
Complete List of Publications[†]

33 research papers, 1 chapter in a book, 7 conference proceedings.

Journal Articles

- 2018 D.I. Barrett, R. Biggs, C.C. Remsing, Quadratic Hamilton–Poisson systems on $\mathfrak{se}(1, 1)^*$: the inhomogeneous case. *Acta Appl. Math.* 154 (2018), 189–230.
- 2017 R. Biggs, Isometries of Riemannian and sub-Riemannian structures on three-dimensional Lie groups. *Commun. Math.* 25 (2017), 99–135.
- R. Biggs, C.C. Remsing, Quadratic Hamilton–Poisson systems in three dimensions: equivalence, stability, and integration. *Acta Appl. Math.* 148(2017), 1–59.
- C.E. Bartlett, R. Biggs, C.C. Remsing, A few remarks on quadratic Hamilton–Poisson systems on the Heisenberg Lie–Poisson space. *Acta Math. Univ. Comenianae.* 86(1)(2017), 73–79.
- C.E. Bartlett, R. Biggs, C.C. Remsing, Control systems on nilpotent Lie groups of dimension ≤ 4 : equivalence and classification. *Differential Geom. Appl.*, 54(2017), 282–297.
- R. Biggs, G. Falcone, A class of nilpotent Lie algebras admitting a compact subgroup of automorphisms. *Differential Geom. Appl.* 54(2017), 251–263.
- R. Biggs, C.C. Remsing, Invariant control systems on Lie groups: a short survey. *Extracta Math.* 32(2)(2017), 213–238.
- 2016 R. Biggs, P.T. Nagy, On sub-Riemannian and Riemannian structures on the Heisenberg groups. *J. Dyn. Control Syst.* 22(2016), 563–594.
- D.I. Barrett, R. Biggs, C.C. Remsing, O. Rossi, Invariant nonholonomic Riemannian structures on three-dimensional Lie groups. *J. Geom. Mech.* 8(2016), 139–167.
- R. Biggs, C.C. Remsing, On the classification of real four-dimensional Lie groups. *J. Lie Theory.* 26(2016), 1001–1035.
- R. Biggs, P.T. Nagy, On extensions of sub-Riemannian structures on Lie groups. *Differential Geom. Appl.* 46(2016), 25–38.
- C.E. Bartlett, R. Biggs, C.C. Remsing, Control systems on the Heisenberg group: equivalence and classification. *Publ. Math. Debrecen* 88(2016), 217–234.
- R. Biggs, C.C. Remsing, Equivalence of control systems on the pseudo-orthogonal group $SO(2, 1)$. *An. Ştiinţ. Univ. “Ovidius” Constanţa Ser. Mat.* 24(2)(2016), 45–65.
- R.M. Adams, R. Biggs, W. Holderbaum, C.C. Remsing, Stability and integration of Hamilton–Poisson systems on $\mathfrak{so}(3)$. *Rend. Mat. Appl.* 37(2016), 1–42.

[†]Full texts for all publications are available on ResearchGate https://www.researchgate.net/profile/Rory_Biggs/contributions. See also <http://orcid.org/0000-0002-6388-7839> and <https://scholar.google.co.za/citations?user=vbTDCHgAAAAJ&hl=en>.

