Curriculum Vitae[1] – Adam Van Tuyl

1. Contact Information

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2. Education

1997 - 2001 PhD, Mathematics, Queen's University, Kingston, ON
1996 - 1997 MSc, Mathematics, Queen's University, Kingston, ON
1992 - 1996 BSc, Mathematics (Honors), Calvin College, Grand Rapids, MI

3. Work Experience

2021 - Professor, McMaster University, Hamilton, ON
2020 - Associate Chair (Undergraduate), McMaster University, Hamilton, ON
2015 - 2021 Associate Professor, McMaster University, Hamilton, ON
2011 - 2015 Professor, Lakehead University, Thunder Bay, ON
2009 - 2013 Chair, Dept. of Mathematical Sciences, Lakehead University, Thunder Bay, ON
2006 - 2011 Associate Professor, Lakehead University, Thunder Bay, ON
2001 - 2006 Assistant Professor, Lakehead University, Thunder Bay, ON
1997 - 2001 Instructor, Queen's University, Kingston, ON

Leaves and Visiting Positions.

2019 Workshop in Teams, Research Institute for Mathematical Sciences, Kyoto University; supported by RIMS.
2016 Visitor, Vietnam Institute for Advanced Study in Mathematics (supported by VIASM)
2014 - 2015 Sabbatical
2014 Parental Leave
2012 Visiting Professor, Università di Catania (supported by GNSAGA)
2009 Visiting Associate Professor, Università di Catania and Genova (supported by GNSAGA)
2008 - 2009 Sabbatical

4. Research and Publications

Research Interests. Commutative Algebra, Algebraic Combinatorics, Algebraic Geometry

[1]Last Updated: October 7, 2021

Books.

2020 1. E. Carlini, H.T. Hà, B. Harbourne, A. Van Tuyl, *Powers of ideals and ideals of powers: Intersection algebra, geometry, and combinatorics*. Lecture Notes of the Unione Matematica Italiana, Vol. 27, Springer, 2020.

2015 2. E. Guardo, A. Van Tuyl, *Arithmetically Cohen-Macaulay Sets of Points in* $\mathbb{P}^1 \times \mathbb{P}^1$. SpringerBriefs in Mathematics, Springer, 2015.

Refereed papers. [Authorship alphabetical. Students are underlined; postdocs indicated by $\star$]

to appear 3. E. Camps Moreno, C. Kohne, E. Sarmiento, A. Van Tuyl, Powers of principal Q-Borel ideals. To appear Canadian Mathematical Bulletin (2021). `arXiv:2010.13889`

4. F. Abdelmalek, E. Vander Meulen, K.N. Vander Meulen, A. Van Tuyl, Well-covered Token Graphs. To appear Discussiones Mathematicae Graph Theory (2021). `arXiv:2010.04539`

2021 5. T. Hibi, H. Kanno, K. Kimura, K. Matsuda, A. Van Tuyl, Homological invariants of Cameron-Walker graphs. Transactions of the American Mathematical Society 374 (2021) 6559–6582

6. G. Favacchio, J. Hofscheier*, G. Keiper, A. Van Tuyl, Splittings of toric ideals. Journal of Algebra 574 (2021) 409–433.

2020 7. L. Duong, B.K. Kroschel, M. Riddell, K.N. Vander Meulen, A. Van Tuyl, Maximum nullity and zero forcing of circulant graphs. Special Matrices 8 (2020) 221–234.

8. G. Favacchio, G. Keiper, A. Van Tuyl, Regularity and h-polynomials of toric ideals of graphs. Proceedings of the American Mathematical Society. 148 (2020) 4665–4677.

9. S. Cooper, G. Fatabbi, E. Guardo, A. Lorenzini, J. Migliore, U. Nagel, A. Seceleanu, J. Szpond, A. Van Tuyl, Symbolic powers of codimension two Cohen-Macaulay ideals. Communications in Algebra 48 (2020) 4663–4680.

10. E. Carlini, M.V. Catalisano, E. Guardo, A. Van Tuyl, Hilbert functions of schemes of double and reduced points. Journal of Pure and Applied Algebra 224 (2020) 106187, 20pp.

2019 11. F. Galetto*, J. Hofscheier*, G. Keiper, C. Kohne, M. E. Uribe Paczka, A. Van Tuyl, Betti numbers of toric ideals of graphs: a case study. Journal of Algebra and its Applications 18 (2019) 1950226. 14pp.

