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INFORMATION

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RESEARCH
INTERESTS

Noncommutative Algebra, Arithmetic Dynamics, Algebraic Combinatorics, Theoretical
Computer Science.

EMPLOYMENT

- **Professor.** University of Waterloo, Waterloo, ON, *2013–Present.*
- **Associate Professor.** Simon Fraser University, Burnaby, B.C., *2010–2012.*
- **Assistant Professor.** Simon Fraser University, Burnaby, B.C., *2005–2010.*
- **Assistant Professor.** University of Michigan, Ann Arbor, MI, *2002–2005.*

EDUCATION

- **PhD in Mathematics,** 2002. University of California, San Diego, CA.
  Dissertation: *Examples in finite Gelfand-Kirillov dimension.* Advisor: Professor L.
  W. Small.
- **MSc in Mathematics,** 1999. McGill University, Montreal, QC.
  Thesis: *The Equivariant Grothendieck groups of the Russell-Koras contractible three-folds.* Advisor: Professor K. P. Russell.
- **BMath in Pure Mathematics**, 1997. University of Waterloo, Waterloo, ON.

BOOKS AND
CHAPTERS

1. Bell, J.; Ghioca, D.; Tucker, T. *The dynamical Mordell-Lang conjecture.* Mathematical Surveys and Monographs, 210. American Mathematical Society, Providence, RI, 2016. xiii+280 pp.

2. Bell, J. *Growth functions.* Commutative algebra and noncommutative algebraic geometry. Vol. I, 1–24, Math. Sci. Res. Inst. Publ., 67, Cambridge Univ. Press, New York, 2015.

3. Bell, J. *Applications of algebra to automatic sequences.* Sequences, groups, and number theory, 143–175, Trends Math., Birkhäuser/Springer, Cham, 2018.

4. Bell, Jason P. *The Skolem-Mahler-Lech theorem. Doc. Math.*, 2019, 173–178.

5. Adamczewski, B.; Bell, J. *Automata in Number Theory.* Handbook of automata theory. Vol. II. Automata in mathematics and selected applications, 913–945, EMS Press, Berlin, 2021.

PUBLICATIONS

1. Bell, J.; Ghioca, D.; Moosa, R. Effective isotrivial Mordell-Lang in positive characteristic. To appear in *Amer. J. Math.*

2. Bell. J.; Buzaglo, L. Maximal dimensional subalgebras of general Cartan type Lie algebras. To appear in *Bull. London. Math. Soc.*

3. Bell, J.; Ghioca, D.; Huang, Y. A Mordell-Lang-type problem for GL_m. To appear in *Bull. Aust. Math. Soc.*

4. Bell, J.; Hindes, W.; Zhong X. Counting points by height in semigroup orbits. To appear in *Can. J. Math.*

5. Bell, J.; Monahan, S.; Satriano, M.; Situ, K.; Xie, Z. There are no good infinite families of toric codes. To appear in *J. Combin. Theory Ser. A.*

6. Bell, J.; Schulz, C.; Shallit, J. Consecutive power occurrences in Sturmian words. *C. R. Math. Acad. Sci. Paris* **362** (2024), 1273–1278.

7. Bell, Jason P.; Huang, Keping; Peng, Wayne; Tucker, Thomas J. A Tits alternative for endomorphisms of the projective line. *J. Eur. Math. Soc. (JEMS)* **26** (2024), no. 12, 4903–4922.

8. Bell, Jason P.; Burkhardt, Léon; Priebe, Nicholas. Ore extensions of commutative rings and the Dixmier-Moeglin equivalence. *Contemp. Math.*, **801** American Mathematical Society, Providence, RI, 2024, 1–15.

9. Bell, Jason; Moosa, Rahim; Satriano, Matthew. On invariant rational functions under rational transformations. *Selecta Math. (N.S.)* **30** (2024), no. 3, Paper No. 53, 23 pp.

10. Bell, Jason P. Filtered deformations of commutative algebras of Krull dimension two *Math. Z.* **307** (2024), no. 2, Paper No. 27, 9 pp.

11. Adamczewski, B.; Bell, J. P.; Delaygue, É.; Jouhet, F. Cyclotomic valuation of q-Pochhammer symbols and q-integrality of basic hypergeometric series. *Acta Arith.* **213** (2024), no. 2, 131–167.

12. Bell, Jason P.; Chen, Shaoshi; Nguyen, Khoa D.; Zannier, Umberto. D-finiteness, rationality, and height III: multivariate Pólya-Carlson dichotomy. *Math. Z.* **306** (2024), no. 4, Paper No. 70, 13 pp.

