Jon McCammond

Curriculum Vitae updated July 2025

Contact Information

Department of Mathematics
University of California Santa Barbara
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Research Interests

Geometric group theory, discrete geometry and combinatorics, exceptional mathematics

Education

B.A. Mathematics, Bethel College, North Newton, Kansas, 1988
B.S. Physics, Bethel College, North Newton, Kansas, 1988
B.A. German, Bethel College, North Newton, Kansas, 1988
Ph.D. Mathematics, University of California, Berkeley, 1991

Dissertation

Title: "The word problem for Burnside semigroups: a positive solution for $a \geq 6$"
Committee members: John Rhodes (chair), John Stallings, Latif Zadeh

Professional Employment

Instructor, Chabot College, Hayward, California, 1991-1997
Visiting Assistant Professor, Texas A&M University, 1997-1999
Assistant Professor, Texas A&M University, 1999-2002
Assistant Professor, UC Santa Barbara, 2002-2004
Associate Professor, UC Santa Barbara, 2004-2006
Full Professor, UC Santa Barbara, 2006-present

Visiting Positions

- Université de Bourgogne, Dijon, France, June 2005
- Mathematical Sciences Research Institute (MSRI), Berkeley, California, Fall 2007
- Korea Advanced Institute of Science and Technology (KAIST), Daejon, South Korea, September 2011
- Universität Bielefeld, Bielefeld, Germany, June 2015

Publications

1. "The word problem for Burnside semigroups: a positive solution for $a \geq 6$", Dissertation, University of California, Berkeley, 1991.
2. "The Solution to the Word Problem for the Relatively Free Semigroups Satisfying $T^a = T^{a+b}$ with $a \geq 6$," *International Journal of Algebra and Computation* **1** (1991), pp. 1–32.
3. "Gaps in Categories," in J. Rhodes, editor, *Monoids and Semigroups with Applications*, pp. 83–85. World Scientific, Singapore, 1991.
4. "Gaps Between Connected Finite Graphs" (with R. Baldinger), *International Journal of Algebra and Computation* **2** (1992), pp. 19–32.
5. "Gaps in the Categories of Finite Directed and Finite Transitive Graphs" (with R. Baldinger), *International Journal of Algebra and Computation* **8** (1998), pp. 35–60.
6. "The Burnside Groups and Small Cancellation Theory," in C.M.Campbell et.al., editors, *Groups St Andrews 1997 in Bath, II*, vol. **261** LMS Lecture Notes Series, Cambridge University Press, 1999, pp. 538–559.

7. "Integrating Polynomials in Secant and Tangent,"*American Mathematical Monthly*, **106**, (1999), 856–859.

8. "A General Small Cancellation Theory," *International Journal of Algebra and Computation*, **10** (2000), pp. 1–172.

9. "Three-generator Artin groups of large type are biautomatic," (with T. Brady) *Journal of Pure and Applied Algebra*, **151** (2000), pp. 1–9.

10. "Normal forms for free aperiodic semigroups," *International Journal of Algebra and Computation*, **11** (2001) pp.581–625.

11. "The pure symmetric automorphisms of a free group form a duality group," (with N. Brady, J. Meier, A. Miller) *Journal of Algebra* **246** (2001) 881–896.

12. "Fans and ladders in small cancellation theory," (with D. Wise) *Proceedings of the London Mathematical Society* **84** (2002), no. 3, 599–644.

13. "Curvature testing in 3-dimensional metric polyhedral complexes," (with M. Elder) *Experimental Mathematics* **11** (2002), no. 1, 143–158.

14. "Rigidity of Coxeter groups and Artin groups" (with N. Brady, B. Muehlherr, and W. Neumann) *Geometriae Dedicata* **94** (2002), no. 1, 91–109.

15. "Combinatorial conditions that imply word-hyperbolicity for 3-manifolds" (with M. Elder and J. Meier) *Topology* **42** (2003), no. 6, 1241–1259.

16. "Local-to-asymptotic topology for cocompact CAT(0) complexes" (with N. Brady and J. Meier) *Topology and its Applications* **131** (2003), no. 2, 177–188.

17. "Bounding edge degrees in triangulated 3-manifolds," (with N. Brady and J. Meier) *Proceedings of the American Mathematical Society* **132** (2004), no. 1, 291–298.

18. "The hypertree poset and the ℓ^2-Betti numbers of the motion group of the trivial link," (with J. Meier) *Mathematische Annalen* **328** (2004), no. 4, 633-652.

19. "CAT(0) is algorithmic," (with M. Elder) *Geometriae Dedicata* **107** (2004), no. 1, 25–46.

20. "Coherence, local quasiconvexity, and the perimeter of 2-complexes," (with D. Wise) *Geometric and Functional Analysis* **15** (2005), 859–927.

21. "Non-commutative Groebner bases for the commutator ideal," (with S. Hermiller) *International Journal of Algebra and Computation* **16** (2006), 187–202.

22. "Noncrossing partitions in surprising locations," *American Mathematical Monthly* **113** (2006) 598–610.

23. "The length spectrum of a compact constant curvature complex is discrete," (with N. Brady) *Geometriae Dedicata* **119** (2006) 159–167.

24. "The integral cohomology of the group of loops" (with C. Jensen and J. Meier) *Geometry and Topology* **10** (2006), 759–784.

25. "h-vectors of generalized associahedra and noncrossing partitions" (with C. Athanasiadis, T. Brady and C. Watt) *International Mathematics Research Notices*, (2006), Article ID

69705, 1–28. (electronic)

26. "The Euler characteristic of the Whitehead automorphism group of a free product," (with C. Jensen and J. Meier) *Transactions of the American Mathematical Society*, **359** (2007), 2577–2595.

27. "Locally quasiconvex small cancellation groups" (with D. Wise) *Transactions of the American Mathematical Society*, **360** (2008), 237–271.

28. "Order independence in asynchronous cellular automata" (with M. Macauley and H. Mortveit) *Journal of Cellular Automata* **3** (2008), 37–56.

29. "Constructing non-positively curved spaces and groups" in *Geometric and cohomological methods in group theory*, London Mathematical Society Lecture Note Series **358** (2009), 162–224.

30. "Geometric presentations for pure braid group" (with Dan Margalit), *Journal of Knot Theory and its Ramifications* **18** (2009), 1–20.

31. "Braids, posets and orthoschemes" (with T. Brady) *Algebraic and Geometric Topology* **10** (2010), 2277–2314.

32. "Windmills and extreme 2-cells" (with D. Wise) *Illinois Journal of Mathematics* **54** (2010), 69–87.

33. "Combinatorial descriptions of multi-vertex 2-complexes" *Illinois Journal of Mathematics* **54** (2010), 137–154.