12. E. Carlini, M.V. Catalisano, E. Guardo, A. Van Tuyl, Hadamard star configurations. Rocky Mountain Journal of Mathematics 49 (2019), 419–432.

13. M.E. Uribe-Paczka, A. Van Tuyl, The regularity of some families of circulant graphs. Mathematics 7(7) 2019, 657. 13pp.

14. B. Hooper, A. Van Tuyl, A note on the van der Waerden complex. Mathematica Scandinavica 124 (2019) 179–187.

15. S. Budd, A. Van Tuyl, Newton complementary dual of f-ideals. Canadian Mathematical Bulletin 62 (2019) 231–241.

16. T. Hibi, K. Matsuda, A. Van Tuyl, Regularity and h-polynomials of edge ideals. Electronic Journal of Mathematics 26 (2019) #P1.22. 11pp.

17. F. Galetto*, A.V. Geramita, Y.-S. Shin, A. Van Tuyl, The symbolic defect of an ideal. Journal of Pure and Applied Algebra 223 (2019) 2709–2731.

2018 17. J. Baker, K.N. Vander Meulen, A. Van Tuyl, Shedding vertices of vertex decomposable graphs. Discrete Mathematics 341 (2018) 3355–3369.

18. F. Galetto*, Y.-S. Shin, A. Van Tuyl, Distinguishing $\mathbb{k}$-configurations. Illinois Journal of Mathematics 61 (2017) 415–441. [Note that this paper appeared in 2018, although the journal date is 2017.]

2017 19. K.N. Vander Meulen, A. Van Tuyl, Shellability, vertex decomposability, and the lexicographical products of graphs. Contributions to Discrete Mathematics 12 (2017) 63–68.

20. J. Earl, K.N. Vander Meulen, A. Van Tuyl, Refined inertia of matrix patterns. Electronic Journal of Linear Algebra **32** (2017) 317–334.

21. J. Biermann, A. O'Keefe, A. Van Tuyl, Bounds on the regularity of toric ideals of graphs. Advances in Applied Mathematics 85 (2017) 84–102.

2016 22. C. Bocci, S. Cooper, E. Guardo, B. Harbourne, M. Janssen, U. Nagel, A. Seceleanu, A. Van Tuyl, T. Vu, The Waldschmidt constant for squarefree monomial ideal. Journal of Algebraic Combinatorics 44 (2016) 875–904.

23. J. Earl, K.N. Vander Meulen, A. Van Tuyl, Independence complexes of well-covered circulant graphs. Experimental Mathematics 25 (2016) 441–451.

2015 24. J. Biermann*, C. Francisco, T. Hà, A. Van Tuyl, Colorings of simplicial complexes and vertex decomposability. Journal of Commutative Algebra 7 (2015) 337–352.

25. E. Guardo, A. Van Tuyl, On the Hilbert functions of sets of points in $\mathbb{P}^1 \times \mathbb{P}^1 \times \mathbb{P}^1$. Mathematical Proceedings of the Cambridge Philosophical Society 159 (2015) 115–123.

26. E. Carlini, E. Guardo, A. Van Tuyl, Plane curves containing a star configuration. Journal of Pure and Applied Algebra 219 (2015) 3495–3505.

2014 27. A. Bhat, J. Biermann*, A. Van Tuyl, Generalized cover ideals and the persistence property. Journal of Pure and Applied Algebra 218 (2014) 1683–1695.

28. E. Carlini, E. Guardo, A. Van Tuyl, Star configurations on generic hypersurfaces. Journal of Algebra 407 (2014) 1–20.

29. K.N. Vander Meulen, A. Van Tuyl, C. Watt, Cohen-Macaulay circulant graphs. Communications in Algebra 42 (2014) 1896–1910.

2013 30. J. Biermann*, A. Van Tuyl, Balanced vertex decomposable simplicial complexes and their h-vectors. Electronic Journal of Combinatorics 20 (2013) #P15.

31. E. Guardo, B. Harbourne, A. Van Tuyl, Asymptotic resurgences for ideals of positive dimensional subschemes of projective space. Advances in Mathematics 246 (2013) 114–127.

