# David Futer

*Curriculum Vitae*

Mathematics Department
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## Employment

PROFESSOR, Temple University, 2020–present.

ASSOCIATE PROFESSOR, Temple University, 2013–20.

ASSISTANT PROFESSOR, Temple University, 2008–13.

RTG POSTDOCTORAL INSTRUCTOR, Michigan State University, 2005–08.

## Education

STANFORD UNIVERSITY, Stanford, CA.
Ph.D. in Mathematics, 2005. Advisor: Steven P. Kerckhoff.

UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA.
B.A. in Mathematics and Philosophy, *magna cum laude*, 1999.
M.A. in Mathematics, 1999.

## Visiting Positions

CRM–SIMONS PROFESSOR, Centre de Récherches Mathématiques, Montréal, Canada, 2023.

ELINOR LUNDER MEMBER, Institute of Advanced Study, Princeton, NJ, 2015–16.

RESEARCH FELLOW, Institute for Computation and Experimentation in Research Mathematics, Providence, RI, 2013.

PROFESSEUR INVITÉ, Université des Sciences et Technologies de Lille, France, April 2009.

GENERAL MEMBER, Mathematical Sciences Research Institute, Berkeley, CA, Fall 2007.

## Selected Awards and Honors

NATIONAL SCIENCE FOUNDATION GRANT, "*Hyperbolic manifolds and groups*," award DMS–2405046, 2024–27.

NATIONAL SCIENCE FOUNDATION GRANT, "*Hyperbolic manifolds and their groups*," award DMS–1907708, 2019–23.

SUMMER RESEARCH AWARD, Temple University, 2019 and 2023.

SIMONS COLLABORATION GRANT, "*Hyperbolic geometry: effective, quantum, coarse*," 2018–19.

NATIONAL SCIENCE FOUNDATION GRANT, "*Connections in Low-Dimensional Topology*," award DMS–1408682, 2014–18.

NATIONAL SCIENCE FOUNDATION GRANT, "*Collaborative research: Hyperbolic geometry of knots and 3–manifolds*," award DMS–1007221, 2010–14.

## Publications

1. D. Futer, A. Gnepp, D. McMath, B. Munson, T. Ng, S-H Pahk, C. Yoder. "*Cost–minimizing networks among immiscible fluids in* $\mathbb{R}^2$." Pacific Journal of Mathematics **196** (2000), 395–414.

2. D. Futer, "*Involutions of knots that fix unknotting tunnels.*" Journal of Knot Theory and its Ramifications **16** (2007), Issue 6, 741–748. arXiv:math/0401421.

3. D. Futer and J. Purcell, "*Links with no exceptional surgeries.*" Commentarii Mathematici Helvetici **82** (2007), Issue 3, 629–664. arXiv:math/0412307.

4. D. Futer, "*Geometric triangulations of two–bridge link complements.*" Appendix to an article by F. Guéritaud. Geometry & Topology **10** (2006), 1267–1282, arXiv:math/0406242.

5. D. Futer, E. Kalfagianni, and J. Purcell, "*Dehn filling, volume, and the Jones polynomial.*" Journal of Differential Geometry **78** (2008), Issue 3, 429–464. arXiv:math/0612138.

6. D. Futer and F. Guéritaud, "*Angled decompositions of arborescent link complements.*" Proceedings of the London Mathematical Society **98** (2009), Issue 2, 325–364. arXiv:math/0610775.

7. O. Dasbach, D. Futer, E. Kalfagianni, X-S Lin, N. Stoltzfus, "*The Jones polynomial and graphs on surfaces.*" Journal of Combinatorial Theory, Series B **98** (2008), Issue 2, 384–399.

8. O. Dasbach, D. Futer, E. Kalfagianni, X-S Lin, N. Stoltzfus, "*Alternating sum formulae for the determinant and other link invariants.*" Journal of Knot Theory and its Ramifications, **19** (2010), Issue 6, 765–782. arXiv:math/0611025.

