

August 16, 2014

## CURRICULUM VITÆ GREGORY R. CONNER

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Brigham Young University  
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### EDUCATION

University of Utah, Ph.D., 1989–1992,  
Dissertation Title: Metrics on Groups, Advisor: S.M. Gersten.  
University of Utah, M.S., 1987–1989  
Humboldt State University, B.A., 1983–1987

### RESEARCH INTERESTS

Geometric Topology, Algebraic Topology, Low-Dimensional Topology, Dynamical Systems, Self-Similar Structures, Geometric Group Theory, Combinatorial Group Theory, Computational Group Theory, Algebra, Combinatorics, Tournament Ranking

2000 Mathematics Subject Classifications:

57M05, 57M07, 57M60, 55Q05, 55Q07, 55Q52, 20F65, 20E05, 20E08, 20E18, 20F34, 05C25, 62F07, 65P15, 05C20, 97D60, 97C40

### PROFESSIONAL EXPERIENCE

Professor, Brigham Young University Mathematics Department, 2010–  
Research Coordinator, Brigham Young University Mathematics Department, 2010–  
Director of Graduate Studies, Brigham Young University Mathematics Department, 2006–2010  
Technology Coordinator, Brigham Young University Mathematics Department, 1998–  
Associate Professor with Continuing Status, Brigham Young University Mathematics Department, 2000–2010  
Assistant Professor, Brigham Young University Mathematics Department, 1992–2000  
Teaching Fellow, University of Utah Mathematics Department, 1989–1992  
Teaching Assistant, University of Utah Mathematics Department, 1987–1989

### STUDENT SUPERVISION

A total of 9 master's students and 2 Ph.D. students have graduated under my supervision. Of the 9 master's students, all but two have either gotten a Ph.D. or are currently enrolled

in a Ph.D. program. I am currently advising two master's students and one Ph.D. student. I have advised numerous undergraduate research projects.

## RECENT AWARDS

1. (2012-2017) Simons Foundation Grant
2. (2011-) (MEG) Mentored Environment Grant (BYU)
3. (2010-2011) Graduate Mentoring Award (BYU)
4. (2010) Awarded Fulbright Followup Grant
5. (2009) Received the *Distinguished Scholarship Award* from the BYU Department of Mathematics.
6. (2009) co-PI, NSF Grant for 2009 Moab Topology Conference.
7. (2007–2008) Fulbright Scholar (Slovenia), awarded by the US Department of State, Council for the International Exchange of Scholars and the Fulbright Foreign Scholarship Board.
8. (2007–2008) Awarded Ad Futura grant by the Ad Futura Foundation in Slovenia.

## RESEARCH

*For the convenience of our internal BYU mathematics department and college reviewers I have included departmental journal tier information in blue for recent research activity.*

Submitted in 2014 The following three articles have been submitted to Tier 1 journals and are in various stages of the refereeing process:

1. G. R. Conner, M. Meilstrup, D. Repovš, Fundamental groups of solenoid complements
2. Gregory R. Conner and Samuel M. Corson, The First Homology of Locally Connected Spaces
3. Gregory R. Conner and Jörg M. Thuswaldner, Self-Affine Manifolds

Accepted for publication in 2014

4. G. Conner, M. Mihalik, Commensurated subgroups, semistability and simple connectivity at infinity, to appear *Algebraic and Geometric Topology* ([Tier 1](#))
5. Gregory R. Conner, Wolfram Hojka, and Mark Meilstrup, Archipelago Groups, to appear *Proceedings of the American Mathematical Society* ([Tier 1](#))

Published in 2014

6. G. R. Conner, Wolfram Hojka, Ends of Iterated Function Systems, *Mathematische Zeitschrift* ([Tier 1](#)), 277 (2014), no. 3-4, 1073–1083.
7. G. R. Conner and C. Kent, Local topological properties of asymptotic cones of groups. *Algebraic and Geometric Topology* ([Tier 1](#)) 14 (2014), no. 3, 1413–1439.