32. E. Guardo, B. Harbourne, A. Van Tuyl, Symbolic powers versus regular powers of ideals of general points in $\mathbb{P}^1 \times \mathbb{P}^1$. Canadian Journal of Mathematics 65 (2013) 823–842.

33. E. Guardo, B. Harbourne, A. Van Tuyl, Fat lines in $\mathbb{P}^3$: powers versus symbolic powers. Journal of Algebra 390 (2013) 221–230.

34. B. Babcock, A. Van Tuyl, Revisiting the spreading and covering numbers. The Australasian Journal of Combinatorics 56 (2013) 77–84.
35. Ş.O. Tohăneanu, A. Van Tuyl, Bounding invariants of fat points using a coding theory construction. Journal of Pure and Applied Algebra 217 (2013) 269–279.

2012 36. E. Guardo, A. Van Tuyl, Separators of Arithmetically Cohen-Macaulay fat points in $\mathbb{P}^1 \times \mathbb{P}^1$. Journal of Commutative Algebra 4 (2012) 255–268.

37. E. Guardo, A. Van Tuyl, Classifying ACM sets of points in $\mathbb{P}^1 \times \mathbb{P}^1$ via separators. Archiv der Mathematik 99 (2012) 33–36.
38. H. Bergsma, K.N. Vander Meulen, A. Van Tuyl, Potentially nilpotent matrices and the Nilpotent-Jacobian Method. Linear Algebra and its Applications 436 (2012) 4433-4445.

2011 39. N. Campbell, K.N. Vander Meulen, A. Van Tuyl, Structure of nilpotent matrices over fields. Electronic Journal of Linear Algebra 22 (2011) 931-958.

40. E. Carlini, A. Van Tuyl, Star configuration points and generic plane curves. Proceedings of the American Mathematical Society 139 (2011) 4181–4192.
41. E. Guardo, A. Van Tuyl, Separators of fat points in $\mathbb{P}^n \times \mathbb{P}^m$. Journal of Pure and Applied Algebra 215 (2011) 1990-1998.
42. C. Francisco, H.T. Hà, A. Van Tuyl, Colorings of hypergraphs, perfect graphs, and associated primes of powers of monomial ideals. Journal of Algebra 331 (2011) 224-242

2010 43. E. Guardo, L. Marino, A. Van Tuyl, Separators of fat points in $\mathbb{P}^n$. Journal of Algebra 324 (2010) 1492-1512.

44. C. Francisco, H.T. Hà, A. Van Tuyl, Associated primes of monomial ideals and odd holes in graphs. Journal of Algebraic Combinatorics 32 (2010) 287-301.
45. C. Francisco, H.T. Hà, and A. Van Tuyl, A conjecture on critical graphs and connections to the persistence of associated primes. Discrete Mathematics 310 (2010) 2176–2182.
46. J. He, A. Van Tuyl, Algebraic Properties of the path ideal of a tree. Communications in Algebra 38 (2010) 1725-1742.
47. A. Van Tuyl, F. Zanello, Simplicial complexes and Macaulay's inverse systems. Mathematische Zeitschrift 265 (2010) 151-160.

2009 48. A. Van Tuyl, Sequentially Cohen-Macaulay bipartite graphs: vertex decomposability and regularity. Archiv der Mathematik 93 (2009) 451-459.

49. K. Vander Meulen, A. Van Tuyl, Zero-nonzero patterns for nilpotent matrices over finite fields. Electronic Journal of Linear Algebra 18 (2009) 628-648.
50. C. Francisco, H.T. Hà, A. Van Tuyl, Splittings of monomial ideals. Proceedings of the American Mathematical Society 137 (2009) 3271-3282.

2008 51. A. Van Tuyl, R. Villarreal, Shellable graphs and sequentially Cohen-Macaulay bipartite graphs. Journal of Combinatorial Theory, Series A 115 (2008) 799-814.

52. E. Guardo, A. Van Tuyl, ACM sets of points in multiprojective space. Collectanea Mathematica 59 (2008) 191-213.

53. E. Guardo, A. Van Tuyl, Separators of points in a multiprojective space. Manuscripta Mathematica 126 (2008) 99-113.

54. H. T. Hà, A. Van Tuyl, Monomial ideals, edge ideals of hypergraphs, and their graded Betti numbers. Journal of Algebraic Combinatorics 27 (2008) 215-245.