9. D. Futer, E. Kalfagianni, and J. Purcell, "*Symmetric links and Conway sums: volume and Jones polynomial.*" Mathematical Research Letters **16** (2009), Issue 2, 233–253. arXiv:0804.1542.

10. D. Futer, E. Kalfagianni, and J. Purcell, "*Cusp areas of Farey manifolds and applications to knot theory.*" International Mathematics Research Notices 2010, 4434–4497. arXiv:0808.2716.

11. D. Futer, M. Ishikawa, Y. Kabaya, T. Mattman, and K. Shimokawa. "*Finite surgeries on three-tangle pretzel knots.*" Algebraic & Geometric Topology **9** (2009), 743–771. arXiv:0809.4278.

12. D. Futer, E. Kalfagianni, and J. Purcell, "*On diagrammatic bounds of knot volumes and spectral invariants.*" Geometriae Dedicata **147** (2010), 115–130. arXiv:0901.0119.

13. D. Futer, E. Kalfagianni, and J. Purcell, "*Slopes and colored Jones polynomials of adequate knots.*" Proceedings of the AMS **139** (2011), Issue 5, 1889–1896. arXiv:1002.0256.

14. D. Futer and F. Guéritaud, "*From angled triangulations to hyperbolic structures.*" Contemporary Mathematics **541** (2011), 159–182. arXiv:1004.0440.

15. A. Champanerkar, D. Futer, I. Kofman, W. Neumann, and J. Purcell, "*Volume bounds for generalized twisted torus links.*" Mathematical Research Letters, **18** (2011), Issue 6, 1097–1120. arXiv:1007.2932

16. D. Futer and A. Thomas, "*Surface quotients of hyperbolic buildings.*" International Mathematics Research Notices 2012, Issue 2, 437–477. arXiv:1007.5140

17. D. Futer and F. Guéritaud, "*Explicit angle structures for veering triangulations.*" Algebraic & Geometric Topology **13** (2013), Issue 1, 205–235. arXiv:1012.5134.

18. D. Futer and J. Purcell, "*Explicit Dehn filling and Heegaard splittings.*" Communications in Analysis and Geometry **21** (2013), Issue 3, 625–650. arXiv:1204.3617.

19. D. Cooper, D. Futer, and J. Purcell, "*Dehn filling and the geometry of unknotting tunnels.*" Geometry & Topology **17** (2013), Issue 3, 1815–1876. arXiv:1105.3461.

20. D. Futer, E. Kalfagianni, and J. Purcell, "*Guts of surfaces and the colored Jones polynomial.*" Monograph published in Lecture Notes in Mathematics (Springer), vol. 2069, 2013. arXiv:1108.3370.

21. D. Futer, "*Fiber detection for state surfaces.*" Algebraic & Geometric Topology **13** (2013), Issue 5, 2799–2807. arXiv:1201.1643.

22. D. Futer, E. Kalfagianni, and J. Purcell, "*Jones polynomials, volume, and essential knot surfaces: a survey.*" Proceedings of Knots in Poland III, Banach Center Publications **100** (2014), 51–77. arXiv:1110.6388.

23. C. Atkinson and D. Futer, "*Small volume link orbifolds.*" Mathematical Research Letters **20** (2013), Issue 6, 995–1016. arXiv:1211.5057.

24. D. Futer and S. Schleimer, "*Cusp geometry of fibered 3–manifolds.*" American Journal of Mathematics **136** (2014), Issue 2, 309–356. arXiv:1108.5748.

25. D. Futer, E. Kalfagianni, and J. Purcell, "*Quasifuchsian state surfaces.*" Transactions of the AMS **366** (2014), Issue 8, 4323–4343. arXiv:1209.5719.

26. R. Blair, D. Futer, and M. Tomova, "*Essential surfaces in highly twisted link complements.*" Algebraic & Geometric Topology **15** (2015), Issue 3, 1501–1523. arXiv:1312.5016.