Accepted for publication in 2013

8. G. Conner, T. Fisher, and J. Rodriguez Hertz, Cohomology for expanding hyperbolic attractors, *Discrete and Continuous Dynamical Systems-A* (DCDS-A) ([Tier 1](#))

#### PUBLICATIONS FROM PREVIOUS YEARS

9. Greg Conner and Michael Mihalik, Commensurated subgroups and ends of groups, *Journal of Group Theory*, Volume 16, Issue 1 (2013), Pages 107-139
10. Gregory R. Conner and Curtis Kent, Inverse limits of finite rank free groups. *Journal of Group Theory*, Volume 15, Issue 6, Pages 823-829. November 2012
11. G. R. Conner, C. P. Grant and M. H. Meilstrup, A Sharkovsky Theorem for non-locally connected spaces, *Discrete and Continuous Dynamical Systems-A* (DCDS-A), 32, No. 10, 3485-3499 (2012)
12. G. R. Conner, M. Meilstrup, Arc-reduced forms for Peano continua, *Topology and its Applications*, Volume 159, Issue 16, Pages 3538-3543 (2012)
13. G. R. Conner, M. Meilstrup, Deforestation of Peano continua and minimal deformation retracts, *Topology and its Applications*, Volume 159, Issue 15, 3253-3262 (2012)
14. G. R. Conner, C. P. Grant, B. Z. Webb, Resistance and Conductance in Structured Zermelo Tournaments, *Advances in Applied Mathematics*, 44 (2010), 37-52.
15. V. A. Newby, G. R. Conner, C. P. Grant and C. V. Bunderson, The Rasch Model and Additive Conjoint Measurement, *Journal of Applied Measurement* 10 (2009), 348-354.
16. G. R. Conner and C. P. Grant, Neighborhood monotonicity, the extended Zermelo model and symmetric knockout tournaments, *Discrete Mathematics* 309 (2009) 3998 – 4010.
17. G. Conner, M. Meilstrup, D. Repovš, A. Zastrow, M. Željko, On Small Homotopies of Loops, *Topology and its Applications* Volume 155, Issue 10 (2008) 1089—1097.
18. J. W. Cannon and G. R. Conner, The homotopy dimension of codiscrete subsets of the 2-sphere  $S^2$ , *Fundamenta Mathematicae*, 197 (2007), 35–66
19. G. R. Conner, M. Mihalik, S. Tschantz, Homotopy of Ends and Boundaries of CAT(0) Groups, *Geometriae Dedicata*, Volume 120, Number 1, June 2006, 1–17.
20. J. W. Cannon and G. R. Conner, On the fundamental groups of one-dimensional spaces, *Topology and its Applications*, Volume 153, Issue 14, (2006), 2648–2672.
21. G. R. Conner, J. Lamoreaux, On the existence of universal covering spaces for metric spaces and subsets of the Euclidean plane, *Fundamenta Mathematicae*, 187 (2005), 95–110.
22. G. R. Conner and K. Eda, Fundamental groups having the whole information of spaces, *Topology and its Applications* 146/147 (2005), 317–328.
23. G. R. Conner and K. Spencer, Anomalous Behaviors of the Hawaiian Earring Group, *J. Group Theory* 8 (2005), no. 2, 223–227