- 2015 D.I. Barrett, R. Biggs, C.C. Rensing, Affine distributions on a four-dimensional extension of the semi-Euclidean group. *Note Mat.* 35(2015), 81–97.
- R. Biggs, C.C. Rensing, On the equivalence of control systems on Lie groups. *Commun. Math.* 23(2015), 119–129.
- R. Biggs, C.C. Rensing, Subspaces of the real four-dimensional Lie algebras: a classification of subalgebras, ideals, and full-rank subspaces. *Extracta Math.* 31(2015), 41–93.
- D.I. Barrett, R. Biggs, C.C. Rensing, Quadratic Hamilton–Poisson systems on $\mathfrak{se}(1,1)^*$: the homogeneous case. *Int. J. Geom. Methods Mod. Phys.* 12(2015), 1550011 (17 pages).
- 2014 R. Biggs, C.C. Rensing, Some remarks on the oscillator group. *Differential Geom. Appl.* 35(2014), 199–209.
- R. Biggs, C.C. Rensing, Control systems on three-dimensional Lie groups: equivalence and controllability. *J. Dyn. Control Syst.* 20(2014), 307–339.
- D.I. Barrett, R. Biggs, C.C. Rensing, Affine subspaces of the Lie algebra $\mathfrak{se}(1,1)$. *Eur. J. Pure Appl. Math.* 7(2014), 140–155.
- R. Biggs, C.C. Rensing, Cost-extended control systems on Lie groups. *Mediterr. J. Math.* 11(2014), 193–215.
- 2013 R. Biggs, C.C. Rensing, Control affine systems on solvable three-dimensional Lie groups, II. *Note Mat.* 33(2013), 19–31.
- R.M. Adams, R. Biggs, C.C. Rensing, Control systems on the orthogonal group $SO(4)$. *Commun. Math.* 21(2013), 107–128.
- R. Biggs, P.T. Nagy, A classification of sub-Riemannian structures on the Heisenberg groups. *Acta Polytechnica Hungarica* 10(2013), 41–52.
- R. Biggs, C.C. Rensing, Control affine systems on solvable three-dimensional Lie groups, I. *Arch. Math. (Brno)* 49(2013), 187–197.
- R.M. Adams, R. Biggs, C.C. Rensing, Two-input control systems on the Euclidean group $SE(2)$. *ESAIM Control Optim. Calc. Var.* 19(2013), 947–975.
- R. Biggs, C.C. Rensing, Control affine systems on semisimple three-dimensional Lie groups. *An. Ştiinţ. Univ. Al. I. Cuza Iaşi. Mat. (N.S.)* 59(2013), 399–414.
- R.M. Adams, R. Biggs, C.C. Rensing, On some quadratic Hamilton–Poisson systems. *Appl. Sci.* 15(2013), 1–12.
- 2012 R. Biggs, C.C. Rensing, A note on the affine subspaces of three-dimensional Lie Algebras. *Bul. Acad. Ştiinţe Repub. Mold. Mat.* 2012, 45–52.
- R.M. Adams, R. Biggs, C.C. Rensing, Equivalence of control systems on the Euclidean group $SE(2)$. *Control Cybernet.* 41(2012), 513–524.
- R. Biggs, C.C. Rensing, A category of control systems. *An. Ştiinţ. Univ. “Ovidius” Constanţa Ser. Mat.* 20(2012), 355–368.
- R.M. Adams, R. Biggs, C.C. Rensing, Single-input control systems on the Euclidean group $SE(2)$. *Eur. J. Pure Appl. Math* 5(2012), 1–15.

Chapters in books

- 2017 R. Biggs, C.C. Rensing, Invariant control systems on Lie groups. In: G. Falcone (ed.), *Lie Groups, Differential Equations, and Geometry: Advances and Surveys*, Springer, 2017, 127–181.

Conference Proceedings

- 2014 R. Biggs, C.C. Remsing, Control systems on three-dimensional Lie groups. *Proc. 13th European Control Conference*. Strasbourg, France (2014), 2442–2447.
D.I. Barrett, R. Biggs, C.C. Remsing, Optimal control of drift-free invariant control systems on the group of motions of the Minkowski plane. *Proc. 13th European Control Conference*. Strasbourg, France (2014), 2466–2471.
- 2013 R. Biggs, C.C. Remsing, A classification of quadratic Hamilton–Poisson systems in three dimensions. *Proc. 15th International Conference on Geometry, Integrability and Quantization*. Varna, Bulgaria (2013), 67–78.
R.M. Adams, R. Biggs, C.C. Remsing, Quadratic Hamilton–Poisson systems on $\mathfrak{so}(3)^*$: classification and integration. *Proc. 15th International Conference on Geometry, Integrability and Quantization*. Varna, Bulgaria (2013), 55–66.
R. Biggs, C.C. Remsing, Feedback classification of invariant control systems on three-dimensional Lie groups. *9th IFAC Symposium on Nonlinear Control Systems*. Toulouse, France (2013).
- 2012 R. Biggs, C.C. Remsing. On the equivalence of cost-extended control systems on Lie groups. *Proc. 8th WSEAS International Conference on Dynamical Systems and Control*. Porto, Portugal (2012), 60–65.
R.M. Adams, R. Biggs, C.C. Remsing. On the equivalence of control systems on the orthogonal group $SO(4)$. *Proc. 8th WSEAS International Conference on Dynamical Systems and Control*. Porto, Portugal (2012), 54–59.

Complete List of Contributed Talks

29 contributed talks.