34. "Dynamics groups of asynchronous cellular automata" (with M. Macauley and H. Mortveit) *Journal of Algebraic Combinatorics* **33** (2011), 11–35.

35. "Bounding reflection length in an affine Coxeter group" (with T. Kyle Petersen) *Journal of Algebraic Combinatorics* **34** (2011) 711–719.

36. "Triangles, squares and geodesics" (with Rena Levitt), *International Journal of Algebra and Computation* **22** (2012), 34 pages.

37. "Artin groups of euclidean type" (with Robert Sulway), *Mathematisches Forschungsinstitut Oberwolfach Report* **49** (2012) 2964–2966.

38. "Factoring euclidean isometries" (with N. Brady) *International Journal of Algebra and Computation* **25** (2015), 325–347.

39. "Dual euclidean Artin groups and the failure of the lattice property" *Journal of Algebra* **437** (2015), 308–343.

40. "The BNS-invariant for the pure braid groups" (with N. Koban and J. Meier), *Groups, geometry and dynamics*, **9** (2015), 665–682.

41. "Braid groups and euclidean simplices" (with E. Leyton Chisholm) in *Configuration Spaces: Geometry, Topology and Representation Theory*, Springer-INDAM series (2016), 291–311.

42. "The structure of euclidean Artin groups" in *Geometric and cohomological group theory*, London Mathematical Society Lecture Note Series, Cambridge University Press (2017),

82–114.

43. "Artin groups of euclidean type" (with R. Sulway), *Inventiones Mathematicae* **210** (2017), 231–282.

44. "The mysterious geometry of Artin groups", in *Winter Braids Lecture Notes*, **4** (2017),1–30.

45. "Undesired parking spaces and contractible pieces of the noncrossing partition link" (with M. Dougherty), *Electronic Journal of Combinatorics* (2018), 1–13.

46. "Computing reflection length in an affine Coxeter group" (with J. Lewis, T.K. Petersen, and P. Schwer), *Proceedings of the 30th International Conference on Formal Power Series and Algebraic Combinatorics, Séminaire Lotharingien de Combinatoire* **80B.51** (2018), 12pp. (extended abstract)

47. "Computing reflection length in an affine Coxeter group" (with J. Lewis, T.K. Petersen, and P. Schwer), *Transactions of the American Math. Soc.*, **371**, (2019), 4097–4127.

48. "Boundary braids" (with M. Dougherty and S. Witzel), *Algebraic and Geometric Topology*, **20-7**, (2020), 33505–3560.

49. "Critical points, critical values and a determinant identity for complex polynomials" (with M. Dougherty), *Proceedings of the Amer. Math. Society* **148**, (2020), 5277–5289.

50. "A complex reflection group with a non-positively curved complement complex" (with B.Coté), *Groups, Geometry and Dynamics*, **15**, (2021), 989–1013.

51. "Tits alternative for groups acting properly on 2-dimensional recurrent complexes" (D.Osajda and P.Przytycki with an appendix by J.McCammond, D. Osajda and P.Przytycki), *Advances in Mathematics*, **391**, (2021), 1–22.

52. "Geometric combinatorics of polynomials I: the case of a single polynomial" (with M. Dougherty), *Journal of Algebra*, **607**, (2022), 106–138.

53. "Connectivity at infinity for the braid group of a complete bipartite graph" (with K. Mazur, J. Meier and R. Rohatgi), *Rocky Mountain J. of Mathematics*, **52(2)**, (2022), 667-686.

54. "Factoring isometries of quadratic spaces into reflections" (with G. Paolini), *Journal of Algebra*, **605**, (2022), 226-252.

55. "Fixed points of parking functions" (with H. Thomas and N. Williams), *Transactions of the Amer. Math. Society*, **377**, (2024), 1807–1849.

56. "Minicourse: Artin Groups", 1 page exteneded abstract in *MFO Report No. 4/2024*, *Mini-Workshop: Artin Groups and Triangulated Categories*, page 8, 2024.

57. "Polynomials and the Dual Braid Complex", (with M. Dougherty), 3 page extended abstract in *MFO Report No. 4/2024*, *Mini-Workshop: Artin Groups and Triangulated Categories*, 27-29, 2024.

58. "Dual braids and the braid arrangement", in *Geometric methods in group theory - papers dedicated to Ruth Charney*, 159–177, Seminars and Congresses, Société Mathématique de

France, 2025.

SUBMITTED

59. "Geometric combinatorics of polynomials II: polynomials and cell structures" (with M. Dougherty), preprint 2024, 82 pages.

60. "Continuous Noncrossing Partitions and Weighted Circular Factorizations", (with M. Dougherty), preprint 2025, 30 pages.

PREPRINTS AND OTHER WRITINGS

- "Noncrossing hypertrees", 53 pages.
- "The infinite cyclohedron and its automorphism group," (with A. Fossas Tenas), 18 pages.
- "Curvature and computation" (expository), 10 pages.
- "The exceptional symmetry" (short note), 8 pages.
- "Geometric semigroup theory" (with J.Rhodes and B.Steinberg), 66 pages.
- "The 0/1-Borsuk conjecture is generically true for each fied diameter" (with G.Ziegler), 8 pages.

SHORT COURSES

1. "Constructing nonpositively curved spaces and groups", 4 hour talks, LMS Durham Symposium on geometry and cohomology in group theory, Durham, England, July 2003
2. "The geometry of groups defined geometrically", 4 hour talks, Workshop on geometric methods in group theory, Fields Institute, Ottawa, Canada, August 2006
3. "Coxeter groups and Artin groups", 4 hour talks, Centre international de rencontres mathématiques (CIRM), Luminy, France, February 2007
4. "Coxeter groups", 15 hour talks, Korea Advanced Institute of Science and Technology (KAIST), Daejon, South Korea, September 2011
5. "Euclidean Artin groups", 2 hour talks, LMS–EPSRC Durham Symposium on geometric and cohomological group theory, Durham, England, August 2013
6. "The mysterious geometry of Artin groups", 3 hour short course, Winter Braids 2017, University of Normandy, Caen, France, February 2017
7. "Braid groups and nonpositive curvature", 3 hour mini-course, Nonpositively curved groups and spaces, Regensburg, Germany, September 2017
8. "Braid groups and nonpositive curvature", 7 hour short course, Simons Semester on Geometric and Analytic Group Theory, Warsaw, Poland, April 2019
9. "Finding Reflection Factorizations", 3 hour virtual minicourse, The dual approach to Coxeter and Artin groups; Garside theory and applications, Summer School, Berlin, Germany, August 2021
10. "Minicourse: Artin Groups", 2 hour minicourse, Mini-Workshop on Artin Groups and Triangulated Categories, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, January 2024
11. "The geometric combinatorics of polynomials and braids", 2 hour mini-course, On the Dual Approach and Non-crossing Partitions, Bielefeld, Germany, September 2025