13. Bell, Jason; Ghioca, Dragos; Reichstein, Zinovy. Rational self-maps with a regular iterate on a semiabelian variety. *J. Number Theory* **260** (2024), 103–119.

14. Bell, Jason; Ghioca, Dragos. Intersections of orbits of self-maps with subgroups in semiabelian varieties. *Bull. Lond. Math. Soc.* **56** (2024), no. 2, 783–795.

15. Bell, Jason P.; Diller, Jeffrey; Jonsson, Mattias; Krieger, Holly. Birational maps with transcendental dynamical degree. *Proc. Lond. Math. Soc. (3)* **128** (2024), no. 1, Paper No. e12573, 47 pp.

16. Bell, Jason P.; Greenfeld, Be'eri. Amenability of monomial algebras, minimal subshifts, and free subalgebras. *Int. Math. Res. Not. IMRN* (2023), no. 24, 21467–21493.

17. Bell, Jason; Smertnig, Daniel; Tamm, Hellis. Duality of lattices associated to left and right quotients. *Electron. Proc. Theor. Comput. Sci. (EPTCS)*, **386**

18. Bell, Jason; Smertnig, Daniel. D-finite multivariate series with arithmetic restrictions on their coefficients. *Canad. J. Math.* **75** (2023), no. 6, 1745–1779.

19. Albayrak, Seda; Bell, Jason P. Quantitative estimates for the size of an intersection of sparse automatic sets. *Theoret. Comput. Sci.* **977** (2023), 114–144.

20. Bell, Jason; Zhong, Xiao. p-Adic interpolation of orbits under rational maps. *Proc. Amer. Math. Soc.* **151** (2023), no. 11, 4661–4672.

21. Bell, Jason P.; Smertnig, Daniel. Computing the linear hull: deciding deterministic? and unambiguous? for weighted automata over fields. *IEEE Computer Society Press*, Los Alamitos, CA, 2023, Paper No. 51, 13 pp.

22. Adamczewski, Boris; Bell, Jason; Smertnig, Daniel. A height gap theorem for coefficients of Mahler functions. *J. Eur. Math. Soc. (JEMS)* **25** (2023), no. 7, 2525–2571.

23. Bell, J. P.; Shallit, J. Counterexamples to a conjecture of Dombi in additive number theory. *Acta Math. Hungar.* **169** (2023), no. 2, 562–565.

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25. Bell, Jason; Ghioca, Dragos. A conjecture strengthening the Zariski dense orbit problem for birational maps of dynamical degree one. *Canad. Math. Bull.* **66** (2023), no. 2, 477–491.

26. Bell, Jason; Liu, Haggai; Mishna, Marni. Cogrowth series for free products of finite groups. *Internat. J. Algebra Comput.* **33** (2023), no. 2, 237–260.

27. Bell, Jason P.; Matsuzawa, Yohsuke; Satriano, Matthew. On dynamical cancellation. *Int. Math. Res. Not. IMRN* (2023), no. 8, 7099–7139.

28. Bell, Jason P.; Brown, Ken; Nazemian, Zahra; Smertnig, Daniel. On noncommutative bounded factorization domains and prime rings. *J. Algebra* **622** (2023), 404–449.

29. Bell, Jason P.; Nguyen, Khoa D.; Zannier, Umberto. D-finiteness, rationality, and height II: Lower bounds over a set of positive density. *Adv. Math.* **414** (2023), Paper No. 108859, 24 pp.

30. Bell, Jason; Ghioca, Dragos. A fusion variant of the classical and dynamical Mordell-Lang conjectures in positive characteristic. *New York J. Math.* **28** (2022), 1623–1636.

31. Bell, Jason P.; Shallit, Jeffrey. Lie complexity of words. *Theoret. Comput. Sci.* **927** (2022), 98–108.

32. Bell, Jason P.; Danchev, Peter V. Affine representability and decision procedures for commutativity theorems for rings and algebras. *Israel J. Math.* **249** (2022), no. 1, 121–166.

33. Bell, Jason P.; Shallit, Jeffrey Automatic sequences of rank two. *RAIRO Theor. Inform. Appl.* **56** (2022), Paper No. 7, 13 pp.

34. Bell, Jason P. Topological invariants for words of linear factor complexity. *Adv. in Appl. Math.* **139** (2022), Paper No. 102372, 18 pp.

35. Bell, Jason; Bugeaud, Yann. Mahler's and Koksma's classifications in fields of power series. *Nagoya Math. J.* **246** (2022), 355–371.

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43. Bell, J.; Ghioca, D.; Satriano, M. Dynamical uniform bounds for fibers and a gap conjecture. *Int. Math. Res. Not. IMRN* **2021**, no. 10, 7932–7946.

