Curriculum Vitæ
Jennifer Taback

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Education

Ph.D. in Mathematics, The University of Chicago, Chicago, IL, June 1998.

M.A. in Mathematics, The University of Chicago, Chicago, IL, June 1994.

B.A. in Mathematics, Yale University, New Haven, CT, May 1993.

Employment History

Isaac Henry Wing Professor of Mathematics, Bowdoin College, 2021–present.

Chair, Department of Mathematics, Bowdoin College, 2020-present.

Professor of Mathematics, Bowdoin College, 2012–2021.

Research Adjunct, Center for Communications Research, La Jolla, CA, Summers: 2002, 2003, 2009, 2015–2019, 2021.

Associate Professor of Mathematics, Bowdoin College, 2007–2012.

Assistant Professor of Mathematics, Bowdoin College, 2004–2007.

Assistant Professor of Mathematics, University at Albany, 1999–2004.

Charles B. Morrey Assistant Professor, University of California-Berkeley, 1998–1999.

Grants and Awards

Simons Foundation

1. Collaboration Grant for Mathematicians, 2014–2021.

National Science Foundation

1. Research Grant DMS-1105407, 2011–2014.
2. Research Grant DMS-0604645, 2006–2009.
3. Research Grant DMS-0305441, 2003–2006.
4. International Collaboration Grant #0305545, joint with Sean Cleary (The City University of New York) and José Burillo (*Universitat Politecnica de Catalunya*), 2002–2004.

Bowdoin College

1. Faculty Leave Fellowship: 2018–2019, 2012–2013, 2006–2007.
2. Faculty Research Award: 2009–2010, 2006–2007.

Mellon Foundation

1. *Crossing Boundaries: Fostering communication and collaboration among algebraists, number theorists and topologists*, 2010–2011.
2. *Collaborative seminar in algebra and topology*, 2007–2008.

New York State/United University Professions

1. Individual Development Award, 2001, 2002.

Association of Women in Mathematics

1. Mentorship grant, mentor Linda Keen, City University of New York, 2002.
2. Travel grant, 2001.

Teaching Awards

1. Undergraduate teaching award, University of California-Berkeley, 1999.
2. Graves Memorial Lectureship Teaching Prize, The University of Chicago, 1998.

PUBLICATIONS, PREPRINTS AND BOOK CHAPTERS

1. Quasi-isometric rigidity of PSL(2,Z[1/p]), *Duke Math. Journal*, Vol. 101 No. 2 (2000), 335–357.

2. Equivalence of geometric and combinatorial Dehn functions (joint with Jose Burillo), *New York Journal of Mathematics*, Vol. 8 (2002), 169–179.

3. Bounding restricted rotation distance (joint with Sean Cleary), *Information Proc. Letters*, Vol. 88 No. 5 (2003), 251–256.

4. Geometric quasi-isometric embeddings into Thompson's group F (joint with Sean Cleary), *New York Journal of Mathematics*, Vol. 9 (2003), 141–148.

5. The Dehn function of PSL(2,Z[1/p]), *Geom. Dedicata*, Vol. 102 No. 1 (2003), 179–195.

6. Thompson's group F is not almost convex (joint with Sean Cleary), *J. Algebra*, Vol. 270 No. 1 (2004), 133–149.

7. Combinatorial properties of Thompson's group F (joint with Sean Cleary), *Trans. Amer. Math. Soc.*, Vol. 356 No. 7 (2004), 2825–2849.

8. The large scale geometry of some metabelian groups (joint with Kevin Whyte), *Michigan Math. Journal*, Vol. 52 No. 1 (2004), 205–218.

9. Dead end words in lamplighter groups and wreath products (joint with Sean Cleary), *The Quarterly Journal of Mathematics*, Vol. 56 No. 2 (2005), 165–178.

10. Seesaw words in Thompson's group F (joint with Sean Cleary), in Jose Burillo, Sean Cleary, Murray Elder, Jennifer Taback and Enric Ventura, editors, *Geometric Methods in Group Theory*, Contemp. Math., Vol. 372, Amer. Math. Soc. (2005), 147–160.