2007 55. H. T. Hà, A. Van Tuyl, Resolutions of square-free monomial ideals via facet ideals: a survey. Contemporary Mathematics 448 (2007) 91-117.

56. C. Francisco, A. Van Tuyl, Some families of componentwise linear monomial ideals. Nagoya Mathematical Journal 187 (2007) 115-156.

57. E. Guardo, A. Van Tuyl, The minimal resolutions of double points in $\mathbb{P}^1 \times \mathbb{P}^1$ with ACM support. Journal of Pure and Applied Algebra 211 (2007) 784-800.

58. C. Francisco, A. Van Tuyl, Sequentially Cohen-Macaulay edge ideals. Proceedings of the American Mathematical Society 135 (2007) 2327-2337.

59. M. Roth, A. Van Tuyl, On the linear strand of an edge ideal. Communications in Algebra 35 (2007) 821-832.

60. H. T. Hà, A. Van Tuyl, Splittable ideals and the resolutions of monomial ideals. Journal of Algebra 309 (2007) 405-425.

2006 61. J. Sidman, A. Van Tuyl, H. Wang, Multigraded regularity: coarsenings and resolutions. Journal of Algebra 301 (2006) 703-727.

62. J. Sidman, A. Van Tuyl, Multigraded regularity: syzygies and fat points. Beiträge zur Algebra und Geometrie 47 (2006) 67-87.

2005 63. E. Guardo, A. Van Tuyl, Some results on fat points whose support is a complete intersection minus a point. In *Projective Varieties with Unexpected Properties*, de Gruyter (2005) 257-266.

64. A. Van Tuyl, An appendix to a paper of Catalisano, Geramita, Gimigliano: the Hilbert function of generic sets of 2-fat points in $\mathbb{P}^1 \times \mathbb{P}^1$. In *Projective Varieties with Unexpected Properties*, de Gruyter (2005) 109-112.

65. E. Guardo, A. Van Tuyl, Powers of complete intersections: graded Betti numbers and applications. Illinois Journal of Mathematics 49 (2005) 265-279.

66. A. Van Tuyl, On the defining ideal of a set of points in multi-projective space. Journal of the London Mathematical Society 72 (2005) 73-90.

2004 67. E. Guardo, A. Van Tuyl, Fat points of $\mathbb{P}^1 \times \mathbb{P}^1$ and their Hilbert function. Canadian Journal of Mathematics 56 (2004) 716–741.

68. H. T. Hà, A. Van Tuyl, The regularity of points in multi-projective spaces. Journal of Pure and Applied Algebra 187 (2004) 153–167.

2003 69. A. Van Tuyl, The Hilbert functions of ACM points in $\mathbb{P}^{n_1} \times \cdots \times \mathbb{P}^{n_k}$. Journal of Algebra 264 (2003) 420–441.

2002 70. A. Van Tuyl, The border of the Hilbert function of a set of points in $\mathbb{P}^{n_1} \times \cdots \times \mathbb{P}^{n_k}$. Journal of Pure and Applied Algebra 176 (2002) 223–247.

2001 71. E. Carlini, H. T. Hà, A. Van Tuyl, Computing the Spreading and Covering Numbers. Communications in Algebra 29 (2001) 5687–5699.

72. M. Buckles, E. Guardo, A. Van Tuyl, Fat Points on a grid in $\mathbb{P}^2$. Matematiche (Catania) 55 (2000), no. 1, 169–189 (2001).

73. M. Buckles, E. Guardo, A. Van Tuyl, Fat Points on a generic almost complete intersection. Matematiche (Catania) 55 (2000), no. 1, 191–202 (2001).

Papers submitted or in preparation.

74. T. Hibi, K. Kimura, K. Matsuda, A. Van Tuyl, Regularity and h-polynomials of Cameron-Walker graphs. Submitted. `arXiv:2003.07416`

75. E. Camps Moreno, C. Kohne, E. Sarmiento, A. Van Tuyl, On the Waldschmidt constant of square-free principal Borel ideals. Submitted. `arXiv::2105.07307`

76. M. Harada, M. Nowroozi, A. Van Tuyl, Virtual resolutions of points in $\mathbb{P}^1 \times \mathbb{P}^1$. Submitted. `arXiv:2106.02759`

Expository Articles.

2019 77. A. Van Tuyl, Chromatic numbers via commutative algebra. CMS Notes 15 (2019) 14–15.

