

Publications, December 2020

Martin R. Bridson

Monograph

- *Metric spaces of non-positive curvature* (with A. Haefliger), Grund. Math. Wiss. 319. Springer-Verlag, Berlin, 1999.

Refereed Articles

1. *Absolute profinite rigidity and hyperbolic geometry* (with B. McReynolds, A.W. Reid and R. Spitler). *Ann. of Math. (2)* **192** (2020), 679–719.
2. *Profinite rigidity, fibering, and the figure-eight knot* (with A.W. Reid), in “What’s Next? The mathematical legacy of William P. Thurston” *Annals Math. Stud.* 205, pp. 45–64, Princeton Univ. Press, 2020.
3. *The homology of groups, profinite completions, and echoes of Gilbert Baumslag*, in “Elementary Theory of Groups and Group Rings, and Related Topics”, pp. 11–28, De Gruyter, Berlin, 2020. (Baumslag memorial)
4. *Algorithms determining finite simple images of finitely presented groups* (with David M. Evans, Martin W. Liebeck, Dan Segal), *Invent. Math.* **218** (2019), 623–648.
5. *Concise presentations of direct powers of groups*, *Proc. Amer. Math. Soc.*, online. DOI:10.1090/proc/13991
6. *Kodaira fibrations and finiteness properties of Kähler groups* (with C. Llosa Isenrich). *Trans. Amer. Math. Soc.* **372** (2019), 5869–5890.
7. *On the recognition of right-angled Artin groups*, *Glasg. Math. J.* **62** (2020), 473–475.
8. *Semihyperbolicity*, in “Beyond Hyperbolicity,” LMS Lecture Note Series 454, pp. 25–64, Camb. Univ. Press, 2019.
9. *Weak commutativity and finiteness properties of groups* (with D.H. Kochloukova), *Bull. London Math. Soc.* **51** (2019), 168–180.
10. *Profinite rigidity and surface bundles over the circle* (with A.W. Reid and H. Wilton), *Bull. London Math. Soc.* **49** (2017) 831–841.
11. *Volume gradients and homology in towers of residually-free groups* (with D.H. Kochloukova), *Math. Ann.* **367** (2017), 1007–1045.

12. *Undecidability and the developability of permutoids and rigid pseudogroups* (with H. Wilton; appendix B. Steinberg), *Forum Math. Sigma* **5** (2017), e10, 20 pp.
13. *On the recognition problem for virtually special cube complexes* (with H. Wilton) in “Hyperbolic geometry and geometric group theory”, 37–46, *Adv. Stud. Pure Math.*, **73**, Math. Soc. Japan, Tokyo, 2017.
14. *The torsion-free rank of homology in towers of soluble pro- p groups* (with D.H. Kochloukova), *Israel J. Math.* **219** (2017), no. 2, 817–834.
15. *The strong profinite genus of a finitely presented group can be infinite*, *J. Eur. Math. Soc. (JEMS)* **18** (2016), no. 9, 1909–1918.
16. *Determining Fuchsian groups by their finite quotients* (with M.D.E. Conder and A.W. Reid), *Israel J. Math.* **214** (2016), no. 1, 1–41.
17. *Inversion is possible in groups with no periodic automorphisms* (with H. Short), *Proc. Edinb. Math. Soc. (2)* **59** (2016), 11–16.
18. *The triviality problem for profinite completions* (with H. Wilton), *Invent. Math.* **202** (2015), 839–874.
19. *Nilpotent completions of groups, Grothendieck pairs, and four problems of Baumslag* (with A.W. Reid), *Int.Math.Res.Not.(IMRN)* **2015**, 2111–2140.
20. *Dimension of elementary amenable groups* (with P. H. Kropholler), *J. Reine Angew. Math.* **699** (2015), 217–243.
21. *The virtual first betti number of solvable groups* (with D.H. Kochloukova), *Pacific J. Math.* **274** (2015), 497–510.
22. *The isomorphism problem for profinite completions of residually finite groups* (with H. Wilton), *Groups Geom. Dyn.* **8** (2014), 733–745.
23. *Actions of arithmetic groups on homology spheres and acyclic homology manifolds* (with F. Grunewald and K. Vogtmann), *Math. Z.*, **276** (2014), 387–395.
24. *Cube complexes, subgroups of mapping class groups, and nilpotent genus*, in “Geometric Group Theory”, IAS/Park City Math. Ser., 21, Amer. Math. Soc., Providence, RI, 2014, pp. 379–399.
25. *On the subgroups of right-angled Artin groups and mapping class groups*, *Math. Res. Lett.*, **20** (2013), 203–212.
26. *On the finite presentation of subdirect products and the nature of residually free groups*, (with J. Howie, C.F. Miller III, and H. Short), *American J. Math.*, **135** (2013), 891–933.

