Genevieve S. Walsh

Department of Mathematics
Tufts University
Medford, MA 02155
http://www.tufts.edu/∼gwalsh01/

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.

Areas of Specialization

Geometric Topology, Hyperbolic Geometry, Geometric Group Theory

Professional Affiliations

American Mathematical Society, Association for Women in Mathematics

Awards and Fellowships

- NSF Research Grant (PI) 2017-2020.

- NSF Research Grant (PI) 2012- 2015. No-cost extension 2015-2016.

- NSF Research Grant (PI) 2008-2011. No-cost extension 2011- 2012.

- Bernstein Faculty Fellow. Tufts University, 2007-2009.

- VIGRE Postdoctoral Fellowship. University of Texas at Austin, 2003-2006.

Positions subsequent to PhD

- Associate Professor, Tufts University. Fall 2013-present.

- Chaire Jean-Morlet, CIRM Luminy. Spring 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.

Postdoctoral Institutions and Advisors

Cornell University - William P. Thurston
University of Texas at Austin - Alan W. Reid
Université du Québec à Montréal - Steven Boyer

Research articles

- B. Tshishiku and G. S. Walsh, *On groups with S^2 Bowditch boundary*, arXiv:1710.09018, Preprint 2017.

- 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.

- S.-H. Kim and G. S. Walsh, *Coxeter groups, hyperbolic cubes, and acute triangulations*, **Journal of Topology** Vol. 9 (2016) 117-142.

- 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.

- 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 spunnormal 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

- P. Dani, M. Haulmark, and G. S. Walsh, *Right-angled Coxeter groups with Menger curve boundary*, preprint 2017.

- C. Hruska and G. S. Walsh, *Relatively hyperbolic groups with planar boundaries*, work in progress 2017.

- D. Groves, J. F. Manning, D. Osajda, A. Sisto and G. S. Walsh, *Drilling hyperbolic groups*, work in progress 2017.

Other articles

- 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.

Dissertation

- *Great circle links in the three-sphere.* June 2003. Advisor: W. P. Thurston.

Conferences Organized/Organizing

- Spring semester 2018 CIRM (Luminy, France): Conference on "Structure of 3-manifold groups", Conference on "Boundaries of Groups", School on "3-manifolds and Geometric Group Theory" (co-organized with Peter Haïssinsky and Luisa Paoluzzi)

- January 2018: American Mathematical Special Session (co-organized with Joseph Mahler) "Spaces, boundaries, and groups".

- November 2016: American Institute of Mathematicatics workshop: "Boundaries of Groups" (co-organized with Jean-Francois LaFont)

- Fall 2013: Co-organizer, ICERM Semester Program: "Computation, Experiment, and Algorithms in Topology and Geometry" (and on the organizing committee for two conferences)

- 2012: Co-organizer of AMS Special Session: "Hyperbolicity in Manifolds and Groups", Joint Meetings, Boston MA.

- Co-organizer of Geometric Group Theory and Topology Seminar, Tufts University: Spring 2007-present.

- June 2008: Co-organizer of special AMS conference (Mathematical Research Communities) "Teichmüller Theory and Low-dimensional Topology", Snowbird Utah.

- 2008: Mini-course Lecturer and member of Scientific Committee, Women in Mathematics Program. (Hyperbolic Geometry) Institute for Advanced Studies, Princeton N.J.

- 2007: Co-organizer of Special Session "Geometric Topology/Geometric Group theory" Spring Topology and Dynamical Systems Conference, University of Missouri Rolla.

Research Projects Supervised

- Emily Stark. Dissertation: "Abstract Commensurability and Quasi-isometric Classification of Hyperbolic Surface Group Amalgams" PhD (2015). Current Position: Zuckerman Post-doctoral Scholar, Technion (Israel Institute of Technology) Haifa, Israel.

- Chris O'Donnell. Dissertation: "Decomposing CAT(0) Cube Complexes" (2017).

- Current PhD students: Burns Healy, Current Masters student: Murphy Fields.

- Summer Scholars Student: Samir Chowdhury (2011).