27. D. Futer, E. Kalfagianni, and J. Purcell, "*Hyperbolic semi-adequate links.*" Communications in Analysis & Geometry **23** (2015), Issue 5, 993–1030. arXiv:1311.3008.

28. C. Atkinson and D. Futer, "*The lowest volume 3-orbifolds with high torsion.*" Transactions of the AMS **369** (2017), Issue 8, 5809–5827. arXiv:1507.07894.

29. D. Futer and C. Millichap, "*Spectrally similar incommensurable 3–manifolds.*" Proceedings of the London Mathematical Society **115** (2017), Issue 2, 411–447. arXiv:1609.00748.

30. F. Dahmani, D. Futer, and D. Wise, "*Growth of quasiconvex subgroups.*" Mathematical Proceedings of the Cambridge Philosophical Society **167** (2019), Issue 3, 505–530. arXiv:1602.08085.

31. D. Cooper and D. Futer, "*Ubiquitous quasi-Fuchsian surfaces in cusped hyperbolic 3–manifolds.*" Geometry & Topology **23** (2019), Issue 1, 241–298. arXiv:1705.02890.

32. D. Futer, E. Kalfagianni, and J. Purcell, "*A survey of hyperbolic knot theory.*" In Knots, Low-Dimensional Topology and Applications, Springer Proceedings in Mathematics & Statistics, Vol. **284** (2019), 1–30. arXiv:1708.07201.

33. D. Futer, J. Purcell, and S. Schleimer, "*Effective distance between nested Margulis tubes.*" Transactions of the AMS **372** (2019), Issue 6, 4211–4237. arXiv:1801.05342.

34. D. Futer, S. Taylor, and W. Worden, "*Random veering triangulations are not geometric.*" Groups, Geometry, and Dynamics **14** (2020), Issue 3, 1077–1126. arXiv:1808.05586.

35. D. Futer, J. Purcell, and S. Schleimer, "*Effective bilipschitz bounds on drilling and filling.*" Geometry & Topology **26** (2022), Issue 3, 1077–1188. arXiv:1907.13502.

36. D. Futer, J. Purcell, and S. Schleimer, "*Effective drilling and filling of tame hyperbolic 3-manifolds.*" Commentarii Mathematici Helvetici **97** (2022), Issue 3, 457–512. arXiv:2104.09983.

37. D. Futer, E. Hamilton, and N. Hoffman, "*Infinitely many virtual geometric triangulations.*" Journal of Topology **15** (2022), Issue 4, 2532–2388. arXiv:2102.12524.

38. D. Futer and D. Wise, "*Cubulating random quotients of hyperbolic cubulated groups.*" Transactions of the AMS Series B **11** (2024), 622–666. arXiv:2106.04497

39. K. Baker, D. Futer, J. Purcell, and S. Schleimer, "*Large volume fibred knots of fixed genus.*" Mathematical Research Letters **31** (2024), Issue 5, 1305–1314. arXiv:2208.02358

40. T. Fernós, D. Futer, and M. Hagen, "*Homotopy equivalent boundaries of cube complexes.*" Geometriae Dedicata **218** (2024), article #33. arXiv:2303.06932

41. D. Futer, J. Purcell, and S. Schleimer, "*Excluding cosmetic surgeries on hyperbolic 3-manifolds.*" Submitted. arXiv:2403.10448

42. D. Abramovich, H. Cohn, D. Futer, and R. Harington, "*Double-anonymous Peer Review in Mathematics: Implementation for American Mathematical Society Journals.*" Notices of the AMS **71** (2024), Issue 7, 1079-1081

43. D. Futer and R. Kaplan-Kelly, "*Arithmeticity and commensurability of links in thickened surfaces.*" Submitted. arXiv:2409.00490

**Selected Invited Lectures**

EXPOSITORY MINI-COURSES:

– "*Angle structures and hyperbolic structures.*" Series of 8 lectures (joint with François Guéritaud), Osaka University, Japan, 2006.
– "*Introduction to Geometrization.*" Series of 4 lectures, Center for Mathematical Sciences, Hangzhou, China, 2008.
– "*Introduction to hyperbolic knots.*" Series of 3 lectures. Interactions Between Hyperbolic Geometry, Quantum Topology and Number Theory, Columbia University, 2009.
– "*Hyperbolic knot theory.*" Series of 5 lectures. Hanoi Institute of Mathematics, Hanoi, Vietnam, 2013.
– "*Geometry, symmetry, and cosmology.*" Series of 4 lectures (joint with Alexander Kirillov), Camp Cape Cod, 2019.