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50. Bell, J.; Hu, F.; Satriano, M. Height gap conjectures, D-finiteness, and a weak dynamical Mordell-Lang conjecture. *Math. Ann.* **378** (2020), no. 3-4, 971–992.

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52. Bell, J.; Funk, D.; Kim, B.; Mayhew, D. Effective versions of two theorems of Rado. *Q. J. Math.* **71** (2020), no. 2, 599–618.

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55. Bell, J. On the importance of being primitive. *Rev. Colombiana Mat.* **53** (2019), suppl., 87–112.

56. Bell, J.; Ghioca, D.; Tucker, T. Bounding periods of subvarieties of $(\mathbb{P}^1)^n$. *Math. Res. Lett.* **26** (2019), no. 4, 949–971.

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73. Bell, J.; Zhang, J. Zariski cancellation problem for noncommutative algebras. *Selecta Math. (N.S.)* **23** (2017), no. 3, 1709–1737.

74. Bell, J.; Chen, S. Power series with coefficients from a finite set. *J. Combin. Theory Ser. A* **151** (2017), 241–253.

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142. Bell, J. p-Adic valuations and k-regular sequences. *Discrete Math.* **307** (2007), no. 23, 3070–3075.

143. Bell, J.; Gerhold, S. On the positivity set of a linear recurrence sequence. *Israel J. Math.* **157** (2007), 333–345.

144. Bell, J.; Goh, T. Exponential lower bounds for the number of words of uniform length avoiding a pattern. *Inform. and Comput.* **205** (2007), no. 9, 1295–1306.

145. Bell, J. Noetherian algebras over algebraically closed fields. *J. Algebra* **310** (2007), no. 1, 148–155.

146. Bell, J.; Skandera, M. Multicomplexes and polynomials with real zeros. *Discrete Math.* **307** (2007), no. 6, 668–682.

147. Bell, J.; Burris, S.; Yeats, K. Counting rooted trees: the universal law $t(n) \sim C\rho^{-n}n^{-3/2}$. *Electron. J. Combin.* **13** (2006), no. 1, Research Paper 63, 64 pp.

148. Bell, J. A generalised Skolem-Mahler-Lech theorem for affine varieties. *J. London Math. Soc.* (2) **73** (2006), no. 2, 367–379. [Corrigendum: "A generalised Skolem-Mahler-Lech theorem for affine varieties" *J. Lond. Math. Soc.* (2) **78** (2008), no. 1, 267–272.]

149. Bell, J.; Minei, M. Spectral analysis of the affine graph over the finite ring. *Linear Algebra Appl.* **414** (2006), no. 1, 244–265.

150. Bell, J.; Burris, S. Partition identities. II. The results of Bateman and Erdős. *J. Number Theory* **117** (2006), no. 1, 160–190.

151. Bell, J. A generalization of Cobham's theorem for regular sequences. *Sém. Lothar. Combin.* 54A (2005/07), Art. B54Ap, 15 pp.

152. Bell, J.; Hare, K. A classification of (some) Pisot-cyclotomic numbers. *J. Number Theory* **115** (2005), no. 2, 215–229.

153. Bell, J. Examples in finite Gelfand-Kirillov dimension. II. *Comm. Algebra* **33** (2005), no. 9, 3323–3334.

154. Bell, J. Unavoidable and almost unavoidable sets of words. Internat. *J. Algebra Comput.* **15** (2005), no. 4, 717–724.

155. Bell, J. A gap result for the norms of semigroups of matrices. *Linear Algebra Appl.* **402** (2005), 101–110.

156. Bell, J. On the values attained by a k-regular sequence. *Adv. in Appl. Math.* **34** (2005), no. 3, 634–643.

157. Bell, J.; Garsia, A.; Wallach, N. Some new methods in the theory of m-quasi-invariants. *Electron. J. Combin.* **11** (2004/06), no. 2, Research Paper 20, 32 pp.

158. Bell, J. Dirichlet series whose partial sums of coefficients have regular variation. *Israel J. Math.* **144** (2004), 343–365.

159. Bell, J.; Burris, S. Partition identities. I. Sandwich theorems and logical 0-1 laws. *Electron. J. Combin.* **11** (2004), no. 1, Research Paper 49, 25 pp.

160. Bell, J.; Small, L. Centralizers in domains of Gelfand-Kirillov dimension 2. *Bull. London Math. Soc.* **36** (2004), no. 6, 779–785.