2013 78. A. Van Tuyl, A Beginner's Guide to Edge and Cover Ideals, in *Monomial Ideals, Computations and Applications*, edited by A.M. Bigatti, P. Gimenez, and E. Sáenz-de-Cabezón. Lecture Notes in Mathematics, 2083, Springer (2013) 63–94.

Software Packages.

2009 79. C.A. Francisco, A. Hoefel, A. Van Tuyl, *EdgeIdeals*: a package for (hyper)graphs. The Journal of Software for Algebra and Geometry 1 (2009) 1-4.
(This package can be used with the computer algebra program Macaulay 2.)

Theses.

2001 80. *Sets of Points in Multi-projective Spaces and their Hilbert Functions.*
Ph.D. Thesis, Queen's University. Supervised by A.V. Geramita.

1997 81. *The Field of n-torsion points of an Elliptic Curve over a Finite Field.*
M.Sc. Thesis, Queen's University. Supervised by E. Kani.

Papers in non-refereed journals.

2001 82. E. Carlini, H. T. Hà, A. Van Tuyl, Tutorial 2: A Chess Puzzle. In *COCOA VI, Proceedings of the International School*, Queen's Papers in Pure and Appl. Math. 120 (2001) 215–221.

83. E. Carlini, H. T. Hà, A. Van Tuyl, Tutorial 3: Hilbert Function of Points. In *COCOA VI, Proceedings of the International School*, Queen's Papers in Pure and Appl. Math. 120 (2001) 227–237.

84. E. Carlini, H. T. Hà, A. Van Tuyl, Tutorial 5: The Ideal Generation Conjecture. In *COCOA VI, Proceedings of the International School*, Queen's Papers in Pure and Appl. Math. 120 (2001) 245–262.

85. E. Carlini, H. T. Hà, A. Van Tuyl, Tutorial 6: The Minimal Resolution Conjecture. In *COCOA VI, Proceedings of the International School*, Queen's Papers in Pure and Appl. Math. 120 (2001) 263–273.

1998 86. H. T. Hà, A. Van Tuyl, The graph and the image of a rational map from $\mathbb{P}^n$ to $\mathbb{P}^m$. In *The Curves Seminar at Queen's, Vol XII*, Queen's Papers in Pure and Appl. Math. 114 (1998) 141-162.

5. Grants, Scholarships, and Awards

Research Grants and Honours.

2019 - 2024 Discovery Grant (Individual), NSERC, $21,000/year.
2019 Workshop (Type A), Research Institue for Mathematical Sciences, Kyoto.
2015 Startup Grant, McMaster University, $30,000.
2014 - 2019 Discovery Grant (Individual), NSERC, $18,000/year.
2011 Senate Research Committee Conference Travel Fund, Lakehead, $600.
2009 - 2014 Discovery Grant (Individual), NSERC, $18,000/year.
2008 Research in Teams, Banff International Research Station.
2007 Senate Research Committee NSERC Development Fund, Lakehead, $2,500.
2006 Senate Research Committee Conference Travel Fund, Lakehead, $600.
2004 - 2009 Discovery Grant (Individual), NSERC, $8,000/year.
2002 - 2004 Discovery Grant (Individual), NSERC, $6,000/year.
2002 Visiting Assistant Professor at the Università di Genova and the Università di Catania with financial support provided by INDAM.
2001 Senate Research Committee NSERC Development Fund, Lakehead, $1,200.
2001 Dean's Faculty Development Fund, Lakehead, $1,000.

Grants for conferences and workshops.

2020 NSF Conference Grant, $14,803 (US)
Co-applicant with S. Cooper and A. Seceleanu for the conference, "Unexpected and Asymptotic Properties of Projective Varieties" in Lincoln, NE, May 2020. [Postponed until 2023 due to COVID-19]
2018 General Scientific Activity Grant, Fields Institute, $8,000
Co-applicant with M. Harada for workshop "Graduate Summer School in Algebraic Group Actions " held in Hamilton, ON, June 2018.
2018 General Scientific Activity Grant, Fields Institute, $3,000
Co-applicant with M. Harada and M. Zarbrocki for conference "Combinatorial Algebra meets Algebraic Combinatorics" held in Hamilton, ON, Jan. 2018.
2012 General Scientific Activity Grant, Fields Institute, $2,000
Co-applicant with T. Hà, B. Harbourne, and G.G. Smith for conference "Interactions between algebraic geometry and commutative algebra" held in Kingston, ON, October 2012.
2011 General Scientific Activity Grant, Fields Institute, $10,000
Co-applicant with S. Faridi and A.V. Geramita for conference "Combinatorial Algebra meets Algebraic Combinatorics" held in Thunder Bay, ON, Jan. 2011.
2011 Conference Grant, AARMS (Atlantic Association for Research in the Mathematical Sciences), $4,000
Co-applicant with S. Faridi and A.V. Geramita for conference "Combinatorial Algebra meets Algebraic Combinatorics" held in Thunder Bay, ON, Jan. 2011.