DEPARTMENTAL COLLOQUIA:

– 2007-08: Oberlin, Gettysburg, Florida State, Temple, UC Santa Cruz, Connecticut.
– 2008-09: Haverford College, Washington U. St. Louis.
– 2010-11: Penn State, Alabama.
– 2011-12: College of New Jersey, Bryn Mawr.
– 2013-14: US Naval Academy, Brigham Young University.
– 2014-15: Villanova, Swarthmore.
– 2016-17: Pittsburgh, Rutgers Newark.
– 2018-19: Bryn Mawr, Montana, Fribourg.
– 2023-24: Williams College, Sydney.

**Selected Invited Lectures (Continued)**

GEOMETRY/TOPOLOGY SEMINARS:

– 2005-06: Stanford, Michigan, Michigan State, UC Davis, Osaka, UIC, Louisiana State.
– 2006-07: Michigan, Michigan State, USC, British Columbia, UT Austin.
– 2007-08: MSRI, UC Davis, Columbia, Michigan State, Pomona College.
– 2008-09: Columbia, Penn, Yale, Temple, Bryn Mawr, BYU, Rutgers, CUNY, Lille, Lafayette.
– 2009-10: Temple, Maryland, Princeton, Stanford, Utah, BYU, Rutgers, Michigan State.
– 2010-11: Tufts, Warwick, Penn State, CUNY, Yale, BYU, Rutgers.
– 2011-12: Virginia, Temple, Brown, BC, Princeton, Penn, Caltech, BYU, MSU, Stony Brook.
– 2012-13: Berkeley, Bryn Mawr, BYU, McGill, Michigan, North Carolina.
– 2013-14: Brandeis, Wesleyan, ICERM, Rutgers, Temple, BYU.
– 2014-15: UT Austin, CUNY, BYU.
– 2015-16: Franklin & Marshall, Purdue, Temple, IAS, Penn, Princeton, Yale.
– 2016-17: Rutgers, Columbia, Brown, UC Santa Barbara, Michigan State.
– 2017-18: Rutgers, CUNY, Temple, Penn.
– 2018-19: Boston College, Columbia, Princeton, Rice, Neuchâtel, Warwick.
– 2019-20: Oklahoma State, CUNY, U Chicago.
– 2020-21: Temple, Toronto, UC Santa Barbara.
– 2021-22: Australian Geometry–Topology Webinar, Temple.
– 2022-23: Princeton, Temple, Maryland, Université de Québec à Montréal.
– 2023-24: Ohio State, Temple, Rutgers, George Mason, Monash, Sydney.
– 2024-25: CUNY, Berkeley.

CONFERENCE TALKS (SPECIAL SESSIONS):