- Thesis/Dissertation Committee member for: Maggie LaPlante (2007), Emily Grant (2008), Aaron Brown (2011), Andy Eisenberg (2015), Garrett LaForge (2017).

Research Talks and Extended Research Visits

Talks are in research seminars unless otherwise noted.

- 2018 (planned)

  Chaire Jean-Morlet (CIRM Luminy,France).

  See `http://www.chairejeanmorlet.com/2018-1-walsh-paoluzzi.html` for events.

- 2017

  Seminar talks: University of Wisconsin Milwaukee, Princeton University, Brown University, University of Illinois at Chicago (planned Fall 2017). AMS conference: Buffalo, New York. Research Visit: AIM SQuaRE, San Jose Ca.

- 2016

  Distinguished Women in Mathematics Lecturer, University of Texas at Austin (2 talks). Conference/Seminar talks: Virginia Topology Conference, AMS conference Bowdoin, "Geometric Analysis, Metric Geometry and Topology" (Institut Fourier, Grenoble, France), ICERM workshop: "Effective and Algorithmic Methods in Hyperbolic Geometry and Free Groups", PATCH seminar (2 talks), L^2 Geometry and Topology seminar at LaFayette College, Spring Topology and Dynamics Conference (Waco TX).

- 2015

  Conference/Seminar talks: "Geometric Structures on 3-manifolds Workshop" (Institute for Advanced Study), "Groups, Geometry and 3-Manifolds", Conference in Honor of Daryl Cooper, University of Michigan Ann Arbor, Temple University, Harvard University Reading Group Conference, Ohio State, AMS Special Session, NJ.

  Research Visitor, CIRM, Marseille, France.

- 2014

  Joint AMS/MAA meetings, CUNY graduate center, AMS sectional meeting in Baltimore, Cornell University (seminar). Colloquium Speaker: Tufts University, Cornell University.

- 2013

  "Topology, Geometry and Group Theory, Informed by Experiment ICERM, Providence RI. "Geometry and Groups after Thurston", Dublin, Ireland. "Low-dimensional Topology and Geometry in Toulouse", on the occasion of Michel Boileau's 60th birthday, Toulouse, France. "The Topology of 3-dimensional Manifolds" Workshop, Montréal, Canada. Yale University, Boston College, Temple University, Harvard University (7 minute talk), AWM symposium in Santa Clara, AMS special session in Boston.

- 2011-2012

  "Cannon" meeting at the Fourier Institute (Grenoble), Wellesley College, Dartmouth College Korea Advanced Institute of Science and Technology (4 talks). Research Program Participant: Institute for Advanced Study/Park City Mathematics Institute Workshop "Geometric Group Theory". Researcher: 2-week "Research in Pairs" stay, Oberwolfach, Germany.

  "Workshop on Dehn Surgery", Austin, TX. Cornell University, Temple University, Association of Women in Mathematics 40th Anniversary Conference (Special Session in Geometric Group Theory). Invited Speaker and Conference Participant: "Geometry and Topology Down Under: A Conference in Honor of Hyam Rubinstein", Melbourne, Australia.

- 2010-2011

  American Mathematical Society (AMS) Meetings: Worchester MA (2 special sessions), Newark, NJ (special session).

  City University of New York, University of Oklahoma, Oklahoma State (Colloquium), Harvard University, Boston College. CIRGET Reunion Conference, Montréal Canada.

- 2009-2010

  American Mathematical Society (AMS) special session, Albuquerque, NM. Harvard University (twice). "Quasi-isometric rigidity in low-dimensional topology" 5-day workshop. Banff International Research Station.

- 2008-2009

  Yale University, Wesleyan University, Colby College (Colloquium). Canada / France Congress. Special Session: "Low-dimensional topology". Montréal, Canada. Moab Topology Conference. Moab, Utah. "Interactions between Hyperbolic Geometry, Quantum Topology and Number Theory" Workshop and Conference, Columbia University, New York, NY (3 lectures).

- 2007-2008

  University of Texas at Austin, Williams College (Colloquium). Teichmüller Theory and Kleinian Groups: "Connections for Women" Conference. MSRI, Berkeley, CA (August 17 2007). Geometric Group Theory: "Connections for Women" Conference. MSRI, Berkeley, CA (2 lectures) (August 23 2007).