INVITED RESEARCH PRESENTATIONS

1. "The solution of the word problem for the Burnside semigroups," Marquette Symposium on Semigroup Theory and Its Applications, Marquette University, March 1991
2. "General versions of small cancellation theory," Topology Festival, Cornell University, May 1998
3. "Extending Stallings' algorithm to 2-complexes," AMS-IMS-SIAM Joint Summer Research Conference on Geometric Group Theory and Computer Science, Mt. Holyoke College, July 1998

4. "Curvature and quasiconvexity in geometric group theory, II: quasiconvexity," Wasatch Topology Conference, Park City, Utah, August 1999
5. "Curvature and quasiconvexity in geometric group theory, I: curvature," Wasatch Topology Conference, Park City, Utah, August 1999
6. "The curvature of posets associated to the braid groups," International Conference on Geometric and Combinatorial Methods in Groups and Semigroups, Lincoln, Nebraska, May 2000
7. "Calculating the curvature of concrete complexes," SUNY-Albany Topology and Group Theory conference, Albany, New York, Oct 2000
8. "Algorithmic aspects of nonpositive curvature," CRM Groups and Low-dimensional topology conference, Montreal, Canada, July 2001
9. "A new class of nonpositively-curved 3-manifolds," Spring topology conference, Austin, Texas, March 2002
10. "A geometric approach to semigroup theory," AMS-UMI Joint meeting in Pisa, Italy, June 2002
11. "A geometric approach to semigroup theory," International Conference on Semigroups and Groups, Porto, Portugal, June 2002
12. "The role of curvature in combinatorics," Conference on topological and geometric combinatorics, Mathematisches Forschungsinstitut Oberwohlfach, Oberwohlfach, Germany, April 2003
13. "Finding parking when not commuting," Workshop in Geometric Topology, Park City, Utah, June 2003
14. "Expansions of semigroups," International meeting on Semigroup Theory and Related Topics, Braga, Portugal, June 2003
15. "Noncrossing partitions for arbitrary Coxeter groups," Institute for Advanced Studies / Park City Mathematics Institute on Geometric Combinatorics, Park City, Utah, July 2004
16. "The integral cohomology of the group of loops and a conjecture of Brownstein and Lee," Sixth UCB-UCSB Algebra Day, June 2005
17. "Artin groups and polytopes" Wasatch topology conference, Park City, Utah, June 2005
18. "Coxeter groups and Artin groups in geometric group theory," Flavors of Groups, Banff Workshop, Banff, Canada, November 2005
19. "Pulling apart orthogonal groups to find continuous braids," Conference on Geometric Group Theory, Centre de recherches mathématiques, Montreal, Canada, July 2006
20. "The Intrinsic Geometry of Groups," *Modern Mathematics: An Introduction to 2007-08 Programs at MSRI*, SACNAS conference, Tampa, Florida, October 2006
21. "Instability in Triangle-Square Complexes," Topics in geometric group theory conference: CAT(0) cubical and systolic complexes, Mathematical Research and Conference Center, Bedlewo, Poland, June 2007
22. "Instability in Triangle-Square Complexes", Introductory conference, geoemtric group theory program, Mathematical Sciences Research Institute, Berkeley, California, October 2007
23. "Points in the plane and loops in space", Bay Area Discrete Math Day (BAD Math), Google, Inc., Mountainview, California, October 2007
24. "Pulling apart orthogonal groups to find continuous braids", Deux journées de théorie géométriques des groupes à Orsay, Paris, France, December 2007
25. "Small type Coxeter groups acting on hyperbolic space", Spring Topology and Dynamics conference, geometric group theory session, Gainsville, Florida, March 2009

26. "Braids, posets and orthoschemes", AMS Special session on geometric group thoery, Western sectional meeting, San Francisco, California, April 2009
27. "Braid groups and buildings", Geometric and combinatorial methods in groups and semigroups, Lincoln, Nebraska, May 2009
28. "Braid groups and buildings", Hamilton Geoemtry and Topology Workshop on Computational and Algorithmic Geometry, Dublin, Ireland, September 2009
29. "Pulling apart orthogonal groups to find continuous braids", Southern California Algebra Conference, UCLA, Los Angeles, California, December 2009
30. "Braid groups and buildings", New directions in geometric group theory Brisbane, Australia, December 2009
31. "Pulling apart orthogonal groups to find continuous braids", California Lie theory workshop, Santa Barbara, California, March 2010
32. "Braid groups and buildings", London Mathematical Society Workshop on Geometry, Analysis and Logic of Groups, Newcastle upon Tyne, England, April 2010
33. "Posets and curvature", 22nd International Conference on Formal Power Series and Algebraic Combinatorics, San Francisco, California, August 2010
34. "Hyperbolic Coxeter groups and their finite simple cousins", Workshop on Geometric Group Theory, Goa, India (ICM Satellite), August 2010
35. "Hyperbolic Coxeter groups and their finite simple cousins", *AMS Special session on topology and combinatorics*, Eastern sectional meeting, Syracuse, New York, October 2010
36. "Factoring euclidean isometries", AMS Special session on Geometric Group Theory and Dynamics, Western sectional meeting, Las Vegas, Nevada, April 2011
37. "Dual euclidean Artin groups", Geometric group theory conference, the Technion, Haifa, Israel, June 2011
38. "Artin groups of Euclidean type", Conference on Théorie de Garside; état de l'art et perspectives, Université de Picardie-Jules Verne, Cap Hornu, France, May 2012
39. "Artin groups of Euclidean type", Mini-Workshop on Cohomology Rings and Fundamental Groups of Hyperplane Arrangements, Wonderful Compactifications, and Real Toric Varieties, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, October 2012
40. "The structure of euclidean Artin groups", Geometric groups on the gulf, Pensacola, Florida, March 2014
41. "The structure of euclidean Artin groups", Conference of configuration spaces: geometry, topology and representation theory, Cortona, Italy, September 2014
42. "What we know and don't know about Artin groups", Computation in Geometry Group Theory, Edinburgh, U.K.
43. "The intrinsic geometry of dual braid groups", Journée d'algebrá, in honor of Patrick Dehornoy, February 2017
44. "The intrinsic geometry of the dual braid complex: an unexpected connection between noncrossing partitions and associahedra", Algebraic and Geometric Combinatorics of Reflection Groups, CRM Montréal, Canada, May 2017
45. "Boundary braids and the dual braid complex", Topological and Homological Methods in Group Theory 2018, University of Bielefeld, Bielefeld, Germany, June 2018
46. "Computing reflection length in an affine Coxeter group", Complex reflection groups and their braid groups, University of Normandy, Caen, France, June 2018
47. "Boundary braids and the dual braid complex", Geometric and Asymptotic Group Theory with Applications (GAGTA) 2018, Korea Institute for Advanced Study (KIAS), Seoul, South Korea July 2018

