

January 11, 2023

CURRICULUM VITÆ GREGORY R. CONNER

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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, Persistent Homology, Applied Topology, Topological Data Analysis, 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–
Director of Graduate Studies, Brigham Young University Mathematics Department, 2006–2010
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 14 master's students and 5 Ph.D. students have graduated under my supervision. I am currently supervising 2 Ph.D. students. Of the 14 master's students, 10 have gone on to earn a Ph.D. I have also advised many undergraduate research projects.

RECENT AWARDS

1. (2017) Received the *Distinguished Mentoring Award* from the BYU Department of Mathematics.
2. (2014) Received the *Distinguished Scholarship Award* from the BYU Department of Mathematics.
3. (2012-2018) Simons Foundation Grant
4. (2011-) (MEG) Mentored Environment Grant (BYU)
5. (2010-2011) Graduate Mentoring Award (BYU)
6. (2010) Awarded Fulbright Followup Grant
7. (2009) Received the *Distinguished Scholarship Award* from the BYU Department of Mathematics.
8. (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.
9. (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 research activity for the last several years.

Submitted

1. Inverse limits of covering spaces, Gregory R. Conner, Wolfgang Herfort, Curtis Kent and Petar Pavešić (submitted 2022)

Accepted for publication

2. Inverse limit slender groups, Gregory R. Conner, Wolfgang Herfort, Curtis Kent and Petar Pavešić, *Fundamenta Mathematicae* (accepted December 2022) ([Tier 1](#))

Published

1. Gregory R. Conner, Curtis Kent, Peano dimension of fundamental groups, *Topology and its Applications*, 308 (2022), Paper No. 108002, 14 pp. <https://doi.org/10.1016/j.topol.2022.108002> ([Tier 2](#))
2. Gregory R. Conner, Wolfgang Herfort, Curtis Kent and Petar Pavešić, Generating the inverse limit of free groups, *Journal of Algebra* (Elsevier), Volume 578, 371-401 (2021), <https://doi.org/10.1016/j.jalgebra.2021.02.017> ([Tier 1](#))
3. Gregory R. Conner, Wolfgang Herfort, Curtis Kent and Petar Pavešić, Uncountable groups and the geometry of inverse limits of coverings, *Topology and its Applications* (Elsevier) 300 (2021), Paper No. 107769, 22 pp. <https://doi.org/10.1016/j.topol.2021.107769>, ([Tier 2](#))
4. Gregory R. Conner, Wolfgang Herfort and Petar Pavešić, Geometry of Compact Lifting Spaces, *Monatshefte für Mathematik* (Springer), Volume 193 issue 3, 591-603 (2020), <https://doi.org/10.1007/s00605-020-01460-1> ([Tier 2](#))
5. Gregory Conner and Curtis Kent, Fundamental Groups of Locally Connected subsets of the plane, *Advances in Mathematics*, Volume 347 (2019), 384-407 ([Tier 1](#))
6. Gregory R. Conner and Samuel M. Corson, A Note on Automatic Continuity, *Proceedings of the American Mathematical Society*, Volume 147, Number 3, (March 2019) Pages 1255-1268 ([Tier 1](#))
7. Gregory R. Conner, Wolfgang Herfort, Curtis Kent and Petar Pavešić, Recognizing the second derived subgroup of free groups, *Journal of Algebra*, Volume 516, (15 December 2018), Pages 396–400 ([Tier 1](#))
8. Gregory R. Conner, Wolfgang Herfort and Petar Pavešić, Some Anomalous Examples of Lifting Spaces, *Topology and its Applications*, Volume 239, (15 April 2018), Pages 234–243 ([Tier 2](#))

