

Genevieve S. Walsh

Professor, Tufts Dept of Mathematics
<https://gwalsh01.pages.tufts.edu/>

Education

Ph. D., University of California at Davis, Mathematics. June 2003.
Dissertation Advisor: W. P. Thurston.

M. S., Auburn University, Mathematics. June 1997.
Thesis Advisor: K. Kuperberg.

Budapest Semesters in Mathematics. Fall 1994 and Spring 1995.

B. A., Oberlin College, Mathematics with Honors. June 1994.

Positions

Professor, Tufts University Fall 2018-

CRM-Simons Scholar Montréal, CA. Spring 2023

Chaire Jean-Morlet, CIRM Luminy. Spring 2018.

Associate Professor, Tufts University. Fall 2013-Summer 2018

Visitor, ICERM Providence. Fall 2013.

Assistant Professor, Tufts University. Fall 2006-Spring 2013.

Visitor, Harvard University. Spring-Fall 2010.

Postdoctoral Researcher, Université du Québec à Montréal. Fall 2006.

VIGRE Postdoctoral Instructor, University of Texas at Austin. Fall 2003-Spring 2006.

Postdoctoral Associate, Cornell University. Summer 2003.

Professional Affiliations

American Mathematical Society, Association for Women in Mathematics, National Association of Mathematicians

Editorial Work

Editorial Board, *Proceedings of the American Mathematical Society* 2022-2026, 2026-2030.

Connections between Geometry, Topology, and Group Theory in Low-dimensions, Co-edited with Luisa Paoluzzi, to appear (Panoramas et Synthèses, SMF)

Grants and Fellowships

NSF 2504033 “Boundaries and subgroup structure” (PI) 2024-2027.

NSF 2005353 “Geometry of subgroups” (PI) 2020-2024.

NSF 1709964 “Boundaries of hyperbolic and relatively hyperbolic groups” (PI) 2017-2021.

NSF 1207644 “Geometry and topology of groups generated by involutions” (PI) 2012- 2016.

NSF 0805908 “Symmetry and commensurability” (PI) 2008-2012.

Bernstein Faculty Fellow. Tufts University, 2007-2009.

NSF Conference grants: “Structure of 3-manifold groups” (2017), “CRM Thematic Program in Geometric Group Theory” (2023) “Groups, actions, and geometries conference” (2023).

