

# Jim Fowler

Curriculum Vitae

The Ohio State University ▪ Department of Mathematics  
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## Education

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University of Chicago 2003–2009  
Chicago, Illinois

M.S. in Mathematics, June 2005.

Ph.D. in Mathematics, June 2009.

Harvard University 1999–2003  
Cambridge, Massachusetts

A.B. in Mathematics, *summa cum laude*, June 2003.

Junior Phi Beta Kappa.

## Teaching

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University of Chicago, Directed Reading Program, Mentor 2004–2009

Mentored undergraduate projects on automatic groups, geometric group theory, combinatorial game theory, piecewise-linear topology, knot theory, stochastic processes.

University of Chicago, Polk Brothers Program 2005–2009

Taught middle school students in small groups and whole-classroom settings; assisted Chicago public school teachers with pedagogy and their study of mathematics.

University of Chicago, Lecturer Summer 2009

Mathematics 195: Mathematical Methods for Social Science.

University of Chicago, Graduate Student Lecturer 2005–2006

2008–2009

Mathematics 131–133: Elementary Functions and Calculus.

Mathematics 153: Calculus.

Mathematics 204–205: Inquiry-based learning (Moore method); analysis in  $\mathbb{R}^n$ .

University of Chicago, College Fellow 2004–2005

Mathematics 203–205: Analysis in  $\mathbb{R}^n$ .

University of Chicago, Research Experience for Undergraduates, Mentor Summer 2004

Summer 2006

Summer 2007

University of Chicago, Undergraduate Lie Theory Seminar Fall 2006

Canada/USA Mathcamp, Mentor Summer 2004

Summer 2005

Taught and mentored high school students in topics including piecewise-linear topology, quaternions, knots and links, game theory, projective geometry,  $p$ -adic numbers.

University of Chicago, Warm Up Program, Lecturer September 2005  
Lectured in a mini-course reviewing point-set topology for incoming graduate students.

Harvard University, Course Assistant 2000–2003  
Graded homework and ran weekly recitation sessions for multivariable calculus and linear algebra, representation theory, algebraic topology.

## Awards and Fellowships

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NSF Graduate Research Fellowship 2003–2008

McCormick Fellowship, University of Chicago 2003–2005

Palfrey Exhibition, Harvard University May 2003  
Awarded to the most distinguished scholar in the senior class holding a stipendiary scholarship.

Wister Prize, Harvard University May 2003  
Awarded to the student with the highest record in mathematics.

Robert Fletcher Rogers Prize, Harvard University May 2003  
Awarded to the two students who gave the best talks at the undergraduate mathematics table.

Certificate of Distinction in Teaching Fall 2000  
Derek Bok Center for Teaching and Learning

## Research interests

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I am interested broadly in topology and geometry; specifically, I study surgery theory, geometric group theory, and group actions on manifolds.

## Conference talks

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Rational Poincaré duality groups March 22–24, 2009  
Ferryfest  
University of Chicago

Lattices with torsion and rational homology manifolds September 8–12, 2008  
Topology of Stratified Spaces  
Mathematical Sciences Research Institute

## Other conferences attended

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Geometric Group Theory: Davis 60 June 14–20, 2009  
Bedlewo Mathematical Research and Conference Center

Singularities in Geometry and Topology Courant Institute of Mathematical Sciences	March 17–20, 2008
AMS Special Session on Geometric Topology Courant Institute of Mathematical Sciences	March 15–16, 2008
Topological and Geometric Rigidity Banff International Research Station	July 29–August 3, 2007
Problems in Geometric Group Theory American Institute of Mathematics	April 23–27, 2007
Nil Phenomena in Topology Vanderbilt University	April 14–15, 2007
Introductory Workshop on Computational Application of Algebraic Topology Mathematical Sciences Research Institute	September 5–8, 2006
Conference on Geometric Group Theory Centre de recherches mathématiques	July 3–14, 2006
Workshop on Group Actions and Rigidity University of Hawaii, Manoa	March 20–22, 2006
Ricci Flow, 3-manifolds, and Geometry Clay Mathematics Institute	June 20–July 15, 2005
Submanifolds, Singular Varieties and Stratified Spaces Courant Institute of Mathematical Sciences	March 13–16, 2005
Braids, Links, and Mapping Class Groups Columbia University	March 15–20, 2005
Conference on Low-dimensional topology University of Virginia	December 15–19, 2004

## Seminar talks

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Double suspensions of homology spheres Farb and Friends Student Seminar	May 20, 2008
The $\alpha$ -approximation theorem Farb and Friends Student Seminar	November 4, 2008
Quaternionic toric varieties Farb and Friends Student Seminar	April 4, 2008
Hyperbolization of polyhedra Farb and Friends Student Seminar	March 7, 2008
Classifying high-dimensional manifolds Farb and Friends Student Seminar	October 12, 2007

Wall's finiteness obstruction Algebraic topology proseminar	September 27, 2007
Introduction to Surgery Algebraic topology proseminar	May 29, 2007
PL-unknotting of codimension $\geq 3$ knots Farb and Friends Student Seminar	May 11, 2007
Building Aspherical Manifolds via Davis' Construction Farb and Friends Student Seminar	January 25, 2007
Approximating $L^2$ invariants by finite-dimensional analogues $L^2$ Seminar	November 22, 2006
Algebraic topology and distributed computing Applied algebraic topology seminar	November 2, 2006
The $h$ -cobordism theorem Shmuel's Student Seminar	March 7, 2005
Wall's finiteness obstruction Algebraic topology proseminar	November 23, 2004
2-adics and equidissections of squares Pizza Seminar	November 16, 2004
Introduction to characteristic classes Algebraic topology proseminar	October 19, 2004
Dissecting squares into equal-area triangles Harvard Mathematics Table	October 15, 2002
Bounding the volume of hyperbolic 3-manifolds Harvard Mathematics Table	October 23, 2001
Functions growing faster than any computable function Harvard Mathematics Table	December 12, 2000

## Professional activities and service

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University of Chicago, REU Organizer Organized undergraduate research groups; managed graduate student participants.	Summer 2009
University of Chicago, Directed Reading Program, Committee Member Paired undergraduates with graduate student mentors; organized undergraduate talks; designed database-driven website to monitor students' progress.	2006–2009
University of Chicago, Center for Teaching and Learning, Panelist Moderated a large-group discussion of teaching issues, including initial course design, midquarter course changes, assessment techniques, lecturing styles.	September 2007 September 2008