9. Gregory R. Conner and Samuel M. Corson, The First Homology of Locally Connected Spaces, *Fundamenta Mathematicae* 232 (2016), 41-48 ([Tier 1](#))
10. Gregory R. Conner and Jörg M. Thuswaldner, Self-Affine Manifolds, *Advances in Mathematics* 289 (2016) 725-783 ([Tier 1](#))
11. Gregory R. Conner, Wolfram Hojka, and Mark Meilstrup, Archipelago Groups, *Proceedings of the American Mathematical Society* 143 (2016), 4973-4988 ([Tier 1](#))
12. G. R. Conner, M. Meilstrup, D. Repovš, Fundamental groups of solenoid complements, *Journal of Knot Theory and its Ramifications* 24, 1550069 (2015) [20 pages] DOI: <http://dx.doi.org/10.1142/S0218216515500698> ([Tier 2](#))
13. G. R. Conner, Wolfram Hojka, Ends of Iterated Function Systems, *Mathematische Zeitschrift*, 277 (2014), no. 3-4, 1073–1083. ([Tier 1](#))
14. G. R. Conner and C. Kent, Local topological properties of asymptotic cones of groups. *Algebraic & Geometric Topology* 14 (2014), no. 3, 1413–1439. ([Tier 1](#))
15. G. Conner, M. Mihalik, Commensurated subgroups, semistability and simple connectivity at infinity, *Algebraic & Geometric Topology* 14 (2014) no 6. 3509–3532 ([Tier 1](#))
16. Greg Conner and Michael Mihalik, Commensurated subgroups and ends of groups, *Journal of Group Theory* , Volume 16, Issue 1 (2013), Pages 107-139
17. Gregory R. Conner and Curtis Kent, Inverse limits of finite rank free groups. *Journal of Group Theory*, Volume 15, Issue 6 (November 2012) Pages 823-829.
18. 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)
19. G. R. Conner, M. Meilstrup, Arc-reduced forms for Peano continua, *Topology and its Applications*, Volume 159, Issue 16, Pages 3538-3543 (2012)
20. G. R. Conner, M. Meilstrup, Deforestation of Peano continua and minimal deformation retracts, *Topology and its Applications*, Volume 159, Issue 15, 3253-3262 (2012)
21. G. R. Conner, C. P. Grant, B. Z. Webb, Resistance and Conductance in Structured Zermelo Tournaments, *Advances in Applied Mathematics*, 44 (2010), 37-52.
22. 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.
23. G. R. Conner and C. P. Grant, Neighborhood monotonicity, the extended Zermelo model and symmetric knockout tournaments, *Discrete Mathematics* 309 (2009) 3998 – 4010.
24. 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.
25. 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
26. 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.

27. 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.
28. 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.
29. G. R. Conner and K. Eda, Fundamental groups having the whole information of spaces, *Topology and its Applications* 146/147 (2005), 317–328.
30. G. R. Conner and K. Spencer, Anomalous Behaviors of the Hawaiian Earring Group, *J. Group Theory* 8 (2005), no. 2, 223–227
31. 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
32. 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
33. G. R. Conner and K. Eda, Free subgroups of complete free products, *Journal of Algebra* 250 (2002), no. 2, 696–708.
34. 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.
35. 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)
36. 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.
37. 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).
38. 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.
39. J. W. Cannon and G. R. Conner, The combinatorial structure of the Hawaiian earring group, *Topology and its Applications*. 106 (2000) 225-271.
40. G. R. Conner, Properties of translation numbers in solvable groups, *Journal of Group Theory* **3** (2000), 77-94.
41. G. R. Conner, Properties of translation numbers in nilpotent groups, *Communications in Algebra*, 26(4), 1069–1080 (1998).
42. G. R. Conner, A class of finitely generated groups with irrational translation numbers, *Arch. Math.* 69 (1997), 265-274.
43. G. R. Conner and C. P. Grant, Asymptotics of blowup for a convection-diffusion equa-