48. "The intrinsic noncrossing combinatorics of polynomials with distinct roots", Flags, galleries and reflection groups, University of Sydney, Sydney, Australia, August 2019
49. "Dual braids in the complex braid arrangement complement", Perspectives on Artin groups, International Centre for Mathematical Sciences (ICMS), virtual conference, Edinburgh, Scotland, May 2021
50. "Dual braids and the braid arrangement", Artin groups, CAT(0) geometry and related topics, Columbus, Ohio, July 2021
51. "Dual braids and the braid arrangement", Braids and beyond, conference in memory of Patrick Dehornoy, Caen, France, hybrid, September 2021
52. "Dual braids and the braid arrangement", Institute for Computational and Experimental Research in Mathematics (ICERM), Providence Rhode Island, February 2022
53. "Dual braid and the braid arrangement", Arrangements in Ticino: geometry, algebra and their applications, Ticino, Switzerland, July 2022
54. "Combinatorial approaches to Artin groups", Workshop on the geometry and topology of Artin groups, American Institute of Mathematics (AIM), Pasadena, California, September 2023
55. "Polynomials and the Dual Braid Complex", Mini-Workshop: Arin Groups and Triangulated Categories, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, January 2024
56. "Noncrossing partitions and dual cell structures on hyperplane complement", Arin Groups and Arrangements: Topology, Geometry and Combinatorics, Hot Topics Workshop, Simons-Laufer Mathematical Sciences Institute, Berkeley, California, March 2024
57. "An Artin Group Family Reunion", Integral Structures in Geometry and Representation Theory, Paderborn, Germany, September 2024
58. "Reflection Groups Beyond Coxeter Groups", Geometry and Topology of Polyhedral Complexes (DavisFest), Columbus, Ohio, May 2025
59. "The Dynamics of Coxeter Elements", Artin groups, Braids and mapping class groups:Celebrating the work of Luis Paris, Cáceres, Spain, June 2025

Other invited presentations

1. "The tea-kettle on the table by the stove: a talk in honor of Dr. Arnold M. Wedel," Bethel College Fall Festival, October 1997
2. "From Differential Geometry to Word Hyperbolic Groups: A combinatorial approach to an analytic concept," Mathematics Graduate Student Organization, Texas A&M University, October 1998
3. "Roots, ratios, and Ramanujan," Pi Mu Epsilon, Texas University, April 2001
4. "Metric trees in topology, geometry, and group theory," Workshop in Linear Analysis and Probability, College Station, Texas, August 2001
5. "From Differential Geometry to Word Hyperbolic Groups: A combinatorial model of an analytic concept", Survey talk, University of California, Santa Barbara, October, 2002
6. "Non-crossing partitions in surprising locations," Eastern Pennsylvania and Delaware Section of the MAA, November 2004
7. "Square dancing in the pure braid group," Putnam reunion, Bethel College, Kansas, March 2005
8. "Regular polytopes are everywhere," Graduate student colloquium, University of California, Santa Barbara, September 2006
9. "Mission Impossible: learning what cannot be done," Sigma Xi lecture, Lafayette College, Easton, Pennsylvania, September 2006
10. "Keeping your research program active," *Project Next panel discussion*, Joint Math Meet-

ings, New Orleans, Louisiana, January 2007
11. "Roots, Ratios and Ramanujan," Sigma Xi Invited Lecture, Southern Oregon University, Ashland, Oregon, May 2007
12. "Using Curvature to average trees," Kieval Lecture Series Talks, Southern Oregon University, Ashland, Oregon, May 2007
13. "Non-crossing partitions in surprising locations," Kieval Lecture Series Talks, Southern Oregon University, Ashland, Oregon, May 2007
14. "Roots, ratios and Ramanujan", Southern California-Nevada sectional meeting of the American Mathematical Society, Anaheim, California, October 2007
15. "Roots, ratios and Ramanujan", California Mathematics Council Community Colleges South, Anaheim, California, March 2008
16. "Repetition and Insight", Inaugural Frank S. Brenneman Lecture Series, Tabor College, Hillsboro, Kansas, April 2009
17. "Symmetry and Abstraction", Inaugural Frank S. Brenneman Lecture Series, Tabor College, Hillsboro, Kansas, April 2009
18. "Repetition and Insight: roots, ratios and Ramanujan", Undergraduate mathematics seminar, Bowdoin College, Brunswick, Maine, May 2009
19. "Repetition and Insight: roots, ratios and Ramanujan", Undergraduate mathematics seminar, Colby College, Waterville, Maine, May 2009
20. "Regular polytopes and Coxeter groups", REU Colloquium, University of California Santa Barbara, Santa Barbara, California, June 2011
21. "Repetition and Insight", REU Colloquium, University of California Santa Barbara, Santa Barbara, California, June 2012
22. "The geometry of Coxeter groups and Artin groups", *Geometric groups on the gulf*, Pensacola, Florida, March 2014
23. "Symmetry and abstraction", UCSB Spring Insight, University of California Santa Barbara, Santa Barbara, California, April 2014
24. "Repetition and Insight", Honor's week speaker, Northern Arizona University, Flagstaff, Arizona, April 2015
25. "Partitions, polytopes and Catalan combinatorics", Keynote speaker, Graduate student combinatorics conference, Clemson, South Carolina, April 2016
26. "Repetition and Insight: roots, ratios and Ramanujan", Euler Circle, virtual talk, June 2025

Conference presentations

1. "A general small cancellation theory approach to the Burnside groups," SUNY-Albany Topology and Group Theory Conference, Albany, October 1996
2. "Torus knots and Artin groups of large type," London Sussex Southampton Topology Conference and Geometric Group Theory Workshop, University of Southampton, July 1997
3. "Small cancellation theory and the Burnside groups," Groups St. Andrews 1997 in Bath, University of Bath, August 1997
4. "Torus knots and Artin groups of large type," SUNY-Albany Topology and Group Theory Conference, Albany, New York, October 1997
5. "Coherence of groups and the perimeter of 2-complexes," International conference on algorithmic problems in groups and semigroups, University of Nebraska-Lincoln, May 1998
6. "Coherence of groups and the perimeter of 2-complexes," International conference on nonpositive curvature in group theory, topology, and geometry, Vanderbilt University,