27. *Constructing presentations of subgroups of right-angled Artin groups* (with M. Tweedale), *Geom. Ded.* **169** (2014), 1–14.
28. *On the dimension of $CAT(0)$ spaces where mapping class groups act*, *J. Reine Angew. Math.* **673** (2012), 55–68.
29. *Abelian covers of graphs and maps between outer automorphism groups of free groups* (with K. Vogtmann), *Math. Ann.*, **353** (2012), 1069–1102.
30. *The Dehn functions of $\text{Out}(F_n)$ and $\text{Aut}(F_n)$* (with K. Vogtmann), *Ann. Inst. Fourier*, **62** (2012), 1811–1817.
31. *Actions of higher-rank lattices on free groups* (with R.D. Wade), *Compositio Math.*, **147** (2011), 1573–1580.
32. *On groups whose geodesic growth is polynomial*, (with J. Burillo, M. Elder, Z. Sunic), *Internat. J. Algebra Comput.* **22** (2012), 1250048, 13 pp.
33. *Actions of automorphism groups of free groups on homology spheres and acyclic manifolds* (with K. Vogtmann), *Comm. Math. Helv.* **86** (2011), 73–90.
34. *The rhombic dodecahedron and semisimple actions of $\text{Aut}(F_n)$ on $CAT(0)$ spaces*, *Fund. Math.* (volume for M.W. Davis), **214** (2011), 13–25.
35. *On the algorithmic construction of classifying spaces and the isomorphism problem for biautomatic groups* (with L. Reeves), *Science China Mathematics* (volume for Fabrizio Catanese) **54** (2011), 1533–1545.
36. *On the difficulty of presenting finitely presentable groups* (with H. Wilton), *Groups Geom. Dyn.* **5** (2011), no. 2, 301–325.
37. *Decision problems and profinite completions of groups*, *J. Algebra* **326** (2011), 59–73.
38. *Cofinitely Hopfian groups, open mappings and knot complements* (with D. Groves, J. Hillman, and G. Martin), *Groups Geom. Dyn.*, **4** (2010), no. 4, 693–707.
39. *The Schur multiplier, profinite completions and decidability*, *Bull. London Math. Soc.* **42** (2010), 412–416.
40. *Semisimple actions of mapping class groups on $CAT(0)$ spaces*, in “The Geometry of Riemann Surfaces” (eds., F. P. Gardiner, G. Gonzalez-Diez, C. Kourouniotis), *LMS Lecture Notes 368*, Cambridge, 2010, pp. 1–14.
41. *The Quadratic Isoperimetric Inequality for Mapping Tori of Free-Group Automorphisms* (with D. Groves), *Mem. Amer. Math. Soc.* **203** (2010), no. 955 *American Math. Soc.*, Providence RI.

42. *Subgroups of Direct Products of Limit Groups* (with J. Howie, C. Miller and H. Short), *Annals of Math.* **170** (2009), 1447–1467.
43. *Intrinsic versus extrinsic diameter for Riemannian filling discs and van Kampen diagrams* (with T. Riley), *J. Diff. Geom.* **82** (2009), 115–154.
44. *Infinite groups with fixed point properties*, (with G. Arzhantseva, T. Januszkiewicz, I. J. Leary, A. Minasyan, J. Swiatkowski), *Geom. Topol.* **13** (2009), 1229–1263.
45. *Structure and finiteness properties for subdirect products of groups* (with C. Miller), *Proc. Lond. Math. Soc.* (3) **98** (2009), no. 3, 631–651.
46. *Direct factors of profinite completions and decidability*, *J. Group Theory* **12** (2009), no. 1, 151–156.
47. *The Chabauty space of closed subgroups of the three-dimensional Heisenberg group* (with P. de la Harpe and V. Klepstyn), *Pacific J. Math.* **240** (2009), no. 1, 1–48.
48. *Snowflake groups, Perron-Frobenius eigenvalues and isoperimetric spectra* (with N. Brady, M. Forester and K. Shankar), *Geom. Topol.*, **13** (2009), 141–188.
49. *Subgroup separability in residually free groups* (with H. Wilton), *Math. Z.* **260** (2008), no. 1, 25–30.
50. *A condition that prevents groups from acting non-trivially on trees*, *Geom. Topol. Monographs* **14** (2008) 129–133.
51. *Putative relation gaps* (with M. Tweedale), *Monog. L'Enseign. Math.* **40** (2008), 46–49.
52. *Quasiregular self mappings of manifolds and word hyperbolic groups* (with A. Hinkkanen and G. Martin), *Compositio Math.* **143** (2007), 1613–1622.
53. *Deficiency and abelianized deficiency of some virtually free groups* (with M. Tweedale), *Math. Proc. Camb. Phil. Soc.* **143** (2007), no. 2, 257–264.
54. *Subgroups of direct products of elementarily free subgroups* (with J. Howie), *Geom. Funct. Anal. (GAFA)* **17** (2007), no. 2, 385–403.
55. *Limit groups, positive-genus towers and measure-equivalence* (with M. Tweedale and H. Wilton), *Ergodic Theory Dynam. Systems* **27** (2007), no. 3, 703–712.
56. *Free and fragmenting filling length* (with T. Riley), *J. Algebra* **307** (2007), no. 1, 171–190.
57. *Normalisers in limit groups* (with J. Howie), *Math. Ann.* **337** (2007), 385–394.

