

Genevieve S. Walsh

Department of Mathematics
Tufts University
Medford, MA 02155
<http://www.tufts.edu/~gwalsh01/>
CURRENT AS OF OCTOBER 2012

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, Group Actions

Professional Affiliations

American Mathematical Society, Association for Women in Mathematics

Awards and Fellowships

- NSF Research Grant (PI) 2012- 2015.
- 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.
- VIGRE Graduate Fellow. University of California at Davis, 2002-2003.

Academic Positions

- Assistant Professor, Tufts University. Fall 2006-present.
- 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.

Dissertation

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

Papers

- *The bumping set and the characteristic submanifold*. Submitted.
- *Knot commensurability and the Berge conjecture*. Joint with M. Boileau, S. Boyer, and R. Cebanu. **Geometry and Topology** Vol. 16 (2012) 625–664. arXiv:1008.1034.
- *Orbifolds and commensurability*. “Interactions Between Hyperbolic Geometry, Quantum Topology, and Number Theory”. **Contemporary Mathematics** Vol. 541 (2011) 221–231. arXiv:1003.1335.
- *Incompressible surfaces and spinnormal form*. **Geometriae Dedicata** Vol. 151 (2011) 221–231. arXiv:math/0503027.
- *The automorphism group of the free group of rank two is a $CAT(0)$ group*. Joint with A. Piggott and K. Ruane. **Michigan Mathematical Journal** Vol. 59 (2010) 297–302. arXiv:0809.2034.
- *Commensurability classes of two-bridge knot complements*. Joint with A. Reid. **Algebraic and Geometric Topology** Vol. 8 (2008) 1031–1057. arXiv:math.GT/0612473.
- *Three-manifolds, virtual homology, and group determinants*. Joint with D. Cooper. **Geometry and Topology** Vol. 10 (2006) 2247–2269. arXiv:math.GT/0603152.
- *Virtually Haken fillings and semi-bundles*. Joint with D. Cooper. **Geometry and Topology** Vol. 10 (2006) 2237–2245. arXiv:math.GT/0407328.
- *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 and virtually fibered knots*. **Topology** Vol. 44 No. 5 (2005) 947–958. arXiv:math.GT/0407361.
- *Double bubbles in the three-torus*. Joint with M. Carrión Álvarez, J. Corneli and S. Beheshti. **Experiment. Math.** Vol. 12 (2003), No. 1, 79–89. arXiv:math.DG/0208120.

Work in progress

- *Orbi-graphs and automorphism groups*, Joint with A. Piggott and K. Ruane, in progress.
- *Right-angled Coxeter groups, hyperbolic cubes, and acute triangulations*, Joint with S. Kim, in progress.
- *On knots with hidden symmetries*, Joint with M. Boileau, S. Boyer, and R. Cebanu, in progress.
- *Big Dehn surgery space and the link of S^3* , Joint with N. Hoffman, in progress.

Invited Research Talks and Research Visits

Talks are in research seminars unless otherwise noted.

- (2012- 2013)
 - Invited Speaker: Yale University (planned Dec 2012), Wellesley College (planned Nov 2012).
 - Invited Speaker: “The Topology of 3-dimensional Manifolds” Workshop, Montréal, CA. (May 2012, planned).
 - Invited Speaker: “Low-dimensional Topology and Geometry in Toulouse”, on the occasion of Michel Boileau’s 60th birthday, Toulouse, France (June 2013, planned).
 - Invited Speaker: Korea Advanced Institute of Science and Technology (4 talks).
 - Research Program Participant: Institute for Advanced Study/Park City Mathematics Institute Workshop “Geometric Group Theory”.
 - Invited Researcher: 2-week “Research in Pairs” stay, Oberwolfach, Germany.
- (2011 - 2012)
 - Invited Speaker: “Workshop on Dehn Surgery”, Austin, TX.
 - Invited Speaker: Cornell University, Temple University
 - Invited Speaker: 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)
 - Invited Speaker, American Mathematical Society (AMS) Meetings: Worcester MA (2 special sessions),
 - Invited Speaker: City University of New York, University of Oklahoma, Oklahoma State (Colloquium), Harvard University, Boston College.
 - Invited Speaker: CIRGET Reunion Conference, Montréal Canada.
 - Invited Speaker, American Mathematical Society (AMS) Meetings: Newark, NJ (special session).
- (2009-2010)
 - Invited Speaker: American Mathematical Society (AMS) special session, Albuquerque, NM.
 - Invited Speaker and Conference Participant: “Quasi-isometric rigidity in low-dimensional topology” 5-day workshop. Banff International Research Station.
 - Invited Speaker: Harvard University (twice).
- (2008-2009)
 - Invited Speaker: Yale University, Wesleyan University, Colby College (Colloquium).