May 1998

7. "The perimeter of 2-complexes and the coherence of groups," Computational and Geometric Aspects of Modern Algebra, Heriot-Watt University, Edinburgh, Scotland, July 1998
8. "Biautomaticity of various Artin groups," SUNY-Albany Topology and Group Theory Conference, Albany, New York, October 1998
9. "The coherence and quasiconvexity of Coxeter groups," Special session on combinatorial topology, Joint Math Meetings, San Antonio, January 1999
10. "Fans, ladders, and the coherence of groups," Geometric groups on the gulf conference, Mobile, Alabama, May 1999
11. "Fans, ladders, and the coherence of groups," Symposium on computation in group theory and geometry, Warwick, England, July 1999
12. "The curvature of posets associated to the braid groups," International conference on geometric and combinatorial group theory, Haifa, Israel, June 2000
13. "An algorithm to detect a nonpositively-curved metric simplical complex," Special session on geometric group theory, New Orleans, Louisiana, January 2001
14. "Algorithmic aspects of nonpositive curvature," AMS-SMF Joint Meeting, Special session on geometric group theory, Lyon, France, July 2001
15. "Cube complexes for groups and manifolds," AMS special session on geometric and combinatorial group theory, Montreal, Canada, May 2002
16. "Cube complexes for groups and manifolds," AMS special session on geometry and topology, Salt Lake City, Utah, October 2002
17. "Hypertrees, the pure symmetric automorphism groups, and their ℓ^2-Betti numbers," Wasatch topology conference, Park City, Utah, June 2002
18. "Existence of CAT(0) structures for finite-type Artin groups," RSME-AMS Joint Meeting, Special session on geometric methods in group theory, Seville, Spain, June 2003
19. "Garside structures for free groups (and other Artin groups)," Special session on geometric group theory, AMS Sectional Meeting, Binghamton, New York, October 2003
20. "Hypertrees and the l^2 betti numbers of the pure symmetric automorphism groups", AMS Special session on Asymptotic aspects of group theory, Athens, Ohio, March 2004
21. "Garside structures for (some more) Artin groups", Conference on geometric group theory , Bedlewo, Poland, April 2004
22. "Non-crossing partitions for arbitrary Coxeter groups", Institute for Advanced Studies / Park City Mathematics Institute on Geometric Combinatorics, Park City, Utah, July 2004
23. "An introduction to Garside structures," *American Institute of Mathematics*, conference on braid groups, clusters and free probability, Palo Alto, California, January 2005
24. "Square dancing in the pure braid groups", *AMS Special session on curvature in group theory and combinatorics*, Santa Barbara, April 2005
25. "Artin groups in a continuous context," *AMS Special session on Geometric Methods in Group Theory and Semigroup Theory*, Lincoln, Nebraska, October 2005
26. "Möbius inversion and combinatorial curvature", *AMS Special session on geometric combinatorics*, Cinncinnati, Ohio, October 2006
27. "Dual presentations for Artin groups," *AMS Special session on geometric group theory*, Joint Math Meetings, New Orleans, Louisiana, January 2007
28. "Bounding reflection length in an affine Coxeter group", *AMS Special session on algebraic combinatorics*, Western sectional meeting, March 2012

Colloquia

1. "From differential geometry to word hyperbolic groups: a combinatorial approach to an analytic idea," Special Colloquium, University of Kentucky, Lexington, Kentucky, February 1998
2. "Roots, ratios, and Ramanujan," Lafayette College, Easton, Penn., October 1998
3. "From differential geometry to word hyperbolic groups: a combinatorial approach to an analytic idea," Graduate Student Colloquium, Texas A & M University, October 1998
4. "Constructing compact cores in negatively-curved 3-manifolds", Rice University, December 1998
5. "Constructing compact cores in negatively-curved 3-manifolds", State University of New York, Binghamton, February 1999
6. "Constructing compact cores in negatively-curved 3-manifolds", University of California, Davis, January 1999
7. "General versions of small cancellation theory", Texas A&M Univerisity, January 1999
8. "Calculating curvatures of concrete complexes", Vanderbilt University, September 2000
9. "Calculating curvatures of concrete complexes", Karcher Colloquium, University of Oklahoma, October 2000
10. "Calculating curvatures of concrete complexes", Unversity of Texas, December 2000
11. "Algorithmic aspects of curvature", University of California, Santa Barbara, March 2002
12. "Constructing non-positively curved spaces and groups", California Polytechnic State University, San Luis Obispo, May 2004
13. "Artin groups and polytopes," Equipe Algebre-Géométrie-Topologie, Université de Bourgogne, Dijon, France, June 2005
14. "From Coxeter to Artin and his braids", San Francisco State University, San Francisco, California, October 2007
15. "Reflections and braids", Claremont Colleges Mathematics Colloquium, Claremont, California, February 2012
16. "The mysterious geometry of Artin groups", virtual talk, Institute for Research in Fundamental Sciences (IPM), Isfahan, Iran, April 2024

Seminar Talks

1. "Small cancellation theory and the Burnside groups I" Topics in Automata Theory, University of California, Berkeley, Spring 1995
2. "Small cancellation theory and the Burnside groups II" Topics in Automata Theory, University of California, Berkeley, Spring 1995
3. "General small cancellation theory and the Burnside groups I," Geometric Group Theory Seminar, University of California, Berkeley, Spring 1995
4. "General small cancellation theory and the Burnside groups II," Geometric Group Theory Seminar, University of California, Berkeley, Spring 1995
5. "General small cancellation theory and the Burnside groups III," Geometric Group Theory Seminar, University of California, Berkeley, Spring 1995

6 "Small cancellation theory and the Burnside groups," Algebra Seminar, San Jose State University, April 1996

7. "A general small cancellation theory approach to the Burnside groups," Geometric Group Theory Seminar, University of California, Berkeley, California, October 1996
8. "Artin groups of large type," Geometric Group Theory Seminar, University of California, Berkeley, California, March 1997
9. "Braid groups, torus knots and Artin groups of large type," Topology Seminar, University of Texas, Austin, Texas, November 1997
10. "The perimeter of 2-complexes and the coherence of groups," Topology Seminar, Univer-