Scholarships and Prizes.

2000 - 2001 Ontario Graduate Scholarship, Queen's University, $17,000.
1998 - 2000 NSERC Post Graduate Scholarship B, Queen's University, $19,100/year.

1996 - 1997 R.S. McLaughlin Fellowship, Queen's University.
1996 William Rink Memorial Prize, Calvin College.
1995 NSERC Undergraduate Student Research Award, Simon Fraser University.
1992 - 1996 Presidential Scholarship, Calvin College.

Teaching Awards and Honours.

2012 Contributions to Teaching Award, Lakehead University.
2011 Nominated for Contributions to Teaching Award, Lakehead University.
2008 Contributions to Teaching Award, Lakehead University.
2002 Contributions to Teaching Award, Lakehead University.

6. Lectures and Presentations (78 total)

Invited Conference Talks.

2019 Jan The h-polynomial and regularity of edge ideals, Combinatorial Algebra meets Algebraic Combinatorics, University of Ottawa, Ottawa, ON.
2018 Nov Symbolic defect of ideals, Commutative Algebra and Representation Theory, Tulane University, New Orleans, LA.
Mar Some results on f-ideals, AMS Meeting, Columbus, OH.
2017 Oct The symbolic defect of an ideal, Route 81 Conference, Cornell, Ithaca, NY.
Jul The combinatorial algebraic topology of some pure simplicial complexes, Mathematical Congress of the Amemericas, Montreal, PQ.
2015 Oct Revisiting a conjecture of Villarreal on Cohen-Macaulay graphs., AMS Meeting, Chicago, IL.
Feb Fat lines in $\mathbb{P}^3$, Mathematisches Forschungsinstitut Oberwolfach, Germany.
2014 Oct The independence complex of circulant graphs. AMS Meeting, Halifax, NS.
2013 Sep The $2n$-conjecture. Tulane University, New Orleans, LA.
Jun Graph colouring information encoded into monomial ideals. International Workshop in Combinatorial Algebra, Dalhousie/St. Mary's, Halifax, NS.
2012 Dec Do square-free monomial ideals satisfy the persistence property? Combinatorial Commutative Algebra and Applications, MSRI, Berkeley, CA.
Mar Bounding invariants of fat points using a coding theory construction. AMS Meeting, Lawrence, KS.
2011 Dec The minimum distance of linear codes and fat points. CMS Meeting, Toronto, ON.
2010 Nov Revisiting the spreading and covering numbers. AMS Meeting, South Bend, IN.
Mar A conjecture about coloring graphs and connections to associated primes of ideals. AMS Meeting, Lexington, KY.
Jan Coloring graphs and associated primes, Algebraic Combinatorics meets combinatorial algebra, Kingston, ON.
2009 Oct Sequentially Cohen-Macaulay bipartite graphs, AMS Meeting, Boca Raton, FL.
2008 Dec Nilpotent matrices over finite fields, CMS Meeting, Ottawa, ON.
Oct Powers of cover ideals and their associated primes, AMS Meeting, Vancouver, BC.
2007 Oct Shellable graphs, AMS Meeting, Chicago, IL.
Jun ACM sets of points in multiprojective space, Banff International Research Station, Banff, AB.
2006 Dec Some resolutions of double points in $\mathbb{P}^1 \times \mathbb{P}^1$, CMS Winter Meeting, Toronto, ON.
Aug The edge ideal of hypergraphs, Fields Institute, Toronto, ON.