- 2019 Sub-Riemannian structures on Lie groups. *School of Mathematics Seminar*, University of the Witwatersrand, South Africa.
Morphisms of SR structures. *Second Mini-Symposium: Geometry Groups and Control*, Rhodes University, Grahamstown, South Africa.
- 2018 Sub-Riemannian structures on Lie groups. *Jyväskylä Geometry Seminar*, University of Jyväskylä, Jyväskylä, Finland.
Sub-Riemannian structures on nilpotent Lie groups. *First Mini-Symposium: Geometry Groups and Control*, Rhodes University, Grahamstown, South Africa.
Extensions of sub-Riemannian structures on Lie groups. *61st Annual Congress of the South African Mathematical Society*, Rhodes University, Grahamstown, South Africa.
- 2017 Isometries of invariant sub-Riemannian structures on 3D Lie groups. *60th Annual Congress of the South African Mathematical Society*, Potchefstroom, South Africa.
Sub-Riemannian structures on Lie groups. *Mathematics Seminar*, University of Pretoria, Pretoria, South Africa.
- 2016 Isometries of invariant sub-Riemannian structures on 3D Lie groups. *7th European Congress of Mathematics*, Berlin, Germany.
Isometries of Riemannian and sub-Riemannian structures on 3D Lie groups. *13th International Conference on Differential Geometry and its Applications*, Brno, Czech Republic.
Sub-Riemannian structures on nilpotent Lie groups. *4th International Conference on Lie groups, Differential Equations and Geometry*, Modica, Italy.

- 2015 On the classification of lower-dimensional real Lie groups. *Eastern Cape Postgraduate Seminar in Mathematics*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Riemannian and sub-Riemannian structures on the Heisenberg groups. *Workshop on Geometry, Lie Groups and Number Theory*, University of Ostrava, Czech Republic.
- 2014 Invariant sub-Riemannian structures on Lie groups: geodesics and isometries. *Eastern Cape Postgraduate Seminar in Mathematics*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Invariant control systems on Lie groups. *2nd International Conference on Lie Groups, Differential Equations and Geometry*, University of Palermo, Italy.
- Control systems on three-dimensional Lie groups: equivalence and controllability. *13th European Control Conference*, Strasbourg, France.
- Sub-Riemannian Heisenberg groups. *Geometry Seminar*, University of Debrecen, Hungary.
- Invariant sub-Riemannian structures on Lie groups (PhD report). *Mathematics Seminar*, Rhodes University, Grahamstown, South Africa.
- 2013 Quadratic Hamilton–Poisson systems (PhD report). *Mathematics Seminar*, Rhodes University, Grahamstown, South Africa.
- On quadratic Hamilton–Poisson systems. *Eastern Cape Postgraduate Seminar in Mathematics*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- On quadratic Hamilton–Poisson systems. *15th International Conference on Geometry, Integrability and Quantization*, Varna, Bulgaria.
- Geometric control on Lie groups. *Geometry Seminar*, University of Debrecen, Hungary.
- 2012 On the equivalence of cost-extended control systems on Lie groups. *8th WSEAS International Conference on Dynamical Systems and Control*, Porto, Portugal.
- Cost-extended control systems on Lie groups. *Geometry Seminar*, University of Debrecen, Hungary.
- Cost-extended control systems (PhD report). *Mathematics Seminar*, Rhodes University, Grahamstown, South Africa.
- Control affine systems on 3D Lie groups. *Eastern Cape Postgraduate Seminar in Mathematics*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- 2011 On the equivalence of control systems on Lie groups. *The Joint International Congress of the American and South African Mathematical Societies*, Port Elizabeth, South Africa.
- Control systems on the oscillator group (MSc report). *Mathematics Seminar*, Rhodes University, Grahamstown, South Africa.
- 2010 The category of left-invariant control systems (MSc report). *Mathematics Seminar*, Rhodes University, Grahamstown, South Africa.
- Classification of affine subspaces of the Heisenberg Lie algebra. *Eastern Cape Postgraduate Seminar in Mathematics*, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.

Complete List of Teaching and Learning Presentations

4 T&L presentations.

- 2019 Presentation "Flexible Toolbox," *Flexible Futures conference*, Pretoria.
Presentation in Faculty's "Celebrating Teaching Excellence" event, Faculty of Natural and Agricultural Sciences, University of Pretoria.
Presentation in Faculty's "Toolbox FLY@NAS event," Faculty of Natural and Agricultural Sciences, University of Pretoria
- 2018 Teaching & Learning: a Hotchpotch of Ideas, *Department of Humanities Education Seminar*, University of Pretoria.