

# Genevieve S. Walsh

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## Education and Degrees

- 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 of Women in Mathematics

## Awards and Fellowships

- NSF Research Grant (PI) 2008-2011, no-cost extension 2011- 2012.
- Bernstein Faculty Fellow. Tufts University, 2007-2009.
- NSF VIGRE Postdoctoral Fellowship. University of Texas at Austin, 2003-2006.
- VIGRE Graduate Fellow. University of California at Davis, 2002-2003.
- Dissertation Year Fellow. University of California at Davis, 2001-2002.

## 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

- *Knot commensurability and the Berge conjecture*. Joint with M. Boileau, S. Boyer, and R. Cebanu. to appear, **Geometry and Topology**. 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

- *The bumping set and the characteristic submanifold*.
- *Orbi-graphs and automorphism groups*. Joint with A. Piggott and K. Ruane.

## Conference Talks

- “Geometry and Topology Down Under: A Conference in Honor of Hyam Rubinstein”, Melbourne, Australia (July 2011).
- “Quasi-isometric rigidity in low-dimensional topology” 5-day workshop. Banff International Research Station (March 2010).
- “Interactions between Hyperbolic Geometry, Quantum Topology, and Number Theory Workshop and Conference. Columbia University, New York, NY. (4 lectures) (June 2009).

- Moab Topology Conference. Moab, Utah. (May 2009).
- Canada / France Congress. Special Session: “Low-dimensional topology”. Montreal, Canada. (June 2008).
- Teichmüller Theory and Kleinian Groups: “Connections for Women” Conference. MSRI, Berkeley, CA. (August 2007).
- Geometric Group Theory: “Connections for Women” Conference. MSRI, Berkeley, CA. (August 2007).
- “Three-manifold Geometry and Topology”. Warwick Mathematics Institute. Warwick, England. (July 2007).
- The 2nd William Rowan Hamilton Geometry and Topology Workshop, “Surface Groups in Low Dimensional Topology and Geometric Group Theory”. Dublin, Ireland. (September 2006).
- Institute for Advanced Study/ Park City Math Institute Workshop, “Low Dimensional Topology”. Park City, Utah. (July 2006).
- Conference on Low-dimensional Manifolds. Oberwolfach, Germany. (September 2005).
- “On Heegaard splittings of 3-manifolds” Conference. Technion, Haifa, Israel. (July 2005).
- Spring Topology and Dynamical Systems Conference. (Semi-Plenary Talk) Berry College. (March 2005).
- “Trends in three-manifolds” Conference. UQAM. Montreal, Canada. (May 2004).
- Spring Topology and Dynamical Systems Conference. (Special Session Talk) UAB. (March 2004).
- Texas Geometry and Topology Conference. Rice University. (Oct 2003).
- “Topology in and around dimension three” Conference. Banff, Canada. (Sept 2003).
- Georgia Topology Conference. University of Georgia. (June 2003).

### Invited Seminar Talks

- City University of New York Graduate Center (March 2011).
- Harvard University (October 2010)
- (May 2010) (November 2009).
- Boston College (September 2010) (Feb 2007).
- Yale University (April 2009).
- Wesleyan University (April 2009).
- Colby College (April 2009).
- University of Texas, Austin (March 2008).
- Williams College Colloquium (November 2007).
- SUNY Buffalo (April 2007).
- Columbia University (April 2007) (Nov 2003).
- Cornell University (April 2007).
- Brown University (March 2007).
- Brandeis University (Feb 2007).
- Michigan State University (2 Lectures) (Nov 2006).
- Cascade Topology Seminar, Portland State University (Oct 2006).
- McGill University (Oct 2006).
- Université du Québec à Montréal (Sept 2006).
- University of California at Santa Barbara (May 2006) (January 2004).
- Rice University (April 2006).
- University of British Columbia (December 2005).
- Washington University in St. Louis. (December 2004).
- University of California at Davis (November 2004).
- Tulane University (April 2004).
- Princeton University (Nov 2003).

## Math Society Meeting Talks

- American Math Society meetings: Worcester, Massachusetts. (April 2011). Newark, New Jersey. (May 2010). Albuquerque, NM. (April 2010) University of California at Santa Barbara. (April 2005). Vanderbilt University. (October 2004). Phoenix, Arizona. (January 2004). University of North Carolina at Chapel Hill. (October 2003).
- Other Math Society Meetings: Association of Women in Math Anniversary Conference. Brown University. (Sept 2011) Joint meeting of the American Mathematical Society and the Sociedad Matemática Mexicana (SMM). Zacatecas, Mexico. (May 2007). Joint Meeting of the Canadian Math Society and the Sociedad Matemática Mexicana (SMM). Guanajuato, Mexico. (September 2006). Canadian Math Society Meeting, Victoria, B. C. (December 2005).

## General Math Audience Talks

- Millican colloquium talk: “Which three-manifold is the universe?”, University of North Texas, May 2005.

## Teaching at Tufts University

- Honors Linear Algebra Math 54 (Spring 2012).
- Graduate Algebraic Topology Math 218 (Fall 2011).
- Linear Algebra Math 46 (Fall 2011) (Spring 2011) (Spring 2006).
- Undergraduate Algebraic Topology Math 168 (Spring 2011).
- Calculus II Math 12 (Spring 2012) (Fall 2009) (Spring 2009) (Fall 2007).
- Abstract Algebra I Math 145 (Fall 2009).
- Geometry and Topology Math 217 (Fall 2007).
- Algebraic Topology and Surface Theory Math 218 (Spring 2008).
- Special Topics Math 293 and/or Graduate Research Math 297 (Fall 2008 - Present).
- Graduate Students supervised: Jeffrey Carlson, Emily Stark.

## 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), 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, Topology, Real Analysis.

## Service

- Organizing Committee, ICERM Semester Program: “Computation, Experiment, and Algorithms in Topology and Geometry”, 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 - present.
- 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 and University Committees:
  - Member, Graduate Committee, (2008-2009) (2009 - 2010) (2011-2012).
  - Member, Undergraduate Mathematics Committee, (Spring 2007).
  - Member, Hiring Committee, (2007-2008), (2009- 2010) Chair, (2010-2011).
  - Member, Committee on Information Technology, (2007-2008) (2009-2010) (2010-2011) (2011-2012).
  - Member, Thesis Committees Maggie LaPlante (2007) Emily Grant (2008).
- Served on the 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.
- Indexed **The Geometry and Topology of Three-Manifolds**, W. P. Thurston’s Princeton course notes.