin  
*The second homology group of  $IA_n$*
- 05.2015 Texas A&M Groups and Dynamics Seminar  
*The topology of lattices*
- 05.2015 New York Group Theory Seminar  
*The stable cohomology of congruence subgroups*
- 05.2015 Colloquium, City College of New York  
*The topology of lattices in Lie groups*
- 04.2015 Colloquium, University of Virginia  
*Integrality in the Steinberg module and the high-dimensional cohomology of  $SL_n\mathcal{O}_K$*
- 04.2015 Topology Seminar, University of Virginia  
*Representation-theoretic patterns in the stable cohomology of congruence subgroups*
- 04.2015 13<sup>th</sup> Annual Bloomington Geometry Workshop  
*Integrality in the Steinberg module and the high-dimensional cohomology of  $SL_n\mathcal{O}_K$*
- 03.2015 Teichmüller Modular Groups: A Celebration of Nikolai Ivanov’s 60th Birthday, Chicago  
*Stability in the homology of congruence subgroups of the mapping class group*
- 03.2015 40<sup>th</sup> Spring Lecture Series, University of Arkansas  
*Integrality in the Steinberg module and the top-dimensional cohomology of  $GL_n\mathcal{O}_K$*
- 02.2015 Rice University Topology Seminar  
*Integrality in the Steinberg module and the top-dimensional cohomology of  $GL_n\mathcal{O}_K$*
- 10.2014 University of Cambridge Topology Seminar  
*Tits buildings, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 10.2014 Warwick Mathematics Institute Geometry and Topology Seminar  
*Tits buildings, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 10.2014 University of Southampton Pure Mathematics Colloquium  
*Tits buildings, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 10.2014 University of Glasgow Geometry and Topology Seminar  
*Representation stability and finite linear groups*
- 09.2014 Oberwolfach workshop on “Topologie”  
*Modular symbols, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 05.2014 Georgia Topology Conference  
*Modular symbols, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 03.2014 Geometric groups on the gulf coast, Pensacola, FL  
*Modular symbols, class numbers, and the top-dimensional cohomology of  $SL_n\mathcal{O}$*
- 03.2014 Geometric groups on the gulf coast, Pensacola, FL  
*Graduate Student Talk: Introduction to the cohomology of the mapping class group*
- 03.2014 Cornell Topology and Geometric Group Theory Seminar  
*On the second homology group of the Torelli subgroup of  $\text{Aut}(F_n)$*
- 01.2014 Six Crash Courses on Mapping Class Groups, AMS/MAA Joint Meeting  
*Introduction to mapping class groups*
- 11.2013 Columbia Geometric Topology Seminar  
*Vanishing and nonvanishing in the high-dimensional cohomology of  $SL_n(\mathcal{O}_k)$*
- 10.2013 The Power of Ideas, Part II; Scientia colloquium, Houston, TX  
*What we can’t know*



- 10.2013 Rice University Topology Seminar  
*On the second homology group of the Torelli subgroup of  $Aut(F_n)$*
- 10.2013 University of Chicago Geometry/Topology Seminar  
*On the second homology group of the Torelli subgroup of  $Aut(F_n)$*
- 08.2013 Workshop on homological stability, University of Copenhagen  
*On the second homology group of  $IA_n$*
- 07.2013 Interactions of low dimensional topology and geometric group theory, Max Planck Institute, Bonn  
*Generating the Johnson filtration*
- 06.2013 Conference on the Johnson homomorphisms, University of Tokyo  
*Generating the Johnson filtration*
- 06.2013 Conference on the Johnson homomorphisms, University of Tokyo  
*Generators for the hyperelliptic Torelli group and the kernel of the Burau representation at  $t = -1$*
- 05.2013 Atkin Memorial Workshop on Cohen-Lenstra Heuristics, University of Illinois at Chicago  
*Stability in the homology of congruence subgroups*
- 03.2013 GATSBY (Geometry and Topology Seminar at Brown and Yale)  
*Stability in the homology of congruence subgroups*
- 02.2013 University of Rochester Topology Seminar  
*Stability in the homology of congruence subgroups*
- 02.2013 SUNY at Buffalo Geometry/Topology Seminar  
*Stability in the homology of congruence subgroups*
- 11.2012 Cohomological Methods in Geometric Group Theory, Banff International Research Station  
*Unstable homological stability*
- 11.2012 Cohomological Methods in Geometric Group Theory, Banff International Research Station  
*Stability in the homology of congruence subgroups*
- 10.2012 Rice University Topology Seminar  
*On the Burau representation at  $-1$*
- 10.2012 University of Texas Topology Seminar  
*Stability in the homology of congruence subgroups*
- 10.2012 Stanford Topology Seminar  
*Stability in the homology of congruence subgroups*
- 09.2012 PATCH Seminar (Temple, Bryn Mawr, Haverford, and University of Pennsylvania)  
*Stability in the homology of congruence subgroups*
- 06.2012 Mapping Class Groups and Quantum Topology, IRMA, Strasbourg  
*Stability in the homology of congruence subgroups*
- 03.2012 Texas A&M Groups and Dynamics Seminar  
*Small generating sets for the Torelli group*
- 02.2012 Spring Texas Geometry and Topology Conference  
*Representation stability, congruence subgroups, and mapping class groups*
- 01.2012 Rice University Colloquium  
*Representation stability and congruence subgroups*
- 12.2011 Michigan State University Topology Seminar  
*Congruence subgroups and homological stability*
- 12.2011 Michigan State University RTG Seminar  
*Small generating sets for the Torelli group*
- 11.2011 Texas Christian University Colloquium  
*Congruence subgroups and homological stability*
- 10.2011 Georgia Tech Topology Seminar  
*Congruence subgroups and homological stability*
- 09.2011 University of Arkansas Topology Seminar  
*Abelian quotients of subgroups of the mapping class group and higher Prym representations*