24. L. F. Bakker and G. R. Conner, Group Invariants of Flows, *Communications on Pure and Applied Analysis.*, June 2004, vol 3, no. 2, 183–195
25. G. R. Conner, Hanspeter Fischer, The fundamental group of a visual boundary versus the fundamental group at infinity, *Topology and its Applications* 129 (2003), no. 1, 73–78
26. G. R. Conner and K. Eda, Free subgroups of complete free products, *Journal of Algebra* 250 (2002), no. 2, 696–708.
27. J. W. Cannon, G. R. Conner and A. Zastrow, One-dimensional sets and planar sets are aspherical. In memory of T. Benny Rushing. *Topology and its Applications*, 120 (2002), no. 1-2, 23–45.
28. Gregory Conner, Michael Lundquist, A Geometric Interpretation of Cramer’s Rule, pages 107–108 in *Linear Algebra Gems: Assets for Undergraduate Mathematics, Notes Series Vol. 59*, Eds: David C. Lay, Charles R. Johnson, A. Duane Porter by Mathematical Association of America (2002)
29. G. R. Conner and C. P. Grant, An extension of Zermelo’s model for ranking by paired comparisons, *European Journal of Applied Mathematics*, (2000) vol. 11, pp. 225-247.
30. G. R. Conner, Translation numbers of groups acting geometrically on quasiconvex spaces, *Computational and Geometric Aspects of Modern Algebra*, vol. 275 in the London Mathematical Society Lecture Notes Series, Cambridge University Press, 28-38,(2000).
31. J. W. Cannon and G. R. Conner, The big fundamental group, big Hawaiian earrings, and the big free groups, *Topology and its Applications.* 106 (2000) 273-291.
32. J. W. Cannon and G. R. Conner, The combinatorial structure of the Hawaiian earring group, *Topology and its Applications.* 106 (2000) 225-271.
33. G. R. Conner, Properties of translation numbers in solvable groups, *Journal of Group Theory* **3** (2000), 77-94.
34. G. R. Conner, Properties of translation numbers in nilpotent groups, *Communications in Algebra*, 26(4), 1069–1080 (1998).
35. G. R. Conner, A class of finitely generated groups with irrational translation numbers, *Arch. Math.* 69 (1997), 265-274.
36. G. R. Conner and C. P. Grant, Asymptotics of blowup for a convection-diffusion equation with conservation, *Differential and Integral Equations*, **9** (4) (1996), 719–728.
37. G. R. Conner, Central extensions of word hyperbolic groups satisfy a quadratic isoperimetric inequality, *Arch. Math.* **65** (1995), 465–470.
38. G. R. Conner, Isoperimetric functions for central extensions, *Geometric Group Theory*, Eds.: Charney/Davis/Shapiro by Walter de Gruyter & Co., 73–77, (1995).

## RECENT TALKS GIVEN

In addition to regularly giving talks in the BYU mathematics department topology seminar, I give several talks per year at outside venues.

1. Manifolds and Fractal Tilings. University of Leoben Mathematics Seminar. June 25, 2013.
2. An introduction to wild topology. Graz University of Technology Advanced Topics Seminar (Geometry). June 28, 2013
3. Some open questions on fundamental groups of low-dimensional wild spaces. Special Session on Geometric, Combinatorial, and Computational Group Theory. AMS 2011 Fall Western Section Meeting, Salt Lake City, UT, October 23, 2011.
4. Some interesting open problems in low-dimensional wild topology. Workshop on Topology of Wild Spaces and Fractals, Strobl, Austria, July 8 2011.
5. Fundamental groups of solenoid complements, Topology seminar, Ljubljana Slovenia, June 2010.
6. Fundamental groups of wild spaces, Vienna Austria, Topology seminar, Vienna Austria, June 2010.
7. Some recent work and open problems in wild low-dimensional topology, Topology seminar, Ljubljana Slovenia, July 2009.
8. Fundamental groups of wild spaces, Workshop on Fractals and Tilings, Strobl Austria, July 2009.
9. Some recent work and open problems in wild low-dimensional topology, Mathematics colloquium, Brigham Young University, March 2009
10. Some recent work and open problems in wild low-dimensional topology, Topology seminar, Vanderbilt University Mathematics department, May 2008
11. Fundamental groups of locally complicated spaces – Part 2, Topology seminar, University of Tennessee, Knoxville, April 2008
12. A gentle introduction to fundamental groups of locally complicated spaces, Mathematics colloquium, University of Tennessee, Knoxville, April 2008
13. Some recent work and open problems in wild low-dimensional topology, Algebra Seminar, Technical University of Vienna, Austria, March 2008
14. Some recent work and open problems in wild low-dimensional topology, Topology Seminar, Universitat Autònoma de Barcelona, Spain, March 2008
15. A history of some unexpected examples in low dimensional topology, General public / College Colloquium (College of Mathematics, Physics and Computer Science), University of Ljubljana, February 2008
16. Shape theory and wild homotopy groups in low-dimensional topology, Zagreb Topology Seminar, University of Zagreb, February 2008
17. Applications of the notion of shape to fundamental groups, Geometric Topology Seminar, University of Ljubljana, January 2008