– 2005: AMS Western Section Meeting, Santa Barbara, CA.
– 2006: *Hyperbolic Geometry Workshop*, Fields Institute, Toronto, Canada.
– 2007: Joint Mathematics Meetings, New Orleans, LA.
– 2008: AMS Western Section Meeting, Claremont, CA.
– 2009: *Spring Topology & Dynamics Conference*, Gainesville, FL.
– 2010: Joint Mathematics Meetings, San Francisco, CA.
– 2010: AMS Eastern Section Meeting, Newark, NJ.
– 2011: AMS Eastern Section Meeting, Worcester, MA.
– 2012: AMS Central Section Meeting, Lawrence, KS.
– 2013: AMS Eastern Section Meeting, Boston, MA.
– 2013: AMS Eastern Section Meeting, Philadelphia, PA.
– 2015: AMS Central Section Meeting, East Lansing, MI.
– 2015: AMS Central Section Meeting, Chicago, IL.
– 2015: AMS Eastern Section Meeting, New Brunswick, NJ.
– 2017: AMS Eastern Section Meeting, New York, NY.
– 2017: *Mathematical Congress of the Americas*, Montréal, Canada.
– 2019: AMS Eastern Section Meeting, Binghamton, NY.
– 2020: AMS Eastern Section Meeting, Virtual.
– 2021: AMS Western Section Meeting, Virtual.
– 2023: AMS Eastern Section Meeting, Buffalo, NY.
– 2024: Joint Mathematics Meeting, San Francisco, CA.
– 2025: Joint Mathematics Meeting, Seattle, WA.

**Selected Invited Lectures (Continued)**

CONFERENCE TALKS (PLENARY AND SEMI-PLENARY):

– 2006: *Hiroshima Topology Conference*, Hiroshima, Japan.
– 2006: *Hyperbolic Geometry Workshop*, Fields Institute, Toronto, Canada.
– 2007: *A Second Time Around the Volume Conjecture*, Baton Rouge, LA.
– 2007: *Geometric Topology Conference*, Beijing, China.
– 2007: *International Conference on Geometric Topology*, Hangzhou, China.
– 2007: *AIM Workshop on Triangulations, Heegaard Splittings & Hyperbolic Geometry*, CA.
– 2008: *One–Day Conference on 3–Manifolds*, Hangzhou, China.
– 2009: *Moab Topology Conference*, Moab, UT.
– 2009: *Hyperbolic Geometry, Quantum Topology and Number Theory*, New York, NY.
– 2010: *Topology and Geometry in Dimension Three*, Stillwater, OK.
– 2011: *FRG Workshop on Low Dimensional Topology and Geometry*, Princeton, NJ.
– 2011: *Ninth Annual Graduate Topology and Geometry Conference*, East Lansing, MI.
– 2012: *Rigidity and Flexibility in Dimension 2, 3, and 4*, Luminy, France.
– 2012: *Hyperbolic Geometry and Teichmüller Theory*, New York, NY.
– 2013: *MSRI Hot topics workshop: Surface Subgroups and Cube Complexes*, Berkeley, CA.
– 2013: *Quantum Topology and Hyperbolic Geometry*, Nha Trang, Vietnam.
– 2013: *Geometric Topology in New York*, NY.
– 2015: *Redbud Topology Conference*, Stillwater, OK.
– 2015: *Moab Topology Conference*, Moab, UT.
– 2015: *Invariants in Low-Dimensional Geometry*, Ankara, Turkey.
– 2015: *Young Mathematicians Conference*, Columbus, OH.
– 2015: *IAS Workshop on Geometric Structures on 3–Manifolds*, Princeton, NJ.
– 2015: *Wasatch Topology Conference*, Salt Lake City, UT.
– 2016: *Effective Methods in Hyperbolic Geometry and Free Groups*, Providence, RI.
– 2016: *Probabilistic Methods in Topology*, Montréal, Canada.
– 2016: *Redbud Triangulations Conference*, Stillwater, OK.
– 2016: *Tech Topology Conference*, Atlanta, GA.
– 2017: *Low-Dimensional Topology and Geometry*, Nashville, TN.
– 2017: *Geometric Topology in Low Dimensions*, Warwick, United Kingdom.
– 2017: *Hyperbolic 3–Manifolds and Beyond*, Charlottesville, VA.
– 2018: *Nonpositively Curved Groups on the Mediterranean*, Nahsholim, Israel.
– 2018: *Graphs, Surfaces, and Cube Complexes*, Warwick, United Kingdom.
– 2019: *Not KNerds: A Community for Knot Theorists*, JMM, Baltimore, MD.
– 2019: *Computational Problems in Low-dimensional Topology*, Okinawa, Japan.
– 2019: *Arches Topology Conference*, Hurricane, UT.
– 2019: *Cornell Topology Festival*, Ithaca, NY.
– 2020: *Low-Dimensional Topology*, Oberwolfach, Germany.
– 2020: *Redbud Topology Conference*, Fayetteville, AR.
– 2021: *Knots, Surfaces and 3-Manifolds*, Oaxaca, Mexico (Virtual).
– 2022: *Reflections on Geometry: 3-Manifolds, Groups and Singularities*, New York, NY.
– 2023: *Low-Dimensional Topology*, Oberwolfach, Germany.
– 2023: *Low-Dimensional Topology and Circle-Valued Morse Functions*, Miami, FL.
– 2023: *Stanford Topology Celebration*, Stanford, CA.
– 2023: *Geometric Topology in New York*, NY.
– 2023: *Conference on Applied Geometry and Topology*, Philadelphia, PA.