  "Three-manifold Geometry and Topology" Conference. Warwick, England.

  Special Session on Low-dimensional Topology, Joint meeting of the American Mathematical Society and the Sociedad Matemática Mexicana (SMM) Zacatecas, Mexico.

- 2006-2007

  SUNY Buffalo, Columbia University, Cornell University, Brown University, Brandeis University, Michigan State University (2 Lectures), McGill University, Université du Québec à Montréal. Cascade Topology Seminar, Portland State University. Special Session on Low-dimensional Topology, Joint Meeting of the Canadian Math Society and the Sociedad Matemática Mexicana (SMM) Guanajuato, Mexico. "The Second William Rowan Hamilton Geometry and Topology Workshop" Dublin, Ireland. Institute for Advanced Study/Park City Math Institute Workshop, "Low-dimensional Topology" Park City, Utah.

- 2005-2006

  University of California at Santa Barbara, Rice University, University of British Columbia. Special Session on Low-dimensional Topology. Canadian Math Society Meeting, Victoria, B. C. "Conference on Low-dimensional Manifolds". Oberwolfach, Germany. "On Heegaard splittings of 3-manifolds" Conference. Technion, Haifa, Israel.

- 2004-2005

  American Mathematical Society (AMS) special sessions: University of California at Santa Barbara, Vanderbilt University. Spring Topology and Dynamical Systems Conference (Semi-Plenary Talk) Berry College. Washington University in St. Louis, University of California at Davis. 'Trends in three-manifolds" Conference Montréal, Canada.

- 2003-2004

  Tulane University, Princeton University. Texas Geometry and Topology Conference, Rice University. Georgia Topology Conference, University of Georgia. Special Session on Low-Dimensional Topology. Joint Meeting of the American Mathematical Society. and the Sociedad Matemática Mexicana (SMM) Houston. American Mathematical Society (AMS) special sessions: University of North Carolina at Chapel Hill, Phoenix, Arizona. Spring Topology and Dynamical Systems Conference. Birmingham, AL. "Topology in and around dimension three" Conference, Banff, Canada.

Teaching at Tufts University

- Courses taught: Introduction to Calculus, Calculus I, Calculus II, Discrete Mathematics, Linear Algebra, Honors Linear Algebra, Point Set Topology, Algebraic Topology (undergraduate), Geometry and Topology, Algebraic Topology (graduate), Topics in Hyperbolic Geometry, Topics in Geometric Group Theory.

Other teaching

- Instructor at the University of Texas at Austin: Single and Multi-variable Calculus, Number Theory, Point-set topology, Graduate Topics Course: "Surfaces in three-manifolds".

Service

- Served on NSF grant-review panel and NSF postdoctoral fellowship panel (twice)

- Prize Committee: Association of Women in Mathematics.

- Faculty Mentor, Tufts Association of Women in Math

- Tufts Departmental Committees:

  Hiring Committee, (Member 2007-2008) (Member 2009- 2010) (Member 2012-2013). (Chair 2010-2011), (Member 2015-2016), (Chair 2015-2016), (Member 2016-2017) Course Assignment Committee, (2015-2016) (2016-2017) Graduate Committee, (2008-2009) (2009 - 2010) (2011-2012) (Spring 2013) (Spring 2014) (2016-2017) Curriculum Committee, (Spring 2007).

- Tufts University Committees:

  Work/Life Balance Committee (2014-2015)(2015-2016)(2016-2017). Faculty Workload Committee (Spring 2014). Library Committee, (2012-2013) (2016-2017) Committee on Information Technology, (2007-2008) (2009-2010) (2010-2011) (2011-2012).

- Referee for: **Algebraic and Geometric Topology**, **Geometry and Topology**, **American Mathematical Monthly**, **Journal of the London Mathematical Society**, **Geometriae Dedicata**, **Pacific Journal of Mathematics**, **Communications in Analysis and Geometry**, **Proceedings of the American Mathematical Society Publicacions Matemátique**, **Journal of the American Mathematical Society Duke Mathematical Journal**

- Reviewer for Mathematical Reviews.