Papers

- D. Groves, E. Stark, G. S. Walsh, and K. Whyte, *Hyperbolic spaces with geometric and geometrically finite quasi-actions are symmetric*, Submitted, arXiv:2604.13898.
- D. Groves, P. Haïssinsky, J. F. Manning, D. Osajda, A. Sisto, and G. S. Walsh, *Drilling hyperbolic groups*. Submitted, arXiv:2406.14667.
- G. C. Hruska and G. S. Walsh, *Relatively hyperbolic groups with planar boundaries*. Submitted arXiv:2405.20428.
- E. Chesebro, M. Chu, J. DeBlois, N. R. Hoffman, P. Mondal, and G. S. Walsh, *Mixed-platonic 3-manifolds*. **Algebraic and Geometric Topology** Vol 26, no. 6 2215–2254 (2026). arXiv:2407.01708.
- P. Haïssinsky, L. Pauluzzi and G. S. Walsh, *On groups with Scottky set boundary*. To Appear, **Mathematische Zeitschrift**, 313 (2026), no. 2, Paper No. 28, 29 pp. arXiv:2309.08735.
- M. Ben-Zvi, J. Lou, and G. S. Walsh, *Hyperbolic boundaries vs. hyperbolic groups*, in *Connections between geometry, topology, and group theory in low-dimensions*, **Panoramas and Syntheses** Vol 66, 1–20. Société Mathématique de France, Paris, (2026). arXiv:2201.12443.
- R. Kropholler, S. Vidussi, and G. S. Walsh, *Virtual algebraic fibrations of surface-by-surface groups and orbits of the mapping class group*, **Journal of Algebra** Volume 651, 1-18.(2024) arXiv:2103.06930,
- G. C. Hruska and G. S. Walsh, *Planar boundaries and parabolic subgroups*, **Math. Research Letters**. Volume 30, Number 4, 1081–1112. (2023) arXiv:2008.07639.
- P. Dani, M. Haulmark, and G. S. Walsh, *Right-angled Coxeter groups with non-planar boundary*, arXiv:1902.01029, **Groups Geom. Dyn.** 17 (2023), no. 1, 127–155.
- R. Kropholler, G. S. Walsh, *Incoherence and fibering of many free-by-free groups*, arXiv:1910.09601, **Ann. Inst. Fourier** (Grenoble) 72 (2022), no. 6, 2385–2397.
- B. Tshishiku and G. S. Walsh, *Erratum to ‘On groups with S^2 Bowditch boundary’*. **Groups Geom. Dyn.** 15 (2021), no. 3, 1133–1137.
- B. Tshishiku and G. S. Walsh, *On groups with S^2 Bowditch boundary*, **Groups, Geom. Dyn.** 14, no. 3, 2020, pp. 791–811 arXiv:1710.09018.
- S.-H. Kim and G. S. Walsh, *Some groups with planar boundaries*, **Surveys in Differential Geometry** 25 (2020) 253 – 280. arXiv:1907.06898.
- P. Haïssinsky, L. Paoluzzi and G. S. Walsh, *Boundaries of Kleinian groups*, **Illinois Journal of Mathematics** Special Haken Issue, Vol. 60, no. 1 (2016) 353–364. arXiv:1609.02377.
- S.-H. Kim and G. S. Walsh, *Coxeter groups, hyperbolic cubes, and acute triangulations*, **Journal of Topology** Vol. 9 (2016) 117-142. arXiv:1306.6025.
- M. Boileau, S. Boyer, R. Cebanu and G. S. Walsh, *Knot complements, hidden symmetries, and reflection orbifolds*. **Annales de la Faculté des Sciences de Toulouse** Vol. 24 (2015) 1179–1201. arXiv:1501.02253.
- N. Hoffman and G. S. Walsh, *Big Dehn surgery space and the link of S^3* , **Proceedings of the American Mathematical Society, Series B**. Vol 2. (2015) 17-34. arXiv:1311.3980.
- G. S. Walsh, *The bumping set and the characteristic submanifold*. **Algebraic and Geometric Topology** Vol. 14 (2014) 283–297. arXiv:1208.1700.
- M. Boileau, S. Boyer, R. Cebanu and G. S. Walsh, *Knot commensurability and the Berge conjecture*. **Geometry and Topology** Vol. 16 (2012) 625–664. arXiv:1008.1034.
- G. S. Walsh, *Orbifolds and commensurability*. In “Interactions Between Hyperbolic Geometry, Quantum Topology, and Number Theory”. **Contemporary Mathematics** Vol. 541 (2011) 221–231. arXiv:1003.1335.

- G. S. Walsh, *Incompressible surfaces and spinnormal form*. **Geometriae Dedicata** Vol 151 (2011) 221–231. arXiv:math/0503027.
- A. Piggott, K. Ruane and G. S. Walsh, *The automorphism group of the free group of rank two is a $CAT(0)$ group*. **Michigan Mathematical Journal** Vol.59 (2010) 297–302. arXiv:0809.2034.
- A. Reid and G. S. Walsh, *Commensurability classes of two-bridge knot complements*. **Algebraic and Geometric Topology** Vol. 8 (2008) 1031–1057. arXiv:math.GT/0612473.
- D. Cooper and G. S. Walsh, *Three-manifolds, virtual homology, and group determinants*. **Geometry and Topology** Vol. 10 (2006) 2247–2269. arXiv:math.GT/0603152.
- D. Cooper and G. S. Walsh, *Virtually Haken fillings and semi-bundles*. **Geometry and Topology** Vol. 10 (2006) 2237–2245. arXiv:math.GT/0407328.
- G. S. Walsh, *Great circle links and virtually fibered knots*. **Topology** Vol. 44 No. 5 (2005) 947–958. arXiv:math.GT/0407361.
- M. Carrión Álvarez, J. Corneli, G. S. Walsh, and S. Beheshti. *Double bubbles in the three-torus*. **Experiment. Math.** Vol. 12 (2003), No. 1, 79–89. arXiv:math.DG/0208120.