161. Bell, J. The Hilbert series of prime PI rings. *Israel J. Math.* **139** (2004), 1–10.

162. Bell, J.; Burris, S. Asymptotics for logical limit laws: when the growth of the components is in an RT class. *Trans. Amer. Math. Soc.* **355** (2003), no. 9, 3777–3794.

163. Bell, J. Examples in finite Gelfand-Kirillov dimension. *J. Algebra* **263** (2003), no. 1, 159–175.

164. Bell, J.; Small, L. A question of Kaplansky. Special issue in celebration of Claudio Procesi's 60th birthday. *J. Algebra* **258** (2002), no. 1, 386–388.

165. Bell, J. Sufficient conditions for zero-one laws. *Trans. Amer. Math. Soc.* **354** (2002), no. 2, 613–630.

166. Bell, J. A proof of a partition conjecture of Bateman and Erdős. *J. Number Theory* **87** (2001), no. 1, 144–153.

167. Bell, J. The equivariant Grothendieck groups of the Russell-Koras threefolds. *Canad. J. Math.* **53** (2001), no. 1, 3–32.

168. Bell, J. When structures are almost surely connected. *Electron. J. Combin.* **7** (2000), Research Paper 36, 7 pp.

169. Bell, J.; Bender, E.; Cameron, P.; Richmond, L. Asymptotics for the probability of connectedness and the distribution of number of components. *Electron. J. Combin.* **7** (2000), Research Paper 33, 22 pp.

170. Bell, J.; Borwein, P.; Richmond, L. Growth of the product $\prod_{j=1}^{n}(1 - x^{a_j})$. *Acta Arith.* **86** (1998), no. 2, 155–170.

171. Bell, J.; Djokovic, D. Construction of Baumert-Hall-Welch arrays and T-matrices. *Australas. J. Combin.* **14** (1996), 93–107.

Selected Invited Presentations

1. UCCS Algebra Seminar, "Filtered Deformations of Commutative Rings," July 2024.

2. Simons Foundation Workshop on Algebraic, Complex, and Arithmetic Dynamics, "p-Adic interpolation," June 2024.

3. Dynamical Days in Montreal, "Invariant rational functions and Cartesian products of algebraic dynamical systems," June 2024.

4. Joint Mathematics Meetings, San Francisco, CA, "Filtered deformations of commutative rings," Jan. 2017.

5. Auslander Conference, "Noncommutative Projective Geometry," April 2023.

6. Ohio University S. K. Jain Colloquium, "The Dixmier-Moeglin Equivalence," Feb. 2023.

7. Toronto, Canada, CMS Winter Meeting, "Intersections of orbits of self-maps with subgroups in semiabelian varieties," Dec. 2022.

8. Canada-Mexico-USA Conference in Representation Theory, Noncommutative Algebra, and Categorification, Northeastern University, "Recent results on the Dixmier-Moeglin equivalence," June 2022.

9. Harvard Arithmetic and Complex Dynamics Seminar, "Dynamical cancellation," Mar. 2022.

10. Quebec-Vermont Number Theory Seminar, "Transcendental dynamical degrees of birational maps," Dec. 2021.

11. Amitsur Centennial symposium, "Specht's theorem, commutativity theorems, and decision procedures," Nov. 2021.

12. University of Haifa Algebra seminar, "Specht's theorem, commutativity theorems, and decision procedures," Oct. 2021.

13. Warsaw Number Theory seminar, "Effective isotrivial Mordell-Lang," June 2021.

14. Upstate New York Online Number Theory Colloquium, "Transcendental dynamical degrees of birational maps," May 2021.

15. DePaul University ACNT seminar, "Specht's theorem, commutativity theorems, and decision procedures," May 2021.

16. Géometrie et Théorie des Modèles, "Effective isotrivial Mordell-Lang in positive characteristic," April 2021.

17. Journée du Séminaire Différentiel, "A height gap theorem for coefficients of Mahler functions," April 2021.

18. University of Waterloo, Algebraic Combinatorics seminar, "The growth of groups and algebras," January 2021.

19. Number Theory Web, "A transcendental dynamical degree," November 2020.

20. ADIOS (Arithmetic Dynamics International Online Seminar), "Some dynamical problems inspired by work in combinatorics," June 2020.

21. DART workshop, New York City, USA, "Invariant hypersurfaces," February 2020.

22. AIM Workshop on Artin's conjecture, "The work of Agata Smoktunowicz," September 2019.

23. Group Rings, Groups and Rings, São Paulo, Brazil, "Free subgroups and subalgebras of division rings," September 2019.

24. SIAM Conference on Applied Algebraic Geometry, Bern, Switzerland, "Growth of algebras," July 2019.

25. Workshop on Interactions Between Representation Theory and Model Theory, University of Kent, Canterbury, "Invariant hypersurfaces," July 2019.