18. Constructions and open questions on wild fundamental groups of low-dimensional spaces, Semiannual Ljubljana-Zagreb Topology Seminar, University of Ljubljana, Ljubljana Slovenia, December 2007.
19. Some remarks on infinite braid groups, Dubrovnik VI Geometric Topology Conference, Dubrovnik Croatia, October 2007.
20. Fundamental groups of complicated low-dimensional spaces, Seminar, University of Siena, Siena Italy, October 2007.
21. Fundamental groups of complicated low-dimensional spaces, Topology Seminar, University of Toulouse, Toulouse France, October 2007.
22. Wild Braid Groups and Mapping Class Groups, Dubrovnik Satellite Conference, University of Ljubljana, Ljubljana Slovenia, September 2007.
23. Some results relating low-dimensional wild homology and homotopy groups, Geometric Topology Seminar, University of Ljubljana, Ljubljana Slovenia, March 2007.
24. Some recent work and open problems in wild low-dimensional topology, Oregon State University, Topology Seminar, June 6, 2006 .
25. Some Open problems in wild low-dimensional topology, Workshop in Geometric Topology, Oregon State University, June 4, 2006
26. Some recent work and open problems in wild low-dimensional topology, University of California at Santa Barbara Topology Seminar, April 21 2006
27. Some recent work and open problems in wild low-dimensional topology, University of California at Los Angeles Topology Seminar, April 19 2006
28. Homotopy invariants of low-dimensional spaces, University of Gdansk Mathematics Department Colloquium, July 11, 2005, Gdansk Poland.
29. Homotopy invariants in low-dimensional spaces, International Conference and Workshops on Geometric Topology– The Borsuk Centennial Conference, Plenary Talk, July 8, 2005, The Mathematical Research and Conference Center, Bedlewo, Poland.
30. Homotopy invariants of one-dimensional spaces, University of Ljubljana Mathematics Department Colloquium, June 23 2005, Ljubljana Slovenia.
31. Homotopy invariants of low dimensional spaces, Spring Topology Conference, Berry College, March 18 2005, Mount Berry, Georgia, USA.

## CONFERENCES ORGANIZED

1. *1994-2013 Wasatch Topology Conference* – Over the last 17 years M. Bestvina and I, with help from others (such as Misha Kapovich and recently Ken Bromberg, Kevin Wortman, Jessica Purcell and Eric Swenson) have organized 30-something meetings of the Wasatch Topology Conference. (<http://www.math.utah.edu/wtc/>)
2. *Workshop on Topology of Wild Spaces and Fractals July 4 – 8, 2011, Strobl (Austria)* – I co-organized this conference, along with Thuswaldner and Dorfer, which was funded by the Austrian government. ([http://dmg.tuwien.ac.at/nfn/wild\\_top/index.html](http://dmg.tuwien.ac.at/nfn/wild_top/index.html))

3. *2009 Moab Topology Conference*– I was co-organizer and co-PI on the NSF grant (along with Jessica Purcell and Jim Cannon) for this conference which was held in May 2009. There were 43 mathematicians in attendance with 15 talks and 3 mini-classes over the course of 3 days. Our current intention is to make this a triennial event.
4. Co-organized the geometric topology special session of the *2007 Spring Topology Conference*, University of Missouri, Rolla, Rolla Missouri, April 2007.
5. *March 1999, 1999 Spring Topology Conference – Salt Lake City*, with M. Bestvina, M. Kapovich, and B. Kleiner (University of Utah) coorganizers.

The Spring Topology Conference, one of the major topology conferences, is held each year at a different venue. We received a National Science Foundation grant to organize the 1999 meeting.

The Wasatch Topology Conference is held twice a year in Park City, Utah. The conference is funded by the National Science Foundation, the University of Utah and Brigham Young University. World-class topologists speak at each at meeting and researchers from all over the US and overseas attend.