- Invited Speaker: Canada / France Congress. Special Session: “Low-dimensional topology”. Montréal, Canada.
- Invited Speaker and Workshop Participant: Moab Topology Conference. Moab, Utah.
- Invited Speaker and Workshop Participant: “Interactions between Hyperbolic Geometry, Quantum Topology and Number Theory” Workshop and Conference, Columbia University, New York, NY (4 lectures).
- (2007-2008)
 - Invited Speaker: University of Texas at Austin, Williams College (Colloquium).
 - Invited Speaker: Teichmüller Theory and Kleinian Groups: “Connections for Women” Conference. MSRI, Berkeley, CA (August 17 2007).
 - Invited Speaker: Geometric Group Theory: “Connections for Women” Conference. MSRI, Berkeley, CA (2 lectures) (August 23 2007).
 - Invited Speaker and Conference Participant: “Three-manifold Geometry and Topology” Conference. Warwick, England.
 - Invited Speaker: Special Session on Low-dimensional Topology, Joint meeting of the American Mathematical Society and the Sociedad Matemática Mexicana (SMM) Zacatecas, Mexico.
- (2006-2007)
 - Invited Speaker: SUNY Buffalo, Columbia University, Cornell University, Brown University, Brandeis University, Michigan State University (2 Lectures), McGill University, Université du Québec à Montréal.
 - Invited Speaker: Cascade Topology Seminar, Portland State University.
 - Invited Speaker: Special Session on Low-dimensional Topology, Joint Meeting of the Canadian Math Society and the Sociedad Matemática Mexicana (SMM) Guanajuato, Mexico.
 - Invited Speaker and Workshop Participant: “The Second William Rowan Hamilton Geometry and Topology Workshop” Dublin, Ireland.
 - Invited Speaker: Institute for Advanced Study/Park City Math Institute Workshop, “Low-dimensional Topology” Park City, Utah.
- (2005-2006)
 - Invited Speaker: University of California at Santa Barbara, Rice University, University of British Columbia.
 - Invited Speaker: Special Session on Low-dimensional Topology. Canadian Math Society Meeting, Victoria, B. C.
 - Invited Conference Participant and Speaker: “Conference on Low-dimensional Manifolds”. Oberwolfach, Germany.
 - Invited Speaker and Conference Participant: “On Heegaard splittings of 3-manifolds” Conference. Technion, Haifa, Israel.
- (2004-2005)

- Invited Speaker: American Mathematical Society (AMS) special sessions: University of California at Santa Barbara, Vanderbilt University.
 - Invited Speaker: Spring Topology and Dynamical Systems Conference (Semi-Plenary Talk) Berry College.
 - Invited Speaker: Washington University in St. Louis, University of California at Davis.
 - Invited Speaker: “Trends in three-manifolds” Conference Montréal, Canada.
- (2003-2004)
 - Invited Speaker: Tulane University, Princeton University.
 - Invited Speaker: Special Session on Low-Dimensional Topology. Joint Meeting of the American Mathematical Society and the Sociedad Matemática Mexicana (SMM) Houston.
 - Invited Speaker: American Mathematical Society (AMS) special sessions: University of North Carolina at Chapel Hill, Phoenix, Arizona.
 - Invited Speaker: Spring Topology and Dynamical Systems Conference. Birmingham, AL.
 - Invited Speaker: Texas Geometry and Topology Conference Rice University .
 - Invited Conference Participant and Speaker: “Topology in and around dimension three” Conference, Banff, Canada.
 - Invited Speaker: Georgia Topology Conference, University of Georgia.