Apr	Classifying ACM sets of points in multiprojective spaces, AMS Meeting, San Francisco, CA.
Apr	Resolutions of edge and facet ideals, AMS Meeting, South Bend, IN.
Apr	Resolutions of edge and facet ideals, AMS Meeting, Miami, FL.
Jan	The resolutions of edge ideals, Fields Institute, Toronto, ON.
2005 Oct	On the resolutions of edge ideals, AMS Meeting, Lincoln, NE.
2004 Oct	Multigraded regularity and fat points, AMS Meeting, Nashville, TN.
Mar	Powers of complete intersections, AMS Meeting, Tallahassee, FL.
2003 Jul	The ideal of points in multi-projective spaces, Commutative Algebra: Presentations by Young Researches, Snowbird, UT.
2002 Nov	The Hilbert functions of fat points in $\mathbb{P}^1 \times \mathbb{P}^1$, AMS Meeting, Orlando, FL.
Oct	The defining ideal of a set of points in multi-projective space, Route 81 Conference, Kingston, ON.
Jun	The Hilbert functions of fat points in $\mathbb{P}^1 \times \mathbb{P}^1$, Zero-Dimensional Schemes, Catania, Italy.
Jan	The Hilbert function of points in $\mathbb{P}^1 \times \mathbb{P}^1$, Joint AMS-MAA Meeting, San Diego, CA.
2001 Jul	The eventual behavior of the Hilbert function of a set of points in $\mathbb{P}^{n_1} \times \cdots \times \mathbb{P}^{n_k}$, poster, COCOA VII Conference, Queen's University, Kingston, ON.
2000 Dec	The Hilbert function of points in $\mathbb{P}^1 \times \mathbb{P}^1$, CMS Meeting, Vancouver, BC.
Oct	The Hilbert function of points in $\mathbb{P}^1 \times \mathbb{P}^1$, Route 81 Conference, Cornell University, Ithaca, NY.
1999 Dec	Computing the spreading and covering numbers, CMS Meeting, Montreal, PQ.
1998 May	The field of N-torsion points of an elliptic curve, Institut des Sciences Mathématiques (ISM) Graduate Student Conference, Sherbrooke, PQ.

Seminars and University Talks.

2021 Sep	Componentwise linear ideals and the Herzog, Hibi, Ohsugi Conjecture, Algebra and Algebraic Geometry Seminar, McMaster University, Hamilton, ON
2019 Apr	Chromatic numbers via commutative algebra, Colloquium, Cleveland State University, OH.
2018 Mar	Symbolic defect of ideals, Algebra Seminar, Dalhousie University, Halifax, NS.
Mar	Studying graphs using commutative algebra and combinatorial algebraic topology, Colloquium, Dalhousie University, Halifax, NS.
2017 Nov	The Hilbert function of fat points, Algebra Seminar, McMaster University, Hamilton, ON
Sep	An introduction to the Hilbert functions of points, Algebra Seminar, McMaster University, Hamilton, ON
Mar	The associated primes of powers of ideals, Algebra Seminar, McMaster University, Hamilton, ON
Jan	The Waldschmidt constant of square-free monomial ideals, Algebra Seminar, McMaster University, Hamilton, ON
2016 May	The regularity of toric ideals of graphs, Vietnam Institute of Advanced Study in Mathematics, Hanoi, Vietnam.
May	The Waldschmidt constant of square-free monomial ideals, Vietnam Academy of Science and Technology, Hanoi, Vietnam.
2015 Sep	The Waldschmidt constant of square-free monomial ideals, Operations Research Seminar, McMaster University, Hamilton, ON.