11. Metric properties of the lamplighter group as an automata group, (joint with Sean Cleary), in Jose Burillo, Sean Cleary, Murray Elder, Jennifer Taback and Enric Ventura, editors, *Geometric Methods in Group Theory*, Contemp. Math., Vol. 372, Amer. Math. Soc. (2005), 207–218.

12. *Geometric Methods in Group Theory*, Jose Burillo, Sean Cleary, Murray Elder, Jennifer Taback and Enric Ventura, editors, Contemp. Math., Vol. 371, Amer. Math. Soc., Providence, RI (2005).

13. Cone types and geodesic languages for lamplighter groups and Thompson's group F (joint with Sean Cleary and Murray Elder), *J. Algebra*, Vol. 303 No. 2 (2006), 476–500.

14. Surface Symmetries and $PSL_2(p)$ (joint with Murad Ozaydin and Charlotte Simmons), *Trans. Amer. Math. Soc.*, Vol. 359 (2007), 2243–2268.

15. Bounding right-arm rotation distances (joint with Sean Cleary), *Internat. J. Algebra Comput.*, Vol. 17 No. 2 (2007), 369–399.

16. Twisted conjugacy and quasi-isometry invariance for generalized solvable Baumslag-Solitar groups (joint with Peter Wong), *J. Lond. Math. Soc.* (2), Vol. 75 No. 3 (2007), 705–717.

17. Combinatorial properties of Thompson's group T (joint with Jose Burillo, Sean Cleary and Melanie Stein), *Trans. Amer. Math. Soc.*, Vol. 361 No. 2 (2009), 631–652.

18. Random subgroups of Thompson's group F (joint with Sean Cleary, Murray Elder and Andrew Reichnitzer), *Groups Geom. Dyn.*, Vol. 4 No. 1 (2010), 91–126.

19. The geometry of twisted conjugacy classes in wreath products (joint with Peter Wong), in Benson Farb and David Fisher, editors, *Geometry, Rigidity and Group Actions*, Chicago Lectures in Math., Univ. Chicago Press, Chicago, IL, (2011), 561-587.

20. A note on twisted conjugacy and generalized Baumslag-Solitar groups (joint with Peter Wong), preprint.

21. Computing word length in alternate presentations of Thompson's group F (joint with Melanie Stein), *Internat. J. Algebra Comput.*, Vol. 19 No. 8 (2009), 963–997.

22. A note on convexity properties of Thompson's group F (joint with Matthew Horak and Melanie Stein), *Journal of Group Theory*, Vol. 15 No. 1 (2012), 37–46, electronic.

23. Free Limits of Thompson's group F (joint with Azer Akhmedov and Melanie Stein) *Geometriae Dedicata*, Vol. 155 No. 1 (2012), 163–176.

24. Tame combing and almost convexity conditions (joint with Sean Cleary, Susan Hermiller and Melanie Stein), *Mathematische Zeitschrift*, Vol. 269 No. 3 (2011), 879–915.

25. Metric properties of Diestel-Leader groups (joint with Melanie Stein), *Michigan Math. J.*, Vol. 62 No. 2 (2013), 365–386.

26. $\mathcal{C}$-graph automatic groups (joint with Murray Elder), *J. Algebra*, 413 (2014), 289 –319.

27. Automorphisms of Diestel-Leader groups (joint with Melanie Stein and Peter Wong), *Internat. J. Algebra Comput.*, Vol. 25, No. 8 (2015), 1275–1299.

28. An Introduction to Lamplighter Groups, in M. Clay and D. Margalit, editors, *Office Hours with a Geometric Group Theorist*, Princeton University Press, Princeton, NJ (2017).

29. Bilipschitz versus quasi-isometric equivalence for higher rank lamplighter groups (joint with Tullia Dymarz and Irine Peng), *New York Journal of Mathematics*, Vol. 21 (2015), 129–150.

30. Tree based language complexity of Thompson's group F (joint with Sharif Younes), *Groups, Complexity, Cryptology*, Vol. 7 No. 2 (2015), 135–152.

31. Thompson's group F is 1-counter graph automatic (joint with Murray Elder), *Groups, Complexity, Cryptology*, Vol. 8 No. 1 (2016), 21–33.