26. Transcient Transcendence in Transylvania, Brasav, Romania, "Annihilators of irreducible representations and semiabelian varieties," June 2019.

27. Kolchin Seminar, CUNY, "Invariant hypersurfaces," Feb. 2019.

28. CMS Summer Meeting, plenary lecture, UNB, "Growth of groups and algebras," June 2018.

29. PIMS Distinguished Lecture, U. Lethbridge, "Linear recurrences, dynamics, and automata," Dec. 2017.

30. Kolchin Seminar, CUNY, "New methods in hypertranscendence," Oct. 2017.

31. Banff International Research Station, "S-units and D-finite power series," Sept. 2017.

32. XXII Coloquio Latinoamericano de Algebra, Quito, Ecuador, "Primitive ideals and the Dixmier-Moeglin equivalence," Aug. 2017.

33. Algebra Extravaganza, Temple University, Philadelphia, "The Dixmier-Moeglin equivalence for D-groups," July 2017.

34. Mathematics of the Americas, Montreal, "A Dynamical Mordell-Lang conjecture for sheaves," July 2017.

35. Bar Ilan University, Israel, "The Dixmier-Moeglin equivalence for D-groups," June 2017.

36. Groups, Rings, and Group Rings, Spa, Belgium, "Graded nilpotent algebras," June 2017.

37. Joint Mathematics Meetings, Atlanta, GA, "Algebraic independence of G-functions and Lucas congruences," Jan. 2017.

38. Vancouver, Canada, FPSAC, "Diagonals of rational power series and their uses in combinatorics, number theory, and computer science," July 2016.

39. De Paul University, Chicago, "Linear recurrences in positive characteristic and finite-state machines," Mathematics Colloquium, May 2016.

40. University of California, San Diego, "Linear recurrences and automata," Mathematics Colloquium, February 2016.

41. Loyola University, Illinois, "Free subalgebras and subgroups in quotient division rings of Ore extensions," AMS sectional meeting, October 2015.

42. Workshop on Automatic Sequences, Liège, Belgium, "Algebraic power series and diagonals of rational functions" and "Cobham's theorem and its extensions," Plenary talks, May 2015.

43. University of Colorado, Colorado Springs, "Game theory and the evolution of altruism," Distinguished Lecture, October 2014.

44. Fudan University, Shanghai, China, "The Zariski cancellation problem," Workshop on Noncommutative Algebraic Geometry, August 2014.

45. ERC Research Period on Diophantine Geometry, Cetraro, Italy, "Automorphisms of varieties and potential density," July 2014.

46. ICALP, Copenhagen, Denmark, "Symmetric Groups and Quotient Complexity of Boolean Operations," July 2014.

47. Oberwolfach Institute, Germany, "The Dixmier-Moeglin equivalence for Poisson algebras," Conference on Interactions Between Algebraic Geometry and Noncommutative Algebra, May 2014.

48. IMPAN, Bedlewo, Poland, "Free subalgebras of division algebras," August 2013.

49. Fields Institute, Toronto, ON, "Applications of algebra to the theory of automatic sequences," Conference on Combinatorics on Words and Strings, April 2013.

50. Mathematical Sciences Research Institute, Berkeley, CA, "Lectures on growth of algebras," Introductory Workshop on Noncommutative Algebra and Representation Theory, January 2013.

51. Irwin Schrodinger Institute, Vienna, Austria, "The Kurosh problem over general fields," Conference on Golod Shafarevich Groups and Rank Gradient, August 2012.

52. Western Washington University, "The Skolem-Mahler-Lech theorem," Mathematics Colloquium, March 2012.

53. University of Waterloo, "Diagonals of rational functions, differential equations, and automata," Pure Mathematics Colloquium, March 2012.

54. CMS Winter Meeting, Toronto, Canada, "Towards an Effective Mordell-Lang Theorem in positive characteristic," December 2011.

55. AMS Regional Meeting, University of Utah, "Critical density in positive characteristic," October 2011.

56. Fudan University, Shanghai, China, "Rings of differential operators," Workshop on Noncommutative Algebraic Geometry, September 2011.

57. AMS Regional Meeting, University of Virginia, "Linear recurrences, geometry, and finite-state automata," April 2011.

58. AMS Regional Meeting, University of Washington, "Free subalgebras of division rings," August 2010.

59. Oberwolfach Institute, Germany, "A primitive or PI dichotomy for domains of quadratic growth," Conference on Interactions Between Algebraic Geometry and Noncommutative Algebra, May 2010.