**Teaching and Mentoring Experience**

INSTRUCTOR, Undergraduate level.

- *Differential calculus,* Michigan State University, 2005; Temple University, 2011.
- *Integral calculus*, Michigan State University, 2008.
- *Multivariable calculus*, Temple University, 2008.
- *Real analysis*, Michigan State University, 2006.
- *Metric spaces and topological spaces*, Michigan State University, 2006.
- *Differential geometry*, Temple University, 2010.
- *Knot theory / Senior problem–solving*, Temple University, 2016, 2020.
- *Geometry of tilings / Senior problem–solving*, Temple University, 2021, 2024.

INSTRUCTOR, Graduate level.

- *Introductory topology*, Temple University, 2009.
- *Complex analysis*, Temple University, 2017.
- *Algebraic topology*, Temple University, 2011, 2013, 2018, 2019, 2022.
- *Smooth manifolds*, Temple University, 2010, 2012, 2021, 2023.
- *Mapping class groups*, Temple University, 2011, 2016.
- *Braid groups*, Temple University, 2012, 2019, 2025.
- *Knot theory*, Temple University, 2014, 2018.
- *Low-dimensional topology*, Temple University, 2015, 2022.
- *Teichmüller theory*, Temple University, 2017.
- *Three-manifolds*, Temple University, 2022-23.

Most of these were new additions to the graduate curriculum, requiring full course development.

INDEPENDENT STUDY SUPERVISOR. Guided reading projects for small groups of students.

- *Hyperbolic 3–manifolds*, Michigan State University, 2008; Temple University, 2011, 2014–24.
- *Non-positively curved cube complexes*, Temple University, 2013, 2018.
- *Coarse geometry and geometric group theory*, Temple University, 2016.
- *Topological methods in group theory*, Temple University, 2017.
- *Knot theory*, Temple University, 2021.
- *Quantum invariants*, Temple University, 2024.

GRADUATE THESIS ADVISOR

- Christian Millichap, 2010–15, awarded Ph.D. in May 2015.
- William Worden, 2013–18, awarded Ph.D. in May 2018.
- Thomas Ng, 2015–20, awarded Ph.D. in May 2020.
- Anschel Schaffer-Cohen (at U. Penn), 2017–22, awarded Ph.D. in May 2022.
- Rose Kaplan-Kelly, 2018–23, awarded Ph.D. in May 2023.
- Robert Oakley, 2021–.
- Andrew Clickard, 2024–

POSTDOCTORAL MENTOR

- Christopher Atkinson (Ph.D. 2009, University of Illinois at Chicago), at Temple 2009–12.
- Kei Nakamura (Ph.D. 2008, University of California at Davis), at Temple 2009–13.
- Brian Rushton (Ph.D. 2012, Brigham Young University), at Temple 2012–15.
- Edgar Bering (Ph.D. 2017, University of Illinois at Chicago), at Temple 2017–20.

**Service Activities**

<span style="font-variant: small-caps;">Seminar Organizer:</span>

– Departmental colloquium, Temple University, 2008–11.
– Geometry–Topology seminar, Temple University, 2008–.
– PATCH seminar (monthly joint seminar with Bryn Mawr, Haverford, and Penn), 2009–.

