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Email: davis.12@osu.edu**url:** <https://people.math.osu.edu/davis.12/>**Tel:** +1 614 292 4886**Cell:** +1 614 802 9816**Degrees:**

Princeton, A.B. 1971, Ph.D. 1975

Employment:

MIT, Moore Instructor 1974 - 76.

Columbia University, Assistant Professor 1977 - 82.

OSU: Associate Professor 1983 - 88, Professor 1988 - present.

Visiting positions:

Institute for Advanced Study, Princeton 1976 - 77, 1982 - 83, 1992 - 93, 2010 - 11.

University of Georgia, summer 1977.

Aarhus University, summer 1982.

University of Geneva, April - July, 1986, Feb. - March, 1995.

MSRI, Berkeley, April - Aug. 1989, Sept. - Nov. 2004, Aug. - Sept. 2007, Aug. - Dec. 2016.

University of Chicago, 2002 - 03.

Mittag-Leffler Institute, April - May, 2012.

Mathematical Sciences Center, Tsinghua University, May - June, 2013.

University of Sao Paulo, May, 2014.

Center for Symmetry and Deformation, University of Copenhagen, Jan.- Feb. 2015.

Isaac Newton Institute, Cambridge, England, May - June 2017.

IMPAN, Warsaw, Simons Professor, April - May 2019.

Fields of interest: Topology and geometric group theory**Thesis advisor:** Wu-chung Hsiang**Ph. D. students:** Gabor Moussong (1988), Kim Druschel (1990), Constantin Gonciulea (2000), Igor Ishkakov (2000), Dan Boros (2003), Dongwen Qi (2007), Aliska Gibbins (2013), Ryan Greene (2013), Giang Le (2016).**2015 Fellow of the AMS****Papers**

1. (with J. Huang) *Bordifications of hyperplane arrangements and their curve complexes*, arXiv:2003.13553.
2. (with G. Le and K. Schreve) *Action dimensions of some simple complexes of groups*, J. of Topology **12** (2019), 1266–1314.
3. (with J. Huang) *Determining the action dimension of an Artin group by using its complex of abelian subgroups*, Bull. London Math. Soc. **49** (4) (2017), 725–741.

4. (with P. Kropholler) *Criteria for asphericity of polyhedral products: corrigenda to “Right-angularity, flag complexes, asphericity”*, *Geom. Dedicata* **179** (2015), 39–44.
5. (with G. Avramidi, B. Okun and K. Schreve) *The action dimension of right-angled Artin groups*, *Bull. London Math. Soc.* **48** (1) (2016), 115–126.
6. *The geometry and topology of Coxeter groups*, in *Introduction to Modern Mathematics*, *ALM* **33**, Higher Education Press and International Press, Beijing–Boston, 2015, pp. 145–158.
7. (with A. Edmonds) *Euler characteristics of generalized Haken manifolds*, *Algebraic & Geometric Topology* **14** (2014), 3701–3716.
8. *When are two Coxeter orbifolds diffeomorphic?*, *Mich. Math. J.* **63** (2014), 401–421.
9. (with J. Fowler and J-F. Lafont) *Aspherical manifolds that cannot be triangulated*, *Algebraic & Geometric Topology* **14** (2014), 795–803.
10. (with M. Kahle) *Random graph products of finite groups are rational duality groups*, *J. of Topology* **7** (2014), 589–606.
11. (with S. Settepanella) *Vanishing results for the cohomology of complex toric hyperplane complements*, *Pub. Mat.* **57** (2013), 379–392.
12. *Right angularity, flag complexes, asphericity*, *Geom. Dedicata* **159** (2012), 239–262.
13. *The Euler characteristic of a polyhedral product*, *Geom. Dedicata* **159** (2012), 263–266.
14. (with T. Januszkiewicz and J-F. Lafont) *4-dimensional CAT(0)-manifolds with no Riemannian smoothings*, *Duke Math. J.* **161** (2012), 1–28.
15. (with B. Okun) *Cohomology computations for Artin groups, Bestvina-Brady groups and graph products*, *Groups Geom. Dyn.* **6** (2012) 485–531.
16. (with T. Januszkiewicz, I. J. Leary and B. Okun) *Cohomology of hyperplane complements with group ring coefficients*, *IMRN* (2011), no. 9, 2110–2116.
17. *Examples of buildings constructed via covering spaces*, *Groups Geom. Dyn.* **3** (2009), 279–298.
18. *Lectures on orbifolds and reflection groups*, in *Transformation Groups and Moduli Spaces of Curves* (eds, L. Ji, S-T Yau), *ALM* **16**, International Press, 2010, pp. 63–93.
19. (with J. Dymara, T. Januszkiewicz, J. Meier and B. Okun) *Compactly supported cohomology of buildings*, *Comment. Math. Helv.* **85** (2010), 551–582.
20. *The Hopf Conjecture and the Singer Conjecture*, *Guido’s Book of Conjectures* (ed. I. Chatterji) *Monographie de L’Enseignement Math.* **40** (2008), pp. 80–82.
21. (with T. Januszkiewicz and I. Leary) *The L^2 -cohomology of hyperplane complements*, *Groups Geom. Dyn.* **1** (2007) 301–309.

22. (with J. Dymara, T. Januszkiewicz and B. Okun) *Cohomology of Coxeter groups with group ring coefficients: II*, Algebraic & Geometric Topology **6** (2006), 1289–1318.
23. (with J. Dymara, T. Januszkiewicz and B. Okun) *Weighted L^2 -cohomology of Coxeter groups*, Geometry & Topology **11** (2007), 47–138.
24. (with B. Okun) *L^2 - homology of right-angled Coxeter groups associated to barycentric subdivisions*, Topology and Its Applications **140** (2004), 197–202.
25. (with J. Meier) *Reflection groups and CAT(0) complexes with exotic local structures*, High-dimensional Manifold Topology (eds. F.T. Farrell and W. Luck), World Scientific, New Jersey, 2003, 151–158.
26. (with I. Leary) *Some examples of discrete group actions on aspherical manifolds*, High-dimensional Manifold Topology (eds. F.T. Farrell and W. Luck), World Scientific, New Jersey, 2003, 139–150.
27. (with I. Leary) *L^2 -cohomology of Artin groups*, J. London Math. Soc. **68** (2003), 493–510.
28. (with T. Januszkiewicz and R. Scott) *Fundamental groups of blow-ups*, Advances in Math. **177** (2003), 115–179.
29. (with J. Meier) *The topology at infinity of Coxeter groups and buildings*, Comment. Math. Helv. **77** (2002), 746–766. *Erratum*, **82** (2007), 235–236.
30. *Exotic aspherical manifolds*, in *Topology of high-dimensional manifolds*, No. 1,2 (Trieste 2001), 371–404, ICTP Lect. Notes **9**, Abdus Salam Int. Cent. Theoret. Phys., Trieste, 2002.
31. *Nonpositive curvature and reflection groups*, in *The Handbook of Geometric Topology*, (eds. R. Daverman and R. Sher), Elsevier, Amsterdam, 2002, 373–422.
32. (with T. Januszkiewicz and S. Weinberger) *Relative hyperbolization and aspherical bordisms, an addendum to “Hyperbolization of Polyhedra”*, J. of Differential Geometry **58** (2001), 535–541.
33. (with B. Okun) *Vanishing theorems and conjectures for the L^2 -homology of the right-angled Coxeter groups*, Geometry & Topology **5** (2001), 7–74.
34. (with R. Charney) *When is a Coxeter system determined by its Coxeter group?* J. London Math. Soc. **61** (2000), 441–461.
35. (with T. Januszkiewicz) *Right-angled Artin groups are commensurable with right-angled Coxeter groups*, J. of Pure and Applied Algebra **153** (2000), 229–235.
36. *Poincaré duality groups*, in *Surveys in Surgery Theory, Volume 1* (eds. S. Cappell, A. Ranicki, J. Rosenberg) Annals of Math. Studies, **145**, Princeton University Press, Princeton, 2000, 167–193.
37. (with B. Okun and F. Zheng) *Piecewise Euclidean structures and Eberlein’s Rigidity Theorem in the singular case*, Geometry & Topology **3** (1999), 303–330.

38. (with G. Moussong) *Notes on nonpositively curved polyhedra*, in *Low Dimensional Topology* (eds. K. Boroczky, W. Neumann, A. Stipicz), Bolyai Society Math. Studies **8**, Janos Bolyai Math. Soc., Budapest, 1999, 11–94.
39. *Buildings are CAT(0)*, *Geometry and Cohomology in Group Theory* (eds P. Kropholler and R. Stohr) London Math. Soc. Lecture Notes **252**, Cambridge Univ. Press (1998), 108–123.
40. *The cohomology of a Coxeter group with group ring coefficients*, *Duke Math. J.* **91** (1998), 297–313. *Correction* **95** (1998), 635.
41. (with T. Januszkiewicz and R. Scott) *Nonpositive curvature of blow-ups*, *Selecta Math. New series* **4** (1998), 491–547.
42. (with F.D. Ancel and C.R. Guilbault) *CAT(0) reflection manifolds*, *AMS/IP Studies in Advanced Math.* **2** (1997), 441–445.
43. (with R. Charney and G. Moussong) *Nonpositively curved piecewise Euclidean structures on hyperbolic manifolds*, *Michigan Math. J.* **44** (1997), 201–208.
44. (with R. Charney) *Finite $K(\pi, 1)$'s for Artin Groups*, in *Prospects in Topology*, ed. by F. Quinn, *Annals of Math Studies* **138**, Princeton Univ. Press (1995), 110–124.
45. (with R. Charney) *The polar dual of a convex polyhedral set in hyperbolic space*, *Michigan Math. J.* **42** (1995), 479–509. *Correction*, **43** (1996), 619.
46. (with R. Charney) *The $K(\pi, 1)$ -problem for hyperplane complements associated to infinite reflection groups*, *J. of AMS* **8** (1995), 597–627.
47. (with R. Charney) *On the Euler characteristic of a nonpositively curved piecewise Euclidean manifold*, *Pacific J. of Math.* **171** (1995), 117–137.
48. (with R. Charney) *Strict hyperbolization*, *Topology* **34** (1995), 329–350.
49. (with R. Charney) *Singular metrics of nonpositive curvature on branched covers of Riemannian manifolds*, *Amer. J. Math.* **115** (1993), 929–1009.
50. (with R. Charney) *Reciprocity of growth functions of Coxeter groups*, *Geom. Dedicata* **39** (1991), 373–378.
51. (with M. Shapiro) *Coxeter groups are almost convex*, *Geom. Dedicata* **39** (1991), 55–57.
52. (with T. Januszkiewicz) *Hyperbolization of polyhedra*, *J. Diff. Geom.* **34** (1991), 347–388.
53. (with T. Januszkiewicz) *Convex polytopes, Coxeter orbifolds and torus actions*, *Duke Math. Journal*, **62** (1991), 417–451.
54. (with J-C. Hausmann) *Aspherical manifolds without smooth or PL structure*, *Springer Lecture Notes in Math.* **1370** (1989), 135–142.
55. *Regular convex cell complexes*, in *Geometry and Topology*, Marcel Dekker (1987), 53–88.

56. *The homology of a space on which a reflection group acts*, Duke Math. Journal **55** (1987), 97–104. Erratum **56** (1988), 221.
57. *Some aspherical manifolds*, Duke Math. Journal **55** (1987), 105–139.
58. *A hyperbolic 4-manifold*, Proc. of AMS **93** (1985), 325–328.
59. *Coxeter groups and aspherical manifolds*, Springer Lecture Notes in Math. **1051** (1984) 197–221.
60. (with J. Morgan) *Finite group actions on homotopy 3-spheres*, in *The Smith Conjecture*, Academic Press (1984), pp. 181–225.
61. *A survey of results in higher dimensions*, *ibid*, pp. 227–240.
62. *Groups generated by reflections and aspherical manifolds not covered by Euclidean space*, Ann. of Math. **117** (1983), 293–324.
63. *Some group actions on homotopy spheres of dimension seven and fifteen*, Amer. J. Math. **104** (1982), 59–90.
64. *Universal G-manifolds*, Amer. J. Math. **103** (1981), 103–141.
65. (with W.C. Hsiang and J. Morgan) *Concordance classes of regular $O(n)$ -actions on homotopy spheres*, Acta Math. **144** (1980), 153–221.
66. (with W.C. Hsiang and W.Y. Hsiang) *Differentiable actions of compact simple groups on homotopy spheres and Euclidean spaces*, in Symposia in Pure Math. **32** AMS (1978) 313–323.
67. *Smooth G-manifolds as collections of fiber bundles*, Pac. Jour. of Math. **77**, No. 2, (1978), 315–363.
68. (with W.C. Hsiang) *Concordance classes of regular $U(n)$ - and $Sp(n)$ -actions on homotopy spheres*, Ann. of Math. **105** (1977), 325–341.
69. *Smooth actions of the classical groups*, Princeton University Ph.D. thesis, 1974.
70. *Examples of actions on manifolds almost diffeomorphic to $V_{n+1,2}$* , Springer Lecture Notes in Math. **298** (1972), 301–317.
71. *Group actions on exotic Stiefel manifolds*, Princeton University senior thesis, 1971.

Books:

- *The Geometry and Topology of Coxeter Groups*, London Math. Soc. Monograph Series **32**, Princeton University Press, Princeton, 2008.
- *Multiaxial Actions on Manifolds*, Springer Lecture Notes in Math. **643**, Springer-Verlag, 1978.

Book review:

- *Combinatorics of Coxeter Groups* (by Bjorner and Brenti) Bulletin of the AMS, **45** (2008), 445–449.

Editor of books:

- *Geometric Group Theory* (edited by R. Charney, M.W. Davis and M. Shapiro), de Gruyter, Berlin, 1995.
- *Topology and Geometric Group Theory*, (edited by M.W. Davis, J. Fowler, J-F. Lafont, I.J. Leary), Springer Proceedings in Mathematics & Statistics **184**, Springer, 2017.
- *Topological Methods in Group Theory*, (edited by N. Broaddus, M.W. Davis, J-F. Lafont, I. Ortiz), LMS Lecture Notes in Math.