60. RIMS Institute, Kyoto, Japan, "Dynamics and the Noetherian property," Conference on Noncommutative Algebraic Geometry, August 2009.

61. McGill University, "The dynamical Skolem-Mahler-Lech theorem," Conference in Honour of Peter Russell, June 2009.

62. Université de Québec à Montréal, "Logarithmic frequency in morphic words," Canadian Discrete and Algorithmic Mathematics Conference, June 2009.

63. University of Calgary, "Endomorphisms of projective schemes," PIMS ABC Algebra Workshop, April 2009.

64. AMS and MAA Joint Meetings, Washington, D.C., USA, "Laplace Transforms and 0-1 laws" and "Centralizers in domains of low GK dimension," January 2009.

65. Université de Luminy, "Cobham's theorem and its generalizations," CIRM Conference on Numeration, March 2009.

66. Banff International Research Station, "Centralizers in algebras of finite Gelfand-Kirillov dimension," Interactions Between Noncommutative Algebra and Algebraic Geometry, October 2008.

67. AMS Regional Meeting, Davidson College, North Carolina, "Primitive ideals in quantum matrices," March 2007.

68. AMS Regional Meeting, Miami University, Ohio, "Subfields of division algebras," February 2007.

69. Oberwolfach Institute, Germany, "A Dixmier-Moeglin correspondence for twisted homogeneous coordinate rings," Conference on Interactions Between Algebraic Geometry and Noncommutative Algebra, May 2006.

70. University of Ottawa, "Automorphisms and projective varieties," 58th Algebra Day, May 2006.

71. University of California, San Diego, "Critical density in Projective schemes," Lance Small's 65th birthday conference, February 2006.

72. AMS Regional Meeting, University of Oregon, "Critical density in projective varieties," November 2005.

73. FPSAC, Taormina, Italy, "A generalized Cobham theorem," June 2005.

74. CMS Summer Meeting, University of Waterloo, "Automatic sequences, logarithmic density, and fractals," June 2005.

75. AMS Regional Meeting, University of California, Santa Barbara, "Critical density in quasi-projective varieties," April 2005.

76. AMS Regional Meeting, Bowling Green, Kentucky, "Automorphisms of affine space," March 2005.

77. CMS Winter Meeting, Montreal, Quebec, "Critical density in integral schemes," December 2004.

78. University of Waterloo, "Rational functions, Hilbert series, and forbidden subwords," Pure Mathematics Colloquium, October 2004.

79. AMS Regional Meeting, Chapel Hill, North Carolina, "Hilbert series of prime PI algebras," October 2003.

80. AMS and MAA Joint Meetings, Baltimore, Maryland, "Affine algebras of GK dimension 2," January 2003.

81. SIAM Meeting, San Diego, California, "Asymptotic enumeration and 0-1 laws for graphs," August 2002.

82. University of Waterloo, "Algebras of low Gelfand-Kirillov dimension," Pure Mathematics Colloquium, December 2001.

83. AMS and MAA Joint Meetings, San Diego, California, "A proof of a partition conjecture of Bateman and Erdős," January 2002.

84. University of Waterloo, "Recent developments in 0-1 laws," Tutte Colloquium, July

STUDENTS AND POSTDOCS

1. Chris Schulz, **Postdoc**, July 2023–Present.

2. Leo Jimenez, **Postdoc**, July 2021–Aug. 2023.

3. Simon Crawford, **Postdoc**, Sept. 2018–2020.

4. Daniel Smertnig, **Postdoc**, 2018–2019.

5. Yi Zhu, **Postdoc**, 2015–2017.

6. Julian Rosen, **Postdoc**, 2013–2015.

7. Catherine St. Pierre **PhD student**, 2024–Present.

8. Laindon Burnett, **PhD Student**, 2023–Present.

9. Xiao Zhong, **PhD Student**, 2022–Present.

10. Seda Albayrak, **PhD Student**, 2017–2021.

11. Parham Hamidi, **PhD Student** (Co-Supervised), 2017–2018.

12. Sylvie Davies, **PhD Student** (Co-supervised), 2016–2019.

13. Hongdi Huang, **PhD Student**, 2015–2020.

14. Ehsaan Hossain, **PhD Student**, 2015–2020.

15. Blake Madill, **PhD Student**, 2013–2017.

16. Karel Casteels, **PhD Student**. Phd Thesis: "The Combinatorial Structure of the Prime Spectrum of Quantum Matrices." Completed in 2010. (Awarded Governor General's Gold Medal.)