Research articles in progress

- L. Ruffoni and G. S. Walsh, *Coxeter groups which are virtually 3-pseudomanifolds*. Preprint.

Non-refereed articles/Dissertation

- G. S. Walsh, Review of “Mostly Surfaces”, by R. E. Schwartz, **American Mathematical Monthly**, Vol. 121 (2014) 954–956.
- G. S. Walsh, *Surfaces in finite covers and the group determinant*. Part of the conference proceedings for *Low Dimensional Manifolds*. **Oberwolfach Reports** Vol. 2 (2005) 2 pages.
- Great circle links in the three-sphere*. (Dissertation) June 2003. Advisor: W. P. Thurston.

Postdoctoral mentoring

Adam Piggott (now at Australian National University)
 Sang-hyun Kim (now at Korea Institute of Advanced Study)
 Robert Kropholler (now at Warwick University)
 Lorenzo Ruffoni (now at Binghamton University)
 Nima Hoda (now at University of Wrocław)
 Hyeran Cho (current, at Tufts)

Research Projects Supervised

PhD Students: Current: Kally Lyonnaise, William Jones (Joint with Corey Bregman)
 Jiayi Lou PhD (2026) Dissertation: “Quasiconvex subgroups of hyperbolic $CAT(0)$ groups”
 Burns Healy. PhD (2018) Dissertation: “Non-positive Curvature in Groups”.
 Chris O’Donnell. PhD (2017) Dissertation: “Decomposing $CAT(0)$ Cube Complexes”.
 Emily Stark. PhD (2015) Dissertation: “Abstract Commensurability and Quasi-isometric Classification of Hyperbolic Surface Group Amalgams”.
 Murphy Fields, MS (2017) “An Introduction to Relatively Hyperbolic Groups”.
Thesis/Dissertation Committee member for: Maggie LaPlante (2007), Emily Grant (2008), Aaron Brown (2011), Andy Eisenberg (2015), Garrett LaForge (2017), Michael Ben-Zvi (2019), Rose Morris-Wright (2020), Rylee Lyman (2020), Mirjana Hotomski (Math Education, 2020) Bruno Robbio (University of the Basque Country, 2020) Ludovico Battista (Università di Pisa, 2022) MacKenzie McPike (2024), Max Weinstein (2024), Swarup Bhowmik (2024, external evaluator, IIT

Kharagpur.) Ruta Sliazkaite (2026, University of Warwick, external member). Darius Alizadeh, (2026, University of Illinois at Chicago, external member), Kushlam Srivastava (exp. 2027, UW Milwaukee, external member)

Undergraduate Level VERSE-REU Summer program in Computational GGT Summer 2021. Senior honors students: Catherine DiLeo (current + Summer research) Darien Farnham (2022), Natalie Bohm (2020), Summer Scholars Student: Samir Chowdhury (2011).