<span style="font-variant: small-caps;">Conference Organizer:</span>

– *Emil Grosswald distinguished lecture series*, Temple University. Co-organizer of lectures given by Andrei Okounkov in April 2010 and Günter Ziegler in September 2013.

– *Geometric aspects of knot theory*, special session at *Knots in Washington*. Washington, DC, December 2012. Joint with Abhijit Champanerkar and Ilya Kofman.

– *Special sessions at AMS National and Sectional Meetings*, 2012–14. Joint with Genevieve Walsh (2012), Ben McReynolds (2013), and Daniel Wise (2014).

– *Rigidity and flexibility in dimension 2, 3, and 4*. Luminy, France, May 2012. Joint with Ken Bromberg, Dick Canary, François Labourie, Jessica Purcell, J-M Schlenker, and Michael Wolf.

– *Geometric topology in Cortona*. Cortona, Italy, June 2013. Joint with Francesco Bonsante, Bruno Martelli, Gabriele Mondello, and Jessica Purcell.

– *Classical and quantum hyperbolic geometry and topology*, Orsay, France, July 2015. Joint with Michel Boileau, Louis Funar, François Guéritaud, Ko Honda, Frédéric Paulin, Helen Wong.

– *Temple University Graduate Student Conference in Algebra, Geometry, and Topology*, 2015–23. Joint with Chelsea Walton (2016), Matthew Stover (2017–), and Jaclyn Lang (2022–).

– *Classical and quantum 3–manifold topology*, Melbourne, Australia, December 2018. Joint with Stavros Garoufalidis, Craig Hodgson, Jessica Purcell, Hyam Rubinstein, Saul Schleimer.

– *Groups around 3–manifolds*, Montréal, Canada, June 2023. Joint with Daniel Wise.

– *Computational questions about 3-manifolds, associated groups and varieties*, Newark, NJ, October 2025. Joint with Ying Hu, Kathleen Petersen, and Anastasiia Tsvietkova.

<span style="font-variant: small-caps;">Committee Service:</span> Departmental level.

– Director of graduate studies, 2017–20; 2022–.
– Graduate committee, 2008–15; 2016–20; 2021–.
– Postdoctoral search committee, 2011–12 (chair), 2014–15, 2016–17.
– Personnel committee, 2014–17; 2018–21; 2022–25.
– Executive committee, 2013; 2016–19; 2022–25.
– Thesis and oral exam committees, 2011–25.

<span style="font-variant: small-caps;">Committee Service:</span> College and University levels.

– College of Science and Technology Science scholars committee, 2013–19.
– College of Science and Technology Graduate committee, 2017–20; 2022–.
– College of Science and Technology Bylaws committee, 2020.
– University Tenure and Promotion committee, 2020–22.

## Service Activities (Continued)

COMMITTEE SERVICE: Profession-Wide.

– AMS–MAA Committee on Teaching Assistants and Part Time Instructors, 2016–19.
– AMS Doubly Anonymous Refereeing Committee (chair), 2021–22.
– AMS Martin Isaacs Prize Committee, 2024–26.
– AMS ICM 2026 Events Planning Committee, 2024–25.
– Simons Foundation ICM Outreach Committee, 2024–26.
– AMS Council, 2022–26.

EXTERNAL EVALUATOR:

– PhD defenses: 2013, 2019.
– Sabbatical/Leave applications: 2019, 2021, 2022, 2023.
– Tenure and Promotion cases: 2014, 2016, 2021, 2022, 2023.

PANELIST/REVIEWER:

– National Science Foundation.
– Israel Science Foundation.
– Simons Foundation.

EDITORIAL:

– Proceedings of the American Mathematical Society: Editor (2016–18), Coordinating Editor (2018–22), Managing Editor (2022–26).
– Algebraic & Geometric Topology: Editor, 2017–.