Teaching at Tufts University

Academic Year	Course Title	# Students Enrolled
Fall 2012	Abstract Linear Algebra	15
Fall 2012	Graduate Special Topics Course: Hyperbolic Geometry	13
Fall 2012	Special Topics: Morse Theory	1
Fall 2012	Special Topics: Cubed Structures and Commensurability	1
Spring 2012	Calculus II	28
Spring 2012	Abstract Linear Algebra	10
Spring 2012	Special Topics: Hyperbolic Groups and Cube Complexes	1
Spring 2012	Special Topics: Knots and Polynomials	1
Fall 2011	Linear Algebra	22
Fall 2011	Geometry and Topology	13
Fall 2011	Graduate Seminar: Knot Theory	2
Fall 2011	Special Topics: CAT(0) Cube Complexes	
Spring 2011	Linear Algebra	30
Spring 2011	Algebraic Topology	10
Spring 2011	Special Topics: Discrete Groups	1
Fall 2010	Special Topics: Geometric Structures, LERF and Knot Theory	1
Spring 2010	Special Topics: Hyperbolic 3-manifolds	1
Spring 2010	Special Topics: Surface Diffeomorphisms	1
Fall 2009	Calculus II	32
Fall 2009	Abstract Algebra I	12
Fall 2009	Special Topics: Hyperbolic Geometry	1
Spring 2009	Calculus II	18
Spring 2009	Special Topics: Hyperbolic 3-manifolds	1
Fall 2008	Special Topics: Knots and 3-manifolds	1
Spring 2008	Topics in Geometry and Topology	8
Spring 2008	Special Topics	1
Fall 2007	Calculus II	25
Fall 2007	Geometry and Topology	9
Spring 2007	Linear Algebra	27

- Graduate Students Supervised: Jeffrey Carlson, Emily Stark, Heather Peirce.
- Summer Scholars Student: Samir Chowdhury.

Other teaching

- Mini-course Lecturer and member of Scientific Committee, 2008 Women in Mathematics Program. (Hyperbolic Geometry) Institute for Advanced Studies, Princeton N.J.
- Instructor at the University of Texas at Austin: Single and Multi-variable Calculus, Number Theory (Discovery Learning Style), Point-set topology (Discovery learning style), Individual reading course on “Knots, links and three-manifolds”, Graduate Topics Course: “Surfaces in three-manifolds”.
- Associate Instructor and Teaching Assistant at the University of California at Davis: Single and Multi-variable Calculus, Linear Algebra (TA), Topology (TA), Real Analysis (TA).

Service

- Organizing Committee, ICERM Semester Program: “Computation, Experiment, and Algorithms in Topology and Geometry” (and on the organizing committee for two conferences), planned for Fall 2013.
- Co-organizer of AMS Special Session: “Hyperbolicity in Manifolds and Groups”, Joint Meetings, Boston MA. 2012.
- Co-organizer of Geometric Group Theory and Topology Seminar, Tufts University: Spring 2007, Fall 2007. Organizer: Spring 2008, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012.
- Served on NSF grant-review panel.
- Administered Oral Exams in Geometry and Topology: Spring 2008, Fall 2008, Spring 2009, Spring 2011, Fall 2011, Spring 2012.
- Organizer for the Wiener lectures, Tufts University Fall 2008. Speaker: Jeff Weeks.
- Co-organizer of special AMS conference “Teichmüller Theory and Low-dimensional Topology”, Snowbird Utah June 2008.
- Co-organizer of Special Session “Geometric Topology/Geometric Group theory” at the 2007 Spring Topology and Dynamical Systems Conference, University of Missouri Rolla.
- Tufts Departmental Committees:
Graduate Committee, (2008-2009) (2009 - 2010) (2011-2012) (Spring 2013).
Curriculum Committee, (Spring 2007).
Hiring Committee, (2007-2008) (2009- 2010) (2012-2013). Chair, (2010-2011).
Thesis/Dissertation Committees: Maggie LaPlante (2007), Emily Grant (2008), Aaron Brown (2011).
- Tufts University Committees: Committee on Information Technology, (2007-2008) (2009-2010) (2010-2011) (2011-2012).
Library Committee, (2012-2013).
- VIGRE Graduate Management Team. 2004-2005, University of Texas at Austin.
- Referee for: **Algebraic and Geometric Topology**, **American Mathematical Monthly**, **Journal of the London Mathematical Society**, **Geometriae Dedicata**, **Geometry and Topology**, **Pacific Journal of Mathematics**.
- Reviewer for Mathematical Reviews (since 2003).
- Indexed *The Geometry and Topology of Three-Manifolds*, W. P. Thurston’s Princeton course notes.