32. Higher rank lamplighter groups are graph automatic (joint with Sophie Berube and Tara Palnitkar), *J. Algebra*, Vol. 496 (2018), 315–343.

33. Being Cayley automatic is closed under taking wreath produce with virtually cyclic groups (joint with Murray Elder and Dmitry Berkinsky), *Bulletin of the Australian Math. Soc*, Volume 104 , Issue 3 (2021), 464 – 474

34. Conjugation curvature in solvable Baumslag-Solitar groups (joint with Alden Walker), to appear in the *Journal of Topology and Analysis*.

35. A new proof of the growth rate of the solvable Baumslag-Solitar groups (joint with Alden Walker), to appear in *Geometriae Dedicata*.

36. On the geometry of Cayley automatic groups (joint with Murray Elder and Dmitry Berkinsky), to appear in the *International Journal of Algebra and Computation.*

37. Large scale seometry of Baumslag-Gersten groups and related graphs of groups (joint with Tullia Dymarz and Kevin Whyte), in preparation.

38. Groups with one commutator relator are biautomatic (joint with Robert Gilman), in preparation.

39–60. Twenty two papers, Center for Communications Research, La Jolla, CA.

INVITED ADDRESSES

Conferences, Main Speaker

1. Beyond Hyperbolicity, The Ohio State University, June 2021.
2. Geometric and Asymptotic Group Theory with Applications Conference, The City College of New York, May 2013.
3. Park City Mathematics Institute, Undergraduate Program Lecturer, July 2012.
4. Examples of Groups Conference, The Ohio State University, May 2011.
5. International Conference on Geometric and Combinatorial Methods in Group Theory and Semigroup Theory, University of Nebraska-Lincoln, May 2009.
6. Geometric and Asymptotic Group Theory with Applications, Stevens Institute of Technology, March 2009.
7. Second Conference for Women in Mathematics, The City University of New York, May 2008.
8. Introduction to Geometric Group Theory Workshop, Mathematical Sciences Research Institute, August 2007.
9. Asymptotic Subgroups in Groups Conference, Stevens Institute of Technology, January 2007.
10. Albany Group Theory Conference, Albany, NY: October 2004, October 2003, October 2001, October 1998.
11. Spring Topology Conference, The University of Utah, March 1999.
12. International Conference on Non-Positively Curved Geometry, Vanderbilt University, May 1998.

Colloquia: Claremont Colleges (2021); Dartmouth College (2018); Skidmore College (2013, 2000); Wesleyan University (2012); Colby College (2011, 2007); The University of Oklahoma (2001); Union College (2000); University at Albany (1999); California State University-Fresno (1998); Tufts University (1998)

Seminar Talks:

1. MAXIMALS Seminar, Heriot-Watt University, Edinburgh, Scotland: 2021
2. Geometric and Asymptotic Group Theory with Applications Conference, Special Session, June 2021.
3. New York Group Theory Seminar,The Graduate Center of the City University: 2019, 2014, 2013, 2011, 2007, 2006, 2004, 1999
4. Geometric Group Theory Seminar, Tufts University: 2018, 2015, 2014, 2011, 2009, 2007, 2006, 2003
5. Algebraic Cryptography Seminar, Stevens Institute of Technology: 2019, 2013
6. Topology Seminar, University at Albany: 2012
7. Topology Seminar, University of Wisconsin-Madison: 2012
8. Geometric Group Theory Seminar: The Ohio State University: 2009, 1998
9. Topology Seminar, University of Nebraska-Lincoln: 2021, 2008
10. Geometry and Topology Seminar, The University of Chicago: 2007, 2002
11. Seminar, Centre de Recerca Mathematica, Bellaterra, Spain: 2005.
12. Max Dehn Seminar, University of Utah, 2002
13. American Mathematical Society Conference Special Sessions: 2005, 2002
14. Geometry Seminar, University of Illinois at Chicago: 2001, 1997
15. Capital Region Algebra and Number Theory Seminar: 2000
16. Group Theory Seminar, University at Albany: 1999
17. Topology Seminar, University of California-Davis, 1998
18. Bowdoin-Bates-Colby Mathematics Seminar: 2017, 2005
19. Bowdoin College, Mathematics Department Seminar: 9 lectures
20. Bowdoin College, Christie Undergraduate Mathematics Seminar: 13 lectures