- 09.2011 University of Arkansas Colloquium  
*Small generating sets for the Torelli group*
- 06.2011 Oberwolfach workshop on “Arithmetic Groups vs. Mapping Class Groups: Similarities, Analogies and Differences”  
*Abelian quotients of subgroups of the mapping class group and higher Prym representations*
- 05.2011 Ohio State University Torelli Group Workshop  
*Small generating sets for the Torelli group*
- 04.2011 Special Session, Geometric Group Theory and Dynamics, AMS Sectional Meeting  
*Abelian quotients of subgroups of the mapping class group and higher Prym representations*
- 03.2011 Special Session on Geometric Group Theory, 45th Spring Topology and Dynamics Conference  
*Abelian quotients of subgroups of the mapping class group and higher Prym representations*
- 03.2011 Aarhus University Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 03.2011 University of Copenhagen Algebra/Topology Seminar  
*Equivariant homological stability for congruence subgroups*
- 03.2011 University of Copenhagen Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 12.2010 LA Joint Topology Seminar  
*Equivariant homological stability for congruence subgroups*
- 11.2010 Rice University Topology Seminar  
*Abelian quotients of subgroups of the mapping class group and higher Prym representations*
- 11.2010 Special Session, Arithmetic, Groups, and Geometry, AMS Sectional Meeting  
*Equivariant homological stability for congruence subgroups*
- 10.2010 Rice University Topology Seminar  
*Equivariant homological stability for congruence subgroups*
- 08.2010 Rice University Colloquium  
*The Torelli group*
- 04.2010 Harvard Dynamics and Geometry Seminar  
*The Picard group of the moduli space of curves with level structures*
- 04.2010 Special Session, Topics in Geometric Group Theory, AMS Sectional Meeting  
*Equivariant homological stability for pure braid groups*
- 02.2010 MIT Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 02.2010 Yale University Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 02.2010 University of Wisconsin at Madison Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 02.2010 University of British Columbia Topology Seminar  
*An infinite presentation of the Torelli group*
- 02.2010 University of British Columbia Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 01.2010 Louisiana State University Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 01.2010 Syracuse University Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 01.2010 Indiana University at Bloomington Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 01.2010 University of Kentucky Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 01.2010 University of Pittsburgh Colloquium  
*The Picard group of the moduli space of curves with level structures*