Organization of Conferences, Seminars, Semesters (since 2018)

- 2026 “SL Math Introductory Workshop” -Geometry and Dynamics for Discrete Subgroups of Higher Rank Lie Groups Topological and Geometric Structures in Low Dimensions, member of organizing committee.
- 2025 “Young Geometric Group Theory XIII”, head of scientific committee.
- 2023 “Groups, actions, and geometries” August 2023 Tufts (with C. Abbott, E. Stark, T. Ng and L. Ruffoni,)
- 2023 CRM Semester on Geometric Group Theory, Jan -July 2023 (with S. Boyer, D. Futer, M. Hagen, P. Przytycki, and A. Tserunyan)
- 2022 AMS Special Session Medford, MA (with C. Abbott, I. Levcovitz, L. Ruffoni, K. Ruane) “Subgroups in non-positive curvature” (March, rescheduled from 2020)
- 2022 CIMPA School on Groups and Geometry, Kolkata India, member of Scientific Committee and Instructor. (Hybrid)
- 2021 AMS virtual special session co-organizer (with Neil Hoffman, Christian Millichap, and Matt Stover) (January)
- 2019 May “Groups and Geometry at Tufts” (with Kim Ruane and Rob Kropholler)
- 2019 March Institute of Advanced Study Emerging Topics: “Coherence and Quasi-convex subgroups” (with Daniel Groves and Alan Reid)
- 2018 Spring Semester CIRM (Luminy, France): Conferences on “Structure of 3-manifold groups” and “Boundaries of Groups”, School on “3-manifolds and Geometric Group Theory” (Semester co-organized with Luisa Paoluzzi.)

Talks and Extended Research Visits (since 2018)

- 2026 February: Warwick University, England, Seminar. March: Birmingham, AL “Spring Topology and Dynamical Systems Conference”, special session. April: UW Milwaukee, Colloquium.
- 2025 January: “Hyperbolic Manifolds, their submanifolds and fundamental groups” IMPA Rio, Brazil. February: Boston College Seminar. February: AIM visit: “Subgroups of free-by-cyclic groups” April: Brown GT Seminar. June: “ Low dimensional phenomena: geometry and dynamics”, IHP Paris, France. July: “Non-positive curvature and applications”, Cambridge England, September: “Higher-dimensional hyperbolic geometry”, Ventotone Italy Sept 2025. October: AMS special session Tulane University, LA. November: Seminar, Binghamton University.
- 2024 January: Special AMS session, San Francisco, March: AIM SQuaRE “Which knots admit hidden symmetries”, April: AIM SQuaRE “Subgroups of hyperbolic free-by-cyclic groups”, May: Colloquium at UW Milwaukee, July 2024 “Geometry in Groups” Mini-course speaker (3 talks and research group leader), ITCS Bangaluru India. September: Participant, “Combinatorial Nonpositive Curvature”, Banff, CA.
- 2023 Young Geometric Group Theory XI, Munster, Germany (Mini-course speaker) SQuaRE at AIM (“Subgroups of hyperbolic free-by-cyclic groups”) WIGGD Project Group Leader. (July, Idaho) CRM-Simons Fellow, May - June (CRM, Montreal) Speaker, “Groups Around 3-manifolds” Montreal CA.

- 2022 Mini-Course: CIMPA school on GGT (Kolkata, virtual) Cornell Topology Festival, Geometry, Arithmetic and Groups, Texas, Hyperbolic groups and their generalizations (IHP, Paris) Wasatch Topology Conference (Utah) SQuaRE at AIM “Drilling hyperbolic groups”. SQuaRE at AIM “Which hyperbolic knot complements have hidden symmetries?”
- 2021 Columbia University GT Seminar (virtual) University of California Riverside Geometry and Topology Seminar (virtual)
- 2020 Vanderbilt University GT Seminar, Temple University Colloquium, Warwick GT Seminar (virtual), University of Chicago GT seminar (virtual), Virtual Geometric Group Theory in Luminy (CIRM, virtual) Australian Geometric Topology Webinar (virtual) AMS Special Session talk (virtual), Groups and Geometry in the South East (virtual).
- 2019 Louisiana State University Topology seminar, Spring Topology and Dynamical Systems conference Birmingham Al, Institute for Advanced Study, Harvard (Gender Inclusivity in Mathematics seminar), Warsaw, Poland (Seminar talk and conference talk), IHES (2-lecture course), ETH Zurich, AMS Special Session Binghampton NY, University of Utah (2 talks), NC State Triangle Topology Seminar. Research visit: AIM SQuaRE, San Jose Ca
- 2018 Chaire Jean-Morlet (CIRM Luminy, France). See <http://www.chairejeanmorlet.com/2018-1-walsh-paoluzzi.html> for events.