Sep The Waldschmidt constant of square-free monomial ideals, Department Colloquium, McMaster University, Hamilton, ON.
Sep Resolutions of toric ideals of graphs, Algebra Seminar, McMaster University, Hamilton, ON
Sep Toric ideals of graphs, Algebra Seminar, McMaster University, Hamilton, ON
Jan Studying graphs using commutative algebra and combinatorial algebraic topology, McMaster University, Hamilton, ON.
2014 Nov Colouring graphs using abstract algebra. Redeemer College University, Ancaster, ON.
Oct Symbolic powers of ideals of lines in projective 3-space. Queen's University, Kingston, ON.
2013 Mar Placing queens on a chessboard. Lakehead University, Thunder Bay, ON.
Jan f-vectors of simplicial complexes. Lakehead University, Thunder Bay, ON.
2012 May Star Configurations. Università di Catania, Catania, Italy.
Apr Balanced vertex decomposable simplicial complexes. Tulane University, New Orleans, LA.
2009 Jul Computing Betti numbers of edge ideals of chordal graphs, Mt. Hoyloke College, South Hadley, MA.
Apr Detecting odd induced cycles in a graph algebraically, Redeemer University College, Ancaster, ON.
Mar Powers of ideals, associated primes, and connections to graph theory. Politecnico di Torino, Torino, Italy.
Mar Powers of ideals, associated primes, and connections to graph theory. Università di Genova, Genova, Italy.
Mar Powers of ideals, associated primes, and connections to graph theory. Universitá di Catania, Catania, Italy.
Feb What is a syzgygy? Tulane University, New Orleans, LA.
Feb Detecting odd induced cycles in a graph algebraically, University of Guelph, Guelph, ON.
2008 Nov Powers of ideals, associated primes, and connections to graph theory. Memorial University, St. John's, NL.
Nov Powers of ideals, associated primes, and connections to graph theory. Tulane University, New Orleans, LA.
Oct Powers of ideals, associated primes, and connections to graph theory. McMaster University, Hamilton, ON.
Oct Generalizing separators of points. Queen's University, Kingston, ON.
Feb Powers of edge ideals and cover ideals, Cornell University, NY.
Feb Splittable ideals and edge ideals of chordal graphs, Cornell University, NY.
2007 Nov Odd cycles in graphs and edge ideals, (colloquium) Michigan Tech. University, MI.
Oct Odd cycles in graphs and edge ideals, (colloquium) Lakehead University, ON.
May Edge ideals and chordal graphs, Universitat de Barcelona/Universitat Politècnica de Catalunya, Spain.
May Edge ideals and chordal graphs, Universität Osnabrück, Germany.
May Edge ideals and chordal graphs, KTH, Stockholm, Sweden.
2005 Jan Establishing a dictionary between commutative algebra and graph theory, Wilfrid Laurier University, ON.
2004 Jul Commutative algebra and graph theory, (Discrete Math Seminar) Queen's University, Kingston, ON.

May Multigraded regularity and fat points, Università di Genova, Genova, Italy.
Apr Multigraded regularity and fat points, (Curves Seminar) Queen's University, Kingston, ON.
Feb Macaulay's growth theorem, (colloquium) Lakehead University.
2003 Feb Placing queens on a chessboard: an introduction to algebraic combinatorics, (colloquium) Lakehead University, ON.
2002 Jun The eventual behavior of the Hilbert function of points in multiprojective spaces, Università di Catania, Italy.
May The Hilbert functions of ACM sets of points in multiprojective spaces, Università di Genova, Italy.
May The eventual behavior of the Hilbert function of points in multiprojective spaces, Università di Genova, Italy.
Apr An introduction to algebraic geometry and the algebra-geometry dictionary,(colloquium) Calvin College, MI.
2000 Nov The Hilbert function of points in $\mathbb{P}^1 \times \mathbb{P}^1$, University of Michigan, MI.
Oct The Hilbert function of points in $\mathbb{P}^1 \times \mathbb{P}^1$, (Curves Seminar) Queen's University, Kingston, ON.
1999 Oct Points in $\mathbb{P}^n \times \mathbb{P}^m$, (Curves Seminar) Queen's University, Kingston, ON.

Lecture Series.

2011 Jul Instructor for the workshop *MONomial Ideals, Computations and Applications (MONICA)*, CIEM (International Centre for Mathematical meetings), Castro Urdiales Cantabria, Spain. [3 lectures + tutorial]
2006 Jul Instructor for the workshop *Computational and Combinatorial Commutative Algebra*, Fields Institute, Toronto, ON. [1 lecture + tutorial]

7. Conferences and Workshops Attended

Research Conferences.

2020 Jan Combinatorial Algebra meets Algebraic Combinatorics, Dalhousie University, NS.
2019 Dec CMS Meeting, Toronto, ON.
Jul RRAGE: Ragnar's Ramifications in Algebra and Geometry Emerging Workshop, Fields Institute, Toronto, ON.
Jan Combinatorial Algebra meets Algebraic Combinatorics, University of Ottawa, ON.
2018 Nov Commutative Algebra and Representation Theory, Tulane University, New Orleans, LA.
Jun Recent trends in syzygies, Banff International Research Station, Banff, AB.
Apr AMS Meeting, Columbus, OH.
Jan Combinatorial