Professional Development:

1. Graduate Topology Conference, Georgia Tech: 2014, 2020, invited 2021
    - Ran sessions on writing a cover letter, writing a teaching statement, writing a diversity statement
2. Postdoc Topology Conference, Georgia Tech: 2020, invited 2021
    - Ran session on applying to undergraduate institutions

Administrative Experience

American Mathematical Society

1. *The Next Generation Fund* Fundraising Committee, Co-chair (with Kenneth Ribet and Robert Lazarsfeld), 2017–2019.
   The Campaign for the Next Generation raised an endowment of $3 million to support programs benefitting early career mathematicians, with the goal of increasing diversity within the discipline.
2. Executive Committee, Member, 2016–2018.
3. Council, Member, 2014–2018.
   The Council formulates and administers the scientific policies of the Society and acts in an advisory capacity to the Board of Trustees; fifteen elected members.
   The Executive Committee is a subcommittee of the Council and is empowered to act for the Council on certain matters; four elected members.
4. Eastern Sectional Program Committee, Chair, 2013–2014; Member, 2012-2014.
   The Eastern Sectional Program Committee selects invited speakers for regional meetings of the American Mathematical Society.

Bowdoin College

1. Chair, Department of Mathematics, 2020–present.
2. Committee on Educational Policy, Member, 2019–2021.
   Broad oversight of the curriculum, changes in academic policy and degree requirements.
3. Faculty Development Committee, Chair, 2013–2015; Member, 2015–2016.
   Organization and oversight of programs for faculty development; distribution of resources to support teaching and research; establishment of procedures and criteria for faculty awards.
4. Tenure and Reappointment Committees, Department of Mathematics, , Member, 2012–present.
   Evaluation of cases for reappointment and promotion; drafting official departmental promotion letters.
5. Hiring Committee, Department of Mathematics: Chair, 2017, 2020; Member, 2009, 2012, 2013, 2015, 2019.
   Hire new tenure track assistant professors; write job advertisements; interview and evaluate candidates.
6. Hiring Committee, Department of Anthropology and Sociology, *Ad hoc* member, 2014.
7. Harry Spindel Memorial Lectureship Committee: Co-chair, 2019 – present; Chair, 2014–2019; Member, 2003–present.
   Selection of an annual speaker in Jewish Studies; disbursement of the Harry Spindel endowed fund supporting the lecture.
8. Bowdoin Lectures and Concerts Committee, Chair, 2011–2012; Member 2010–2011.
   Award of funds to support lectures, concerts, exhibitions and other events relating to the academic and cultural life of Bowdoin College.
9. Clare Boothe Luce Foundation Grant, Director, 2010–2015.
   Administration of a multi-year grant from the Clare Boothe Luce Foundation supporting undergraduate women in STEM fields; design of the application process; selection of scholars; report to funding foundation.
10. Bowdoin College Math Circle, Director, 2016–present.
    Direction of an enrichment program for mathematically gifted middle school students.

Professional Service

Rebranding Committee of the American Mathematical Society, Member (with Kenneth Ribet and Robert Lazarsfeld), 2016–2017.
Other professional service with the American Mathematical Society is listed above under Administrative Experience.

Tenure Review Committee, External member, Bard College.

National Science Foundation, Reviewer for individual grant proposals.

Birkhauser Press, Reviewer.

National Security Agency, Reviewer for individual grant proposals.

Referee for *International Journal of Algebra and Computation*; *Geometriae Dedicata*; *Journal of Number Theory*; *Transactions of the American Mathematical Society*; *The New York Journal of Mathematics*; *Proceedings of the American Mathematical Society*.

Conferences and Sessions organized

Communicating Mathematics, Cornell University, August 2022, Co-organizers: Kathryn Mann, Emily Riehl.

No Boundaries: groups in algebra, geometry and topology, The University of Chicago, October 2017, Co-organizers: Tara Brendle, Daniel Margalit and Kevin Wortman.