- tion with conservation, *Differential and Integral Equations*, **9** (4) (1996), 719–728.
44. G. R. Conner, Central extensions of word hyperbolic groups satisfy a quadratic isoperimetric inequality, *Arch. Math.* **65** (1995), 465–470.
 45. 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. Some interesting open problems in wild geometric group theory, 2019 Arches Topology Conference, April 2019
2. Wild Geometric Group Theory, Topology Seminar, University of Ljubljana, October 2018
3. Wild Geometric Group Theory, Topology/Geometry seminar, Technical University of Vienna, October 2018
4. Wild Geometric Group Theory, Topology Seminar, Universidad Autónoma de Madrid, October 2018
5. Wild Geometric Group Theory, Topology Seminar, Universitat Politècnica de Catalunya, October 2018
6. Wild Low Dimensional Topology, Arches Topology Conference, Moab Utah, May 2018
7. Introduction to Homology, Seminar, Sandia National Labs, July 2017
8. Introduction to Topology, Seminar, Sandia National Labs, May 2017
9. Locally Complicated Spaces, Mathematics Colloquium, Sun Yat-sen University, Guangzhou China, April 2017
10. Locally Complicated Spaces, Mathematics Colloquium, South China University of Technology, Guangzhou China, April 2017
11. Locally Complicated Spaces, Mathematics Colloquium at the Southern University of Science and Technology, Shenzhen China, April 2017
12. Locally Complicated Spaces, Mathematics Colloquium at the Chinese University of Hong Kong, March 2017
13. Locally Complicated Spaces, Topology Seminar, University of Tsukuba, March 2017
14. Locally Complicated Spaces, 10th Waseda Geometric Topology Meeting, March 2017
15. Introduction to Wild Topology I, Waseda University, March 2017
16. Introduction to Wild Topology II, Waseda University, March 2017
17. Introduction to Wild Topology III, Waseda University, March 2017
18. Locally Complicated Spaces, Monash University Topology Seminar, February 2017
19. Locally Complicated Spaces, University of Sydney Geometry and Topology Seminar, February 2017

20. Locally Complicated Spaces, University of Canterbury, Mathematics Seminar, February 2017
21. Locally Complicated Spaces, University of Auckland Topology Seminar, January 2017
22. Locally Complicated Spaces, University of Florida Topology Seminar, January 2017
23. Wild Topology, Group Theory and a conjecture in Number Theory, Indian Institute of Science Bangalore Mathematics Colloquium March 2016
24. Wild Topology, Group Theory and a conjecture in Number Theory, Indian Institute of Science Education and Research Mohali Mathematics Colloquium, February 2016
25. Wild Topology, Group Theory and a conjecture in Number Theory, Indian Institute of Technology Bombay Seminar, February 2016
26. Topology and Number Theory, Marathwada University Mathematics Colloquium, February 2016
27. Wild Topology, Group Theory and a conjecture in Number Theory, Tata Institute of Fundamental Research Colloquium, February 2016
28. Some notes on discontinuous homomorphisms, Technical University of Vienna Topology Seminar, June 2015
29. Some notes on discontinuous homomorphisms, University of Ljubljana Topology Seminar, June 2015
30. Some notes on discontinuous homomorphisms, University of Leoben Mathematics Colloquium, June 2015
31. Manifolds and Fractal Tilings. University of Leoben Mathematics Colloquium. June 25, 2013.
32. An introduction to wild topology. Graz University of Technology Advanced Topics Seminar (Geometry). June 28, 2013
33. 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.
34. Some interesting open problems in low-dimensional wild topology. Workshop on Topology of Wild Spaces and Fractals, Strobl, Austria, July 8 2011.
35. Fundamental groups of solenoid complements, Topology seminar, Ljubljana Slovenia, June 2010.
36. Fundamental groups of wild spaces, Vienna Austria, Topology seminar, Vienna Austria, June 2010.
37. Some recent work and open problems in wild low-dimensional topology, Topology seminar, Ljubljana Slovenia, July 2009.
38. Fundamental groups of wild spaces, Workshop on Fractals and Tilings, Strobl Austria, July 2009.
39. Some recent work and open problems in wild low-dimensional topology, Mathematics colloquium, Brigham Young University, March 2009