17. Pinar Colak, **PhD Student**, 2008–2012.

18. Yaghoub Sharifi, **PhD Student**, 2007–2013.

19. Pinar Colak, **MSc Student**, MSc Thesis: "Primitivity of finitely presented monomial algebras." Completed in 2008.

20. James Parks, **MSc Student**, MSc Thesis: "The Diximier-Moeglin equivalence for skew polynomials rings." Completed in 2009.

21. James Ratcliffe, **MSc Student**, MSc Thesis: "Sums of rational functions." Completed in 2012.

22. Josh Smith, **MMath Student**, Completed in 2013.

23. Karlming Chen, **MMath Student**, Completed in 2014.

24. Chris Ferguson, **MMath Student**, Completed in 2014.

25. Chris Dugdale, **MMath Student**, Completed 2014.

26. Sylvie Davies, **MMath Student**, Completed in 2016.

27. Ehsaan Hossain, **MMath Student**, Completed in 2016.

28. John Campbell, **MMath Student**, Completed in 2016.

29. Seda Albayrak, **MMath Student**, Completed in 2017.

30. Parham Hamidi, **MMath Student**, Completed in 2017.

31. Brandon Doherty, **MMath Student**, Completed in 2017.

32. Finlay Rankin, **MMath Student**, Completed in 2019.

33. Xiao Zhong, **MMath Student**, 2021–2022.

34. Laindon Burnett, **MMath Student**, Completed in 2023.

35. Daniel Han, **MMath Student**, Completed in 2023.

36. Jack Jia, **MMath Student**, In progress.

37. Nhan Nguyen, **NSERC Undergraduate Research Assistant**, Summer 2007.

38. Jamie Lutley, **NSERC Undergraduate Research Assistant**, Summer 2008.

39. Colin Faverjon, **Undergraduate Research Assistant**, Summer 2010.

40. Yue Zhao, **Undergraduate Research Assistant**, Summer 2011 (Co-supervised).

41. Julian Sahasrabudhe, **NSERC Undergraduate Research Assistant**, Summer 2012.

42. Ehsan Hossain, **OSAP Undergraduate Research Assistant**, Summer 2013.

43. Wing-Hong Leung, **Hong Kong exchange Research Assistant**, Summer 2013.

44. Forte Shinko, **NSERC Undergraduate Research Assistant**, Winter 2014.

45. Billy Lee, **NSERC Undergraduate Research Assistant**, Summer 2014.

46. Ritvik Ramkumar, **NSERC Undergraduate Research Assistant**, Summer 2014 (Co-supervised).

47. Daniel Spivak, **NSERC Undergraduate Research Assistant**, Summer 2014 (Co-supervised).

48. Thomas Yang, **Hong Kong exchange Research Assistant**, Summer 2014.

49. Kaiyu Wu, **NSERC Undergraduate Research Assistant**, Summer 2015.

50. Chenfangru Wu, **NSERC Undergraduate Research Assistant**, Fall 2015.

51. Raymond Cheng, **NSERC Undergraduate Research Assistant**, Summer 2016.

52. Wes Chorney, **NSERC Undergraduate Research Assistant**, Summer 2017.

53. Lirong Yang, **NSERC Undergraduate Research Assistant**, Summer 2018.

54. Yuval Ohapkin, **NSERC Undergraduate Research Assistant**, Winter 2020.

55. Utkarsh Bajaj, **NSERC Undergraduate Research Assistant**, Summer 2023.

56. Kareem Alfarra **MURA**, Winter 2024.

AWARDS AND
FELLOWSHIPS

1. Fellow of the American Mathematical Society 2021–Present.

2. Recipient of the inaugural Mahony-Neumann-Room Prize (along with Michael Coons and Kevin Hare) for the best paper published in the Bulletin of the Australian Mathematical Society during the period 2011–2016.

3. NSERC Discovery Grant, 2006–2011; 2011–2016; 2016–2021.

4. Simon Fraser Personal Research Grant, 2005–2007.

5. Simon Fraser University Endowed Fellowship, 2005–2006.

6. Inquiry Based Learning Fellowship, University of Michigan, 2004.

7. NSERC Postdoctoral Scholarship (declined), 2002.

REFEREEING   Referee for the following journals:

- Journal of the American Mathematical Society.
- Journal of the European Mathematical Society.
- Mathematische Zeitschrift.
- Transactions of the American Mathematical Society.
- Algebra and Number Theory.
- Advances in Mathematics
- Compositio
- International Mathematical Research Notices.
- Journal of the London Mathematical Society.
- Duke Mathematical Journal.