58. *Non-positive curvature and complexity for finitely presented groups* International Congress of Mathematicians. Vol. II, 961-987, Eur. Math. Soc., Zurich 2006.
59. *Automorphism groups of free, surface, and free-abelian groups* (with K. Vogtmann), Problems on mapping class groups and related topics, 301-316, Proc. Sympos. Pure Math., 74, Amer. Math. Soc., Providence, RI, 2006.
60. *On the growth of groups and automorphisms*, Intl. J. Alg. Comp. **15** (2005), 869-874.
61. *Conjugacy of finite subsets in hyperbolic groups* (with J. Howie), Intl. J. Alg. Comp., **15** (2005), 725-756.
62. *A note on the grammar of combings*, Intl. J. Alg. Comp., **15** (2005), 529-535.
63. *Grothendieck's problems concerning profinite completions and representations of groups* (with F. Grunewald), Annals of Math. (2) **160** (2004), 359-373.
64. *Mapping class groups and outer automorphism groups of free groups are C^* -simple* (with P. de la Harpe), J. Funct. Anal., **212** (2004), 195-205.
65. *Recognition of subgroups of direct products of hyperbolic groups* (with C. Miller), Proc. Amer. Math. Soc. **132** (2004), 59-65.
66. *Finite presentation of fibre products of metabelian groups*, (with G. Baumslag, D. Holt and C. Miller), J. Pure and Appl. Algebra **181** (2003), 15-22.
67. *The conjugacy and isomorphism problems for combable groups*, Math. Ann., **327** (2003), 305-314.
68. *Homomorphisms from automorphism groups of free groups* (with K. Vogtmann), Bull. London Math. Soc., **35** (2003), 785-792.
69. *Combing of groups and the grammar of reparameterisation*, Comment. Math. Helv., **78** (2003), 752-771.
70. *Context-free languages of sub-exponential growth* (with R. Gilman), J. Comput. System Sci. **64** (2002), 308-310.
71. *The subgroups of direct products of surface groups* (with J. Howie, C.F. Miller III, H. Short), Geometriae Dedicata **92** (2002), 95-103.
72. *The geometry of the word problem*, in "Invitations to geometry and topology", (M.R. Bridson and S.M. Salamon, eds.), OUP, Oxford 2002, pp. 29-91.

73. *On the subgroups of semihyperbolic groups*, in “Essays on geometry and related topics”, Vol.1, 85-111, Monogr. Enseign. Math. **38**, Geneva, 2001.
74. *Malnormality is undecidable in hyperbolic groups* (with D. Wise), Israel J. Math. **124** (2001), 313-316.
75. *Length functions, non-positive curvature and the dimension of discrete groups*, Math. Res. Lett. **8** (2001), 557-567.
76. *Polynomial Dehn functions and the length of asynchronous automatic structures*, Proc. London Math. Soc. (**85** (2002), 441-466.
77. *The symmetries of outer space* (with K. Vogtmann), Duke Math. J. **106** (2001), 391-409.
78. *A remark about actions of lattices on free groups* (with B. Farb), J. Topology Appl., **110** (2001), 21-24.
79. *Automorphisms of the automorphism groups of free groups* (with K. Vogtmann), J. Algebra **229** (2000), 785-792.
80. *There is only one gap in the isoperimetric spectrum* (with N. Brady), Geom. Funct. Anal. (GAFA), **10** (2000), 1053-1070.
81. *Finiteness properties for subgroups of $GL(n, \mathbf{Z})$* . Math. Annalen, **317** (2000), 629-633.
82. *Fibre products, non-positive curvature and decision problems* (with G. Baumslag, C. Miller and H. Short), Comm. Math. Helv., **75** (2000), 457-503.
83. *On the semisimplicity of polyhedral isometries*, Proc. Amer. Math. Soc., **127** (1999), no. 7, 2143-2146.
84. *Doubles, finiteness properties of groups and quadratic isoperimetric inequalities*, J. Algebra **214** (1999), no. 2, 652-667.
85. *Asymptotic cones and polynomial isoperimetric inequalities*, Topology **38** (1999), no. 3, 543-554.
86. *Controlled embeddings into groups that have no non-trivial finite quotients*, Geometry and Topology Monographs **1** (1998), Epstein Birthday Schrift, (Rivin, Rourke, Series, eds.), International Press, 99-116.
87. *On the absence of cohomological finiteness in wreath products* (with G. Baumslag and K. Gruenberg), J. Aust. Math. Soc., **64** (1998), 222-230.
88. *Fractional isoperimetric inequalities and subgroup distortion*, J. Amer. Math. Soc. **12** (1999), no. 4, 1103-1118.