40. Some recent work and open problems in wild low-dimensional topology, Topology seminar, Vanderbilt University Mathematics department, May 2008
41. Fundamental groups of locally complicated spaces – Part 2, Topology seminar, University of Tennessee, Knoxville, April 2008
42. A gentle introduction to fundamental groups of locally complicated spaces, Mathematics colloquium, University of Tennessee, Knoxville, April 2008
43. Some recent work and open problems in wild low-dimensional topology, Algebra Seminar, Technical University of Vienna, Austria, March 2008
44. Some recent work and open problems in wild low-dimensional topology, Topology Seminar, Universitat Autònoma de Barcelona, Spain, March 2008
45. 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
46. Shape theory and wild homotopy groups in low-dimensional topology, Zagreb Topology Seminar, University of Zagreb, February 2008
47. Applications of the notion of shape to fundamental groups, Geometric Topology Seminar, University of Ljubljana, January 2008
48. Constructions and open questions on wild fundamental groups of low-dimensional spaces, Semiannual Ljubljana-Zagreb Topology Seminar, University of Ljubljana, Ljubljana Slovenia, December 2007.
49. Some remarks on infinite braid groups, Dubrovnik VI Geometric Topology Conference, Dubrovnik Croatia, October 2007.
50. Fundamental groups of complicated low-dimensional spaces, Seminar, University of Siena, Siena Italy, October 2007.
51. Fundamental groups of complicated low-dimensional spaces, Topology Seminar, University of Toulouse, Toulouse France, October 2007.
52. Wild Braid Groups and Mapping Class Groups, Dubrovnik Satellite Conference, University of Ljubljana, Ljubljana Slovenia, September 2007.
53. Some results relating low-dimensional wild homology and homotopy groups, Geometric Topology Seminar, University of Ljubljana, Ljubljana Slovenia, March 2007.
54. Some recent work and open problems in wild low-dimensional topology, Oregon State University, Topology Seminar, June 6, 2006 .
55. Some Open problems in wild low-dimensional topology, Workshop in Geometric Topology, Oregon State University, June 4, 2006
56. Some recent work and open problems in wild low-dimensional topology, University of California at Santa Barbara Topology Seminar, April 21 2006
57. Some recent work and open problems in wild low-dimensional topology, University of California at Los Angeles Topology Seminar, April 19 2006
58. Homotopy invariants of low-dimensional spaces, University of Gdansk Mathematics Department Colloquium, July 11, 2005, Gdansk Poland.

59. 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.
60. Homotopy invariants of one-dimensional spaces, University of Ljubljana Mathematics Department Colloquium, June 23 2005, Ljubljana Slovenia.
61. Homotopy invariants of low dimensional spaces, Spring Topology Conference, Berry College, March 18 2005, Mount Berry, Georgia, USA.

CONFERENCES ORGANIZED

1. *1994-2022 Wasatch Topology Conference* – In 1994 Mladen Bestvina and I co-organized the first WTC. Over the years a host of others have co-organized the conference with us. Currently Ken Bromberg, Kevin Wortman, Eric Swenson, and Curtis Kent are co-organizers. The 2022 meeting was held in Park City in August.
2. *2019 Arches Topology Conference* with Jeremy Brazas and Curt Kent. This was the second iteration of a regularly scheduled conference. See description section below. (<https://math.byu.edu/~curtkent/arches/2019.html>)
3. *2018 Arches Topology Conference* with Curt Kent. This was the first iteration of a yearly conference. See description section below. (<https://math.byu.edu/~curtkent/arches/2018.html>)
Meeting once or twice a year, there have been 30-something meetings of the Wasatch Topology Conference. (<http://www.math.utah.edu/wtc/>)
4. *Workshop on Topology of Wild Spaces and Fractals July 4, 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)
5. *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.
6. Co-organized the geometric topology special session of the *2007 Spring Topology Conference*, University of Missouri, Rolla, Rolla Missouri, April 2007.
7. *March 1999, 1999 Spring Topology Conference – Salt Lake City*, with M. Bestvina, M. Kapovich, and B. Kleiner (University of Utah) coorganizers.

The Arches Topology Conference is a topology conference which is held once a year in either Moab or Zions National Park Utah (temporarily put on hold because of Covid). The 2018 meeting was in Moab and was funded by the BYU math department. The 2019 meeting was held near Zions National Park and was funded by the NSF.

The Wasatch Topology Conference is held once or twice a year in Park City (or in nearby Midway), 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 world.