SERVICE AND PROFESSIONAL ACTIVITIES

1. Editor for Algebra and Number Theory, July 2020–Present.

2. Editor-in-Chief for Communications in Algebra, Sept. 2016–December 2019.

3. Editor for the Canadian Journal of Mathematics, Jan. 2016–2021.

4. Editor for Contributions in Algebra and Geometry, 2014–2016.

5. Editor for International Journal of Algebra and Computation, 2014–2017.

6. Awards Committee, University of Waterloo, 2019–present.

7. Tenure and Promotion committee, University of Waterloo, 2016–2017, 2019–present.

8. Graduate committee, University of Waterloo, 2014–2017.

9. DACA committee, University of Waterloo, 2013–2017; 2018–2021; 2024–Present.

10. Putnam Team Coach, Simon Fraser University, 2005–2012.

11. Academic Integrity Advisor, Simon Fraser University, 2007–2012.

12. ALRP committee member, Simon Fraser University, 2011–2012.

13. Member of PIMS Scientific Committee, 2020–Present

14. Member of NSERC committee for PDF and PGSD awards, 2018–2021.

15. Member of AARMS Scientific Review Panel, 2016–2020.

16. Member of Scientific committee for CMS Winter meeting, Waterloo, Dec. 2017.

17. Organizer of Fields Institute conference "Workshop on Model Theory, Algebraic Dynamics, and Differential-Algebraic Geometry," to be held in June 2025.

18. Organizer for CMS special session, "Noncommutative Algebra and Noncommutative Geometry," Ottawa, June 2023.

19. Organizer of BIRS "Noncommutative Geometry and Noncommutative Invariant Theory," September 2022.

20. Organizer of BIRS "Algebraic Dynamics and its Connections to Difference and Differential Equations," November 2020.

21. Organizer for AIM workshop, "Noncommutative surfaces and Artin's conjecture," Sept. 2019.

22. Organizer of Fields Institute conference, "Recent applications of model theory," July 2019.

23. Organizer for AMS special session "Ring theory and related topics (celebrating the 75th birthday of Lance W. Small)," Riverside, California, Nov. 2017.

24. Organizer for CMS special session, "Arithmetic dynamics," Waterloo, Dec. 2017.

25. Organizer for conference "Noncommutative rings, algebraic geometry, and their interactions," University of Edinburgh, June 2017.

26. Organizer for CRM conference "Bridges between automatic sequences, algebra, and number theory," May 2017.

27. Organizer of BIRS "Bridges between Noncommutative Algebra and Algebraic Geometry," September 2016.

28. Organizer of Fields Institute conference "Interactions between Model Theory and Arithmetic Dynamics," July 2016.

29. Organizer of Fields Institute conference "Geometric Algebra: bridges between commutative algebra, noncommutative geometry, and representation theory," July 2015.

30. Organizer of AMS Special session, "Special Session on Topics in Noncommutative Algebra and Algebraic Geometry," Michigan State University, March 2015.

31. Organizer of CMS special session, "Connections between noncommutative algebra and geometry." Ottawa, December, 2013.

32. Organizer of BIRS "Graph algebras: Bridges between graph C^*-algebras and Leavitt path algebras." Banff, April 2013.

33. Organizer of BIRS "New Trends in Noncommutative Algebra and Algebraic Geometry." Banff, October 2012.

34. Organizer of AMS special session, "Noncommutative Algebra and Geometry." University of Hawaii, March 2012.

35. Organizer of CMS special session, "Interactions between algebraic geometry and ring theory." CMS summer meeting, Memorial University, Newfoundland, June 2009.

36. Organizer of AMS special session, "Noncommutative algebra and geometry." AMS sectional meeting, UBC, October 2008.

37. Organizer of the Alberta-British Columbia Algebra workshop. Simon Fraser University, British Columbia, April 2008.

38. Member of Canadian Mathematical Olympiad Committee, June 2008–2012.

39. Member of CMS Doctoral prize committee, March 2013–2014.

Courses taught

1. Fall 2024, MATH 145, PMATH 945.

2. Winter 2024, MATH 146.

3. Fall 2023, MATH 145, PMATH 945.

4. Winter 2023, MATH 135 (two sections), PMATH 446.

5. Winter 2022, PMATH 432/632.

6. Fall 2021, PMATH 445/745.

7. Winter 2021, PMATH 945.

8. Fall 2020, MATH 145.

9. Winter 2020, MATH 239.

10. Fall 2019, PMATH 945.

11. Winter 2019, PMATH 945.

12. Fall 2018, MATH 245.

13. Winter 2017, PMATH 446.

14. Fall 2016, PMATH 945.

15. Winter 2016, PMATH 446.

16. Fall 2015, PMATH 445/745.

17. Winter 2015, PMATH 446.

18. Fall 2014, PMATH 945.

19. Winter 2014, PMATH 446, PMATH 499.