American Mathematical Society Eastern Sectional Meeting, Bowdoin College, September 2016, Campus organizer.

American Mathematical Society Sectional Meetings, Special Sessions: Bowdoin College (2016); Wesleyan University (2008); University of New Hampshire (2006); Seville, Spain (2003); Northeastern University (2002).

Collaboration conference (Mellon Foundation grant), Bowdoin College, March 2011, Co-organizers: Thomas Pietraho, Scott Taylor and Peter Wong.

Fixed point theory and related topics, Bates College, April 2006, Co-organizer: Peter Wong.

AIM Workshop: Thompson's group at 40 years, American Institute of Mathematics, January 2004, Co-organizers: Sean Cleary, Steve Gersten and John Stallings.

Research Visiting Appointments

Oberwolfach Research Institute, Oberwolfach, Germany, June 2018.
Skidmore College, Saratoga Springs, NY, 2012–2013.
Bowdoin College, Brunswick, ME, 2002–2004.
The University of Utah, Salt Lake City, UT, 2002.

Mentoring and Outreach Activities

Increasing diversity in mathematics

1. *Conversations in Diversity.* I organized the *Conversations about Diversity in STEM Education* lecture series in 2016, funded by the Office of the Dean of Academic Affairs at Bowdoin College. Nationally recognized authorities shared their expertise with faculty and students.
2. *Diversity training by Romney and Associates.* Bowdoin College employed Romney and Associates to provide diversity training workshops for College hiring committees. I subsequently revised the hiring materials used by the Mathematics Department at Bowdoin College to evaluate job candidates.
3. *Teaching Seminar.* I continue to participate in the Bowdoin College Mathematics Department teaching seminar. Its main objective is assessing teaching strategies, with an emphasis on pedagogical techniques cognizant of students from diverse backgrounds.

Mentoring women in mathematics

1. *Clare Boothe Luce Foundation Grant.* I designed and directed the multi-year Clare Boothe Luce Scholars program at Bowdoin College, which supported undergraduate women pursuing extended research in STEM fields.
2. *Bowdoin Women in Math Club.* Under my supervision, Bowdoin students established a Women in Math Club with ties to the Association of Women in Mathematics. I continue to serve as faculty mentor.
3. *Mentorship of graduate students and junior faculty.* I continually mentor junior faculty and graduate students at Bowdoin College and other institutions, providing career and teaching advice, as well as job coaching.

Student Projects Supervised at Bowdoin College

1. Hanzhao Li, Honors project, 2017–18, *Convexity properties of higher rank lamplighter groups.*
2. Tara Palnitkar, Maine Space Grant Symposium Scholar, 2015, *Graph automaticity and Diestel-Leader groups.*
3. Sophie Berube, NSF Research Fellow, 2015, *Graph automaticity and Diestel-Leader groups.*
4. Peter Davids, NSF Research Fellow, 2013–2014, *Almost convexity of higher rank lamplighter groups* .

5. Sharif Younes, NSF Research Fellow, 2012–2013, *Cayley graph automaticity and Thompson's group F.*
6. Molly Ridley, Clare Boothe Luce Scholar, 2011–2012, *Explorations into subgroups of Thompson's group F.*
7. Christina Argueta, Honors Project, 2010–2011, *Constructing minimal length representatives for elements of Thompson's group F.*
8. Susanna Kimport, Honors Project, 2009–2010, *An algorithm for computing word length in Thompson's group F.*
9. Gregory Kelsey, Honors Project, 2004–2005, *Word Length in Alternative presentations for Thompson's group F.*
10. Micah Miller, Honors Project, 2003–2004, *Finding Minimal Length Representatives in Thompson's group F.*

Mathematical Outreach Programs

1. *Bowdoin Math Volunteers.* I founded a volunteer program for Bowdoin students to assist local elementary school teachers during their math period; over 50 students participate each semester.

2. *Elementary School Math Clubs.* I established math clubs and a math team at the local elementary school.

3. *Bowdoin College Math Circle.* I co-founded the Bowdoin College Math Circle, which I continue to direct and teach.