Institut de Mathematiques de Toulouse. Université de Montpellier. IHES Paris. “Non-positively curved groups on the Mediterranean” Nahsolim, Israel. “Characters in Low-Dimensional Topology” Montreal, Canada. “Graphs, Surfaces and Cube Complexes” Warwick, England. AMS Special Session, Fayetteville Arkansas. Also speaker for the “Mathematical Frontiers” webinar, aimed at the broader scientific community, organized by the National Academies of Sciences, Engineering and Medicine. AIM SQuaRE, San Jose California.

Recent Teaching (through Tufts University)

- Undergraduate: Introduction to Calculus, Calculus I, Calculus II, Discrete Mathematics, Introductory Number Theory, Bridge to Higher Mathematics Linear Algebra, Honors Linear Algebra, Abstract Algebra. Point Set Topology, Algebraic Topology.
- Graduate: Graduate Algebra, Geometry and Topology, Algebraic Topology, Topics in Hyperbolic Geometry, Topics in Geometric Group Theory, Topics in Algebra, numerous seminar and reading courses.
- Quantitative Reasoning (co-taught, and at the Concord Medium Security Prison)

Service:

- Editor, **Proceedings of the American Mathematical Society** 2022-2026, 2026-2030
- Editorial board, Carus Mathematical Monographs, 2021- 2024.
- Service on NSF grant-review panels NSF postdoctoral fellowship panels.
- Prize Committees: Association of Women in Mathematics, Centennial Fellowship Committee of the AMS (as Member and Chair)
- Faculty Mentor, Tufts Association of Women in Math (2018-)
- DEIJ Coordinator and Undergraduate Director (2021-2025)
- Tufts Departmental Committees: Undergraduate Director (2021-2025) Curriculum Committee (chair) (2024-2025)(2023-2024)(2022-2023)(2020-2021)(Spring 2007) Hiring Committee, (2025-2026) (2024-2025, Postdoctoral) (2023-2024) (Member 2022-2023 for two positions) (Member 2021-2022, for FTL) (Chair 2020-2021) (Member 2016-2017) (Chair 2015-2016), (Member

2015-2016),(Member 2012-2013) (Chair 2010-2011), (Member 2009- 2010) (Member 2007-2008) Graduate Admissions Committee (2020-2021) Preparator for Promotion Case (2020-2021) Course Assignment Committee, (2015-2016) (2016-2017) Graduate Committee, (2008-2009) (2009 - 2010) (2011-2012) (Spring 2013) (Spring 2014) (2016-2017) (2017-2018)(2018-2019)(2019-2020)(2025-2026)

Tufts University Committees: DEIJ committee (2024-2025) Faculty Research Awards Committee (2018-2019) Work/Life Balance Committee (2014-2015)(2015-2016)(2016-2017)(2017-2018). Faculty Workload Committee (Spring 2014). Library Committee, (2012-2013) (2016-2017)(2019-2020) Committee on Information Technology, (2007-2008) (2009-2010) (2010-2011) (2011-2012) Cummings Building Committee (Art) (2019-2022) Tenure and Promotion for AS&E (2025-2026)

Referee for: **Algebraic and Geometric Topology, American Mathematical Monthly, Communications in Analysis and Geometry, Discrete and Computational Geometry, Duke Mathematical Journal, Geometriae Dedicata, Geometry and Topology, Journal of the American Mathematical Society, Journal of the London Mathematical Society, Journal of Topology, Journal of Topology and Analysis, Pacific Journal of Mathematics, Proceedings of the American Mathematical Society, Publicacions Matemàtiques, Transactions of the AMS, Math. Z.**

Reviewer for Mathematical Reviews.