sity of Michigan, Ann Arbor, Michigan, February 1998

11. "General versions of small cancellation theory," Topology Seminar, The Ohio State University, Columbus, Ohio, February 1998
12. "The geometry and topology of Artin groups and braid groups," Topology Seminar, Rutgers University, Newark, New Jersey, October 1998
13. "The perimeter of 2-complexes and the coherence of groups," Topology Seminar, University of California, Santa Barbara, November 1998
14. "The combinatorial Gauss-Bonnet theorem and the consequences of curvature in group theory," Group theory seminar, University of Nebraska, Lincoln, April 1999
15. "An asymptotically sharp theorem about the coherence and local quasiconvexity of 2-complexes," Topology Seminar, University of Texas, Austin, November 1999
16. "The perimeter of 2-complexes and the coherence of groups," Topology Seminar, University of Porto, Porto, Portugal, November 1999
17. "Normal forms for free aperiodic groups," Semigroup seminar, University of Porto, Porto, Portugal, November 1999
18. "Rigidity of Coxeter groups," Topology seminar, Vanderbilt University, Nashville, September 2000
19. "Calculating the curvature of concrete complexes," Topology seminar, State University of New York, Binghamton, October 2000
20. "Rigidity of Coxeter groups," Topology seminar, University of Oklahoma, Norman, October 2000
21. "Rigidity of Coxeter groups," Magnus group theory seminar, CUNY-graduate center, New York, February 2001
22. "Rigidity of Coxeter groups," Topology seminar, Rice University, Houston, February 2001
23. "Rigidity of Coxeter groups," Topology seminar, The Ohio State University, Columbus, Ohio, April 2001
24. "Calculating the curvature of concrete complexes," Topology seminar, The Ohio State University, Columbus, Ohio, April 2001
25. "Algorithmic aspects of nonpositive curvature," Group theory seminar, University of Illinois, Champagne-Urbana, Illinois, November 2001
26. "Calculating curvatures in concrete complexes," Topology seminar, Cal Tech, Pasadena, California, March 2002
27. "Garside structures for free groups (and other Artin groups)," Topology seminar, Columbia University, New York, New York, October 2003
28. "The role of curvature in combintorics," Combinatorics seminar, M.I.T., Boston, Massachusetts, October 2003
29. "Garside-like structures for arbitrary Artin groups," Magnus group theory seminar, CUNY-graduate center, New York, November 2004
30. "Artin groups and polytopes," Geometry and Topology seminar, Cal Tech, Pasadena, California, May 2005
31. "Noncrossing partitions in surprising locations," Séminiaire Général, Université de Bourgogne, Dijon, France, June 2005
32. "Pulling apart orthogonal groups to find continuous braids," Geometry/Topology Seminar, University of Chicago, Chicago, Illinois, March 2006
33. "Pulling apart orthogonal groups to find continuous braids," Claremont Topology Seminar, Pomona, California, March 2007
34. "Pulling apart orthogonal groups", Colby-Bates-Bowdoin mathematics seminar, Bowdoin College, Brunswick, Maine, May 2009

35. "Regular polytopes and Coxeter combinatorics", UCLA Combinatorics seminar, Los Angeles, California, March 2011
36. "Artin groups of euclidean type", Brigham Young University Topology Seminar, December 2011
37. "Artin groups of euclidean type", New York Group Theory Seminar, CUNY Graduate Center, New York, April 2013
38. "The intrinsic geometry of groups", Algebra-Combinatorics-Geometry-Topology seminar, Northern Arizona University, Flagstaff, Arizona, April 2015
39. "Braid groups and nonpositive curvature", Geometry, groups and topology seminar, Karlsruhe Institute of Technology, Karlsruhe, Germany
40. "Reflection dynamics on Euclidean Coxeter groups I", Geometry and Analysis on Groups seminar, University of Vienna, Vienna, Austria, May 2019
41. "Reflection dynamics on Euclidean Coxeter groups II", Geometry and Analysis on Groups seminar, University of Vienna, Vienna, Austria, May 2019
42. "Dual braids and the braid arrangement", Topology seminar, virtual, Northeastern University, Boston, Massechusetts, February 2022
43. "The geometry and combinatorics of complex polynomials", Algebra seminar, Iowa State University, April 2023
44. "The geometric combinatorics of polynomials and braids", Topology seminar, University of Chicago, Chicago, Illiois, December 2025

Local Seminar Talks

1. "Determining the complexity of finite state machines", Algebra-combinatorics seminar (TAMU), September 1999
2. "Calculating the curvature of concrete complexes", Algebra-combinatorics seminar (TAMU), November 2000
3. "Rigidity of Coxeter groups", Algebra-combinatorics seminar (TAMU), February 2001
4. "Combinatorial conditions that imply word-hyperbolicity for 3-manifolds", Topology seminar, October 2002
5. "From differential geometry to word hyperbolic groups: a combinatorial approach to an analytic concept", Survey talk, October 2002
6. "New Eilenberg-Mac Lane spaces for braid groups", Topology seminar, October 2002
7. "A combinatorial Gauss-Bonnet theorem for 2-complexes", Topology seminar, January 2003
8. "Garside structures for free groups and other Artin groups", Topology seminar, September 2003
9. "Hypertrees and the $\ell^{(2)}$-Betti numbers of the pure symmetric automorphism groups", Algebra seminar, April 2004
10. "Factoring euclidean isometries", Topology seminar, October 2004
11. "A Tiki tour of geometric combinatorics and geometric group theory", Discrete geometry seminar, October 2004
12. "Factoring isometries of highly symmetric objects", Topology seminar, October 2004
13. "Permutahedra and associahedra revisited", Discrete geometry seminar, January 2005
14. "Angles in Polytopes", Discrete geometry seminar, April 2005
15. "Polytopes and duality", Discrete geometry seminar, September 2005
16. "Projective geometry and the Fano plane", Discrete geometry seminar, October 2005
17. "Simple closed curves", Discrete geometry seminar, November 2005
18. "Quantum calculus", Discrete geometry seminar, February 2006
19. "Mathieu groups and Steiner systems", Discrete geometry seminar, April 2006

20. "Loops, octonions and projective geometry", Algebra seminar, April 2006
21. "Highly symmetric graphs and diagram geometries I", Discrete geometry seminar, May 2006
22. "Highly symmetric graphs and diagram geometries II", Discrete geometry seminar, May 2006
23. "Regular polytopes are everywhere", Graduate student colloquium, September 2006 p
24. "As exceptional as 1,2,3", Discrete geometry seminar, November 2006
25. "Moore graphs and generalized polygons", Discrete geometry seminar, February 2007
26. "The unusual graph of Hoffman and Singleton", Discrete geometry seminar, February 2007
27. "Finite complex reflection groups", Discrete geometry seminar, March 2007
28. "Continued fractions and the golden glide", Discrete geometry seminar, April 2007
29. "Using curvature to average trees", Discrete geometry seminar, May 2007
30. "Repetitive surprises", Discrete geometry seminar, May 2007
31. "Roots, ratios and Ramanujan", Math club, May 2008
32. "Gosset's sequence of semiregular polytopes", Discrete geometry seminar, Jaunary 2009
33. "Simplices in projective space", Discrete geometry seminar, February 2009
34. "Foster's census of distance regular graphs", Discrete geometry seminar, February 2009
35. "Braids, posets and orthoschemes", Discrete geometry seminar, April 2009
36. "Pernutahedra and associahedra", Discrete geometry seminar, April 2009
37. "The intrinsic geometry of groups", Graduate student colloquium, October 2012
38. "High dimensional analogs of the Platonic solids", Graduate student colloquium, October 2013
39. "Equidistant points and lines", Discrete geometry seminar, November 2013
40. "Continued fraction tricks", Discrete geometry seminar, February 2014
41. "Discrete versions of continuous mathematics", Discrete geometry seminar, April 2014
42. "Associahedra, cyclohedra and Thompson's group T", Discrete geometry seminar, February 2015
43. "From Platonic solids to Lie groups", Graduate student colloquium, February 2015
44. "Visualizing 4-dimensional shapes", Math circle, March 2015
45. "Angles in polytopes", Discrete geometry seminar, April 2015
46. "Partitions, polytopes and Catalan combinatorics", Discrete geometry seminar, April 2016
47. "The BNS invariant for the pure braid groups", Algebra seminar, Apr 2016
48. "Platonic solids and reflection groups", Graduate student colloquium, May 2016
49. "Hyperplane complements and cell structures", Discrete geometry seminar, October 2016
50. "The mysterious geometry of Artin groups I", Discrete geometry seminar, January 2017
51. "The mysterious geometry of Artin groups II", Discrete geometry seminar, April 2017
52. "The mysterious geometry of Artin groups III", Discrete geometry seminar, May 2017
53. "The intrinsic geometry of infinite groups", Graduate student colloquium, October 2017
54. "Graphs and eigenvalues", Discrete geometry seminar, November 2017
55. "Geometry and combinatorics of polynomials: compactifying the Lyashko-Looijenga map", Topology seminar, October 2022
56. "Platonic solids and reflection groups", Graduate student colloquium, January 2023
57. "Seeing things in higher (dimensional) mathematics", College of Creative Studies open house, April 2023
58. "The intrinsic geometry of infinite groups", Graduate student colloquium, October 2023
59. "The geometric combinatorics of polynomials and braids", Topology seminar, February 2025

Professional Memberships

American Mathematical Society
Mathematical Association of America

Institutes organized

- *MSRI semester on Geometric Group Theory*, (co-organizer with M. Bestvina, M. Sageev, and K. Vogtmann), Mathematical Sciences Research Institute (MSRI), Berkeley, California, Fall 2007
- *SLMath semester on Artin Groups and Arrangements*, (co-organizer with D.Allcock, C.Bibby, R.Charney, G.Paolini, and M.Salvetti), Simons-Laufer Mathematical Sciences Institute (SL Math), Berkeley, California, California, (Pre-Proposal accepted November 2024)

Conferences organized

- *AMS Special Session on Lattices, Coxeter groups and Buildings*, (co-organizer with K. Bux and K. Wortman), Southeastern sectional meeting, Boca Raton, Florida, October 2009
- *AMS Special Session on Curvature in group theory and combinatorics*, (co-organizer with L. Anderson, N. Brady and R. Forman), Western sectional meeting, Santa Barbara, California, April 2005
- *Braid groups, clusters and free probability*, (co-organizer with A. Nica and V. Reiner), American Institute of Mathematics, Palo Alto, California, January 2005
- *CombinaTexas: a combinatorics conference for the south-central U.S.*, (co-organizer with N. Brand, J. Kung, and C. Yan), University of North Texas, Denton, Texas, March 2002
- *CombinaTexas: a combinatorics conference for the south-central U.S.*, (co-organizer with L. Anderson) Texas A&M University, College Station, Texas, March 2001
- *CombinaTexas: a combinatorics conference for the south-central U.S.*, (co-organizer with L. Anderson), Texas A&M University, College Station, Texas, April 2000
- *AMS Special Session on Combinatorial Topology*, (co-organized with L. Anderson), Joint Mathematical Meetings, San Antonio, Texas, January 1999

Funding

- National Science Foundation, Principal Investigator: "Geometric Group Theory", Standard grant DMS–9971682, 1999–2002.
- National Science Foundation, Faculty Associate: "Algebraic and Analytic Methods in the Mathematical Sciences", Research Experience for Undergraduates, E. Letzter and A. Boggess Co-PIs, DMS–9912192, 2000–2003.
- National Science Foundation, Principal Investigator with L. Anderson (Co-PI): "CombinaTexas", Conference grant DMS–0070834, 2000.
- Institute for Mathematics and its Applications, Principal Investigator with L. Anderson (Co-PI): "CombinaTexas 2001", Conference grant, 2001.
- National Science Foundation, Principal Investigator with L. Anderson, N. Brady, and R. Forman Co-PIs: "The Role of Curvature in Combinatorics", Focused Research Group DMS–0101506, 2001–2004.
- National Science Foundation, Principal Investigator: "Geometric Group Theory via Geometric Combinatorics", Standard grant DMS–0405k783, 2004–2008.
- National Science Foundation, Principal Investigator: "Discrete and continuous geometry in group theory", Standard grant DMS–0805716, 2008-2012.

Reviewing and Refereeing

Advances in Applied Mathematics
Advances in Mathematics
Algebraic and Geometric Topology

American Mathematical Monthly
American Mathematical Society Memoir Series
Annales de l'Institute Fourier
Applied Categorical Structures
Austrian Science Fund
Banff International Research Station (BIRS)
Bulletin of the London Mathematical Society
Beiträge zur Algebra und Geometrie
City University of New York Research Foundation
Combinatorial Theory
Commentarii Helvetici
Communications in Algebra
Compositio Mathematica
Contemporary Mathematics
Crelle's Journal
Duke Mathematical Journal
Geometriae Dedicata
Geometric and Functional Analysis (GAFA)
Geometry and Topology
German-Israeli Foundation
Groups, Geometry and Dynamics
Georgian Mathematical Society
Engineering and Physical Sciences Research Council
European Journal of Combinatorics
Formal Power Series and Algebraic Combinatorics (FPSAC)
Forum of Mathematics, Sigma
Handbook of Spectral Structures and Topological Methods
Icelandic Research Fund
Illinois Journal of Mathematics
Indiana University Mathematics Journal
International Journal of Algebra and Computation
International Mathematical Research Notices (IMRN)
Inventiones Mathematicae
Israel Journal of Mathematics
Israeli Science Foundation
Journal of Algebra
Journal of Algebraic Combinatorics
Journal of Combinatorics, Series A
Journal of Ecole Polytechnique
Journal of Group Theory
Journal of Homotopy and Related Structures
Journal of Integer Sequences
Journal of Knot Theory
Journal of the London Mathematical Society
Journal of Pure and Applied Algebra
Journal of Pure and Applied Mathematics
Journal of Topology
L'Eseignement Mathématique

London Mathematical Society Journal of Computation and Mathematics
Louisiana Board of Regents Research and Development Fund
MathSciNet
Memoirs of the American Mathematical Society
National Science Foundation
National Security Agency
New York Journal of Mathematics
Michigan Mathematics Journal
Pacific Journal of Mathematics
Proceedings of the American Mathematical Society
Proceedings of the Cambridge Mathematical Society
Proceedings of the London Mathematical Society
Proceedings of the National Academy of Sciences
Semigroup Forum
SIAM Journal of Discrete Mathematics
Topology
Topology and its Applications
Transactions of the American Mathematical Society

Postdoctoral Scholars

1. Murray Elder, Texas A&M University, 1999-2002
2. Azer Akhmedov, University of California, Santa Barbara, 2004-2007
3. Nathan Williams, University of California, Santa Barbara, 2016-2017
4. Tonie Scroggins, University of California, Santa Barbara, 2025-present

Dissertations Supervised

1. Woonjung Choi, Texas A&M University, 2004
2. Rena Levitt, University of California, Santa Barbara, 2008
3. Matthew Macauley, University of California, Santa Barbara, 2008
4. Peterson Trethewey, University of California, Santa Barbara, 2008
5. Ryan Ottman, University of California, Santa Barbara, 2010
6. Robert Sulway, University of California, Santa Barbara, 2010
7. Sonja Gallagher, University of California, Santa Barbara, 2013
8. Elizabeth Leyton Chisholm, University of California, Santa Barbara, 2015
9. Ben Coté, University of California, Santa Barbara, 2016
10. Michael Dougherty, University of California, Santa Barbara, 2018
11. Gordon Rojas-Kirby, University of California, Santa Barbara, 2020
12. Ashlee Kalauli, University of California, Santa Barbara, 2021
13. Sam Sehayek, University of California, Santa Barbara, 2024
14. Benedict Lee, University of California, Santa Barbara, In Progress
15. Arthur Diep-Nguyen, University of California, Santa Barbara, In Progress
16. Alfredo Ramirez, University of California, Santa Barbara, In Progress

Dissertation Committees

1. Stephen Schauger, Texas A&M University, 2001
2. John Learned, University of California, Santa Barbara, 2008
3. Scott Taylor, University of California, Santa Barbara, 2008
4. Ben Benoy, University of California, Santa Barbara, 2009
5. Brie Finegold, University of California, Santa Barbara, 2010
6. Jesse Liptrap, University of California, Santa Barbara, 2010
7. Elie Grano, University of California, Santa Barbara, 2012

8. Tomas Kabbabe, University of California, Santa Barbara, 2012
9. Keith Thompson, University of California, Santa Barbara, 2012
10. Liang Chang, University of California, Santa Barbara, 2013
11. Grace Kennedy, University of California, Santa Barbara, 2013
12. Stepan Paul, University of California, Santa Barbara, 2013
13. Michael Yoshizawa, University of California, Santa Barbara, 2013
14. Rob Ackermann, University of California, Santa Barbara, 2014
15. Drew Jaramillo, University of California, Santa Barbara, 2014
16. Tim Speer, University of California, Santa Barbara, 2014
17. Arielle Leitner, University of California, Santa Barbara, 2015
18. Cindy Tsang, University of California, Santa Barbara, 2016
19. Patrick Wegner, University of Bielefeld, Germany, Gutachter, 2017
20. Georges Neaime, University of Normandy, France, Rapporteur, 2018
21. Kathleen Hake, University of California, Santa Barbara, 2018
22. Joseph Ricci, University of California, Santa Barbara, 2018
23. Ebrahim Ebrahim, University of California, Santa Barbara, 2018
24. Joshua Pankau, University of California, Santa Barbara, 2018
25. Sherry Tamagawa, University of California, Santa Barbara, 2019
26. Steve Trettel, University of California, Santa Barbara, 2019
27. Vijay Higgins, University of California, Santa Barbara, 2021
28. Carmen Galaz-Garcia, University of California, Santa Barbara, 2021
29. Thomas Shifley, University of California, Santa Barbara, 2021
30. Alexander Thumm, University of Stuttgart, Germany, 2023
31. Philip Doi, Arizona State University, Arizona, 2024
32. Owen Garnier, University of Picard, France, 2024
33. Eve Bodnia, University of California, Santa Barbara, 2025 (Physics)
34. Paige Hillen, University of California, Santa Barbara, 2025
35. Ricky Lee, University of California, Santa Barbara, In Progress
36. Lucas Fagan, University of California, Santa Barbara, In Progress
37. Jeremy Khoo, University of California, Santa Barbara, In Progress
38. Troy Kling, University of California, Santa Barbara, In Progress

Masters Supervised

1. Terry McDonald, Texas A&M University, College Station, Texas, 2002
2. Scott Johnson, Texas A&M University, College Station, Texas, 2002
3. Nicolas Brody, University of California, Santa Barbara, 2016

Masters Committees

1. Matt Adams, University of California, Santa Barbara, 2011
2. Megan Maguire, University of California, Santa Barbara, 2012
3. Nathan Saritzky, University of California, Santa Barbara, 2014
4. Justin Kelz, University of California, Santa Barbara, 2016
5. Naomi Burkhardt, University of California, Santa Barbara, 2017
6. Kayla Wright, University of California, Santa Barbara, 2018
7. Jerry Luo, University of California, Santa Barbara, 2019

Senior Theses

1. Kelli Carlson, Texas A&M University, College Station, Texas, 2000
2. Berkeley Churchill, University of California, Santa Barbara, 2011
3. Ava Bruckner-Kocel, University of California, Santa Barbara, 2024
4. Miles Gould, University of California, Santa Barbara, 2024

Undergraduate Research Supervised

1. Alexander Griffing, Texas A&M University, Summer 1999
2. Matthew Patlovany, Texas A&M University, Summer 1999
3. Jacob Talley, Texas A&M University, Summer 1999
4. Franz Freeman, University of California, Santa Barbara, Summer 2004
5. Scott Knox, University of California, Santa Barbara, Summer 2009

Graduate Courses Developed

1. Automorphism groups of elementary spaces
2. Combinatorics
3. Complex reflection groups
4. Coxeter groups and Artin groups
5. Exceptional mathematics
6. Geometric group theory
7. Linear algebra and the classical groups
8. Metric vector spaces

Teaching Awards

1. Distinguished Teaching Award, Chabot College, Hayward, California, 1992
2. Outstanding Teaching Award, Texas A&M University, College Station, Texas, 2000
3. Montague-Center for Teaching Excellence Scholar, 2000-2001
4. Mathematics Department Mochizuki Award for Outstanding Achievement in Mathematics Instruction, University of California, Santa Barbara, California, 2006
5. Mathematics Association of America Southern California-Nevada Section Teaching Award, 2007