- 12.2009 MIT Geometry Seminar  
*The Picard group of the moduli space of curves with level structures*
- 12.2009 University of Chicago Geometry/Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 12.2009 University of Maryland Geometry/Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 11.2009 Rice University Colloquium  
*The Picard group of the moduli space of curves with level structures*
- 11.2009 Ohio State University Geometric Group Theory Seminar  
*The Picard group of the moduli space of curves with level structures*
- 10.2009 Michigan State University Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 04.2009 Columbia Geometric Topology Seminar  
*The Picard group of the moduli space of curves with level structures*
- 04.2009 Tufts Geometric Group Theory Seminar  
*On the self-intersections of curves deep in the lower central series of a surface group*
- 01.2009 Duke Geometry/Topology Seminar  
*The second rational homology group of the moduli space of curves with level structures*
- 12.2008 Caltech Geometry and Topology Seminar  
*The second rational homology group of the moduli space of curves with level structures*
- 11.2008 Workshop on Geometry and Topology of Mapping Class Groups, Akita (two talks)  
*An infinite presentation of the Torelli group, A Birman exact sequence for  $\text{Aut}(F_n)$*
- 11.2008 University of Tokyo Topology Seminar  
*The second rational homology group of the moduli space of curves with level structures*
- 10.2008 Brown Geometry and Topology Seminar  
*The second rational homology group of the moduli space of curves with level structures*
- 10.2008 Tufts Geometric Group Theory Seminar  
*The second rational homology group of the moduli space of curves with level structures*
- 10.2008 Special Session, Low-Dimensional Topology, AMS Sectional Meeting  
*The second rational homology group of the moduli space of curves with level structures*
- 06.2008 Rice University Colloquium  
*The second rational homology group of the moduli space of curves with level structures*
- 03.2008 Finite Type Invariants, Fat Graphs and Torelli-Johnson-Morita Theory, CTQM  
*Subgroup distortion in the mapping class group*
- 02.2008 Tufts Geometric Group Theory Seminar  
*Subgroup distortion in the mapping class group*
- 11.2007 Topics in Geometric Group Theory, MSRI  
*On the Homology of Finite Index Subgroups of the Mapping Class Group*
- 03.2007 Columbia Geometric Topology Seminar  
*An infinite presentation of the Torelli group*
- 03.2007 Yale Topology/Geometry Seminar  
*An infinite presentation of the Torelli group*
- 02.2007 Cornell Topology and Geometric Group Theory Seminar  
*An infinite presentation of the Torelli group*
- 01.2007 Special Session, Mapping Class Groups and Handlebodies, AMS/MAA Joint Meeting  
*An infinite presentation of the Torelli group*
- 12.2006 University of Illinois at Urbana-Champaign Group Theory Seminar  
*An infinite presentation of the Torelli group*
- 10.2006 Special Session, Low Dimensional Topology and Geometry, AMS Sectional Meeting  
*An infinite presentation of the Torelli group*
- 07.2006 Torelli Group Workshop  
*Cutting and pasting in the Torelli group*

02.2005 Georgia Tech Geometry and Topology Seminar  
*The rationality of three-dimensional sol-manifolds*

### Graduate Students and Postdocs

#### Postdocs

2017–2020 Daniel Studenmund (placement: assistant professor, Binghamton University)  
2014–2016 Neil Fullarton (placement: mathematics teacher, Episcopal High School)  
2012–2016 Yunhui Wu (placement: assistant professor, Tsinghua University)

#### Graduate students, primary advisor

2021– Audriana Pohlman  
2021– Annie Holden  
2021– Jiayi Shen  
2021– Xiyang Zhong  
2020– Matthew Scalamandre  
2017–2021 Jacob Landgraf (Ph.D. 2021; first position: industry)  
2012–2017 Corey Bregman (Ph.D. 2017; first position: instructor, Brandeis University)  
2015–2016 Kenan Ince (Ph.D. 2016; first position: assistant professor, Westminster College)  
2010–2015 David Cohen (Ph.D. 2015; first position: NSF postdoc, University of Chicago)  
2010–2014 James Cooper (Ph.D. 2014; first position: Reasoning Mind)

### Service to the Department

#### Notre Dame

2023–2024 Executive Committee  
2021–2023 Hiring Committee  
2021–2022 Huisking Chair Search Committee  
2020–2022 Open Search Committee  
Chair, 2020–2022  
2018–2019 Kenna Chair Search Committee  
2018–2020 Committee on Appointments and Promotions  
2017–2020 Hiring Committee  
2016–2017 Algebra Search Committee  
2016–2020 Graduate Admissions Committee

#### Rice

2015–2016 Wolfe Lecture Committee  
2014–2016 Graduate admissions  
Chair, 2015–2016  
2013–2016 Appointments committee  
2013–2014 Graduate grievance committee  
2012–2013 Colloquium committee  
2010–2014 Evans hiring committee  
Chair, 2013–2014  
2010–2016 Undergraduate committee  
Chair 2014–2015

### Service to the University

#### Notre Dame

2023–2026 University Committee on Libraries  
2023 University Named Chair Review Committee (chair)  
2020 University Named Chair Review Committee

#### Rice

2015–2016 University Research Committee  
2011–2016 Faculty Associate, Baker College  
2011–2015 University Teaching Committee

### Service to the Community

2018–2019 Founder, Notre Dame Program in Mathematics for High School Students

2014–2018 Founder, Rice Program in Mathematics for High School Students

### Conferences Organized

2022 Stability in Topology, Arithmetic, and Representation Theory II  
Coorganizers: J. Miller, P. Patzt

2020 Stability in Topology, Arithmetic, and Representation Theory (special session, AMS central sectional meeting)  
Coorganizers: J. Miller, P. Patzt; conducted online due to COVID-19

2017 Braids in algebra, geometry, and topology  
Coorganizers: T. Brendle, J. Ellenberg, A. Ranicki

2017 Representation stability and its applications (special session, AMS central sectional meeting)  
Coorganizers: P. Hersh, J. Miller

2016 Representation stability (AIM workshop)  
Coorganizers: S. Sam, A. Snowden, D. Speyer

2013 3-Manifolds: Heegaard Splittings, the Curve Complex, and Hyperbolic Geometry  
Coorganizers: T. Cochran, S. Harvey

2012 Texas Geometry/Topology Conference  
Coorganizer: B. Hassett

2011 Ahlfors-Bers Colloquium  
Local organizer

2011 Geometric group theory and dynamics (special session, AMS western sectional meeting)  
Coorganizers: D. Calegari, M. Day, J. Louwsma

### Professional Service

2023–2026 AMS Fellows Program Selection Committee

2023–2026 AMS Invited Address Committee for National Meetings

2020–2025 AWM Joan & Joseph Birman Research Prize in Geometry and Topology Selection Committee (chair in 2024-2025)

2017–2019 AMS Subcommittee on Membership and Member Benefits

2015–2018 AMS–Simons Travel Grants Committee

Referee Many journals, e.g. Ann Math, Duke Math J, Invent Math, and Jour Amer Math Soc

Reviewer NSF, Royal Society, French National Research Agency, Danish Council for Independent Research, and Simons foundation grants

### Teaching

#### Notre Dame

2024, Spring Math 60440: Basic Topology II

2023, Fall Math 10120: Finite Mathematics

2023, Spring Math 10120: Finite Mathematics

2022, Fall Math 80430: Group Cohomology

2022, Spring Math 30820: Honors Algebra IV

2021, Fall Math 80430: 3-manifolds

2021, Spring Math 10860: Honors Calculus II

2020, Fall Math 10850: Honors Calculus I

2020, Spring Math 60440: Basic Topology II

2019, Fall Math 60710: Introduction to Algebraic Geometry

2019, Fall Math 10120: Finite Mathematics

2019, Spring Math 60440: Basic Topology II

2018, Fall Math 30810: Honors Algebra III

2018, Fall Math 10120: Finite Mathematics

2018, Spring Math 50780: SUMR Class on Elliptic Curves

2017, Fall Math 60330: Basic Geometry and Topology

2017, Spring Math 10560: Calculus II (2 sections)

2016, Fall Math 60330: Basic Geometry and Topology

**Rice**

2015, Fall Math 102: Single Variable Calculus II  
2015, Fall Math 444/539: Geometric Topology  
2015, Fall Math 681: Topology Seminar  
2015, Spring Math 681: Topology Seminar  
2014, Fall Math 681: Topology Seminar  
2014, Spring Math 212: Multivariable calculus  
2014, Spring Math 541: Topics in Topology (The Torelli group)  
2014, Spring Math 681: Topology Seminar  
2013, Fall Math 490: Directed reading on representation theory, Nick Ryder  
2013, Fall Math 681: Topology Seminar  
2013, Spring Math 366: Geometry  
2013, Spring Math 680: Mathematics Colloquium  
2013, Spring Math 681: Topology Seminar  
2012, Fall Math 428/518: Topics in Complex Analysis (Compact Riemann Surfaces)  
2012, Fall Math 680: Mathematics Colloquium  
2012, Fall Math 681: Topology Seminar  
2012, Spring Math 464/564: Abstract Algebra III  
2011, Fall Math 541: Topics in Topology (The Mumford conjecture)  
2011, Spring Math 212: Multivariable calculus  
2011, Spring Math 699: Reading course on the mapping class group  
2010, Fall Math 444/539: Geometric topology

**MIT**

2010, Spring 18.904: Seminar in Topology  
2009, Fall 18.700: Linear Algebra  
2009, Spring 18.901: Introduction to Topology  
2008, Fall 18.02: Calculus (Recitation Instructor)  
2008, Spring 18.03: Differential Equations (Recitation Instructor)

**University of Chicago**

2006-2007 Math 195/6: Math Methods for Biological/Social Sciences I/II (Instructor)  
2005-2006 Math 131/2/3: Elementary Functions and Calculus I/II/III (Instructor)  
2004-2005 Math 131: Elementary Functions and Calculus I (Instructor)  
2003-2004 Math 270/3/4: Complex Analysis, Diff Equations, Diff Manifolds (TA)