89. *VH-complexes, towers, and subgroups of $F \times F$* (with D. Wise), *Math. Proc. Camb. Phil. Soc.*, **126** (1999), 481-497.
90. *Non-positive curvature in group theory*, in "Groups St. Andrews in Bath" (Campbell, Robertson, Smith, eds.) *LMS Lect. Notes* **270** (1998), pp. 1-50.
91. *Subgroups of automatic groups and their isoperimetric functions* (with G. Baumslag, C. Miller, H. Short), *J. London Math. Soc.*, **56** (1997), 292-304.
92. *On the geometry of the automorphism group of a free group* (with K. Vogtmann), *Bull. London Math. Soc.*, **27** (1995), 544-552.
93. *A remark about combings* (with R. Gilman), *Intl. J. Alg. Comp.*, **3** (1993), 575-581
94. *On Hausdorff–Gromov convergence and a theorem of Paulin* (with G. Swarup), *L'Enseignement Math.*, **40** (1994), 267-289.
95. *Optimal isoperimetric inequalities for abelian-by-free groups*, *Topology*, **34** (1995), 547-564.
96. *The optimal isoperimetric inequality for torus bundles over the circle* (with S.M. Gersten), *Quart. J. Math.* **47** (1996), 1-24.
97. *Isoperimetric inequalities for the fundamental groups of torus bundles over the circle* (with C. Pittet), *Geom. Dedicata*, **49** (1994), 203-219.
98. *Formal language theory and the geometry of 3-manifolds*, (with R. Gilman), *Comm. Math. Helv.*, **71** (1996), 525-555.
99. *Regular combings, nonpositive curvature and the quasiconvexity of abelian subgroups*, *J. Pure and Appl. Alg.*, **88** (1993), 23-35.
100. *On the existence of flat planes in spaces of nonpositive curvature*, *Proc. Amer. Math. Soc.*, **123** (1995), 223-235.
101. *Semihyperbolic groups* (with J. Alonso), *Proc. London Math. Soc.*, **70** (1995), 56-114.
102. *On the geometry of paths in nilpotent groups* (with R. Gilman), *Proc. Edinburgh conference on group theory, April 1993*, (Duncan, Gilbert, Howie, eds.), *LMS Lecture Notes* 204, Camb. Univ. Press.
103. *Combing semidirect products and 3-manifold groups*, *Geom. and Funct. Anal. (GAFA)*, **3** (1993), 263-278.
104. *On the geometry of normal forms in discrete groups*, *Proc. London Math. Soc.*, **67** (1993), 516-616.

105. *Geodesics and curvature in metric simplicial complexes*, (PhD thesis) in “Group theory from a geometrical viewpoint”, Proc. ICTP, Trieste, Italy, E. Ghys, A. Haefliger, A. Verjovsky (eds.), World Scientific, Singapore, 1991, pp. 373-463.

Submitted for Publication

1. *On the profinite rigidity of triangle groups*, (with D.B. McReynolds, A.W. Reid, R. Spitler), arXiv:2004.07137 .
2. *The complexity of balanced presentations and the Andrews-Curtis conjecture*, arXiv:1504.04187.
3. *Weak commutativity, virtually nilpotent groups, and Dehn functions*, (with D.H. Kochloukova).
4. *Leighton’s Theorem: extensions, limitations, and quasitrees* (with Sam Shepherd), arXiv:2009.04305

Edited Volumes

1. *Invitations to geometry and topology* (with S.M. Salamon), Oxf. Grad. Texts Math., 7, Oxford Univ. Press, Oxford, 2002.
2. *Geometric and cohomological methods in group theory: Papers from the London Mathematical Society Symposium on Geometry and Cohomology in Group Theory held in Durham, July 2003* (with P.H. Kropholler and I.J. Leary), London Math. Soc. Lect. Notes, 358, Cambridge University Press, 2009.

Obituary

1. *Maryam Mirzakhani*, The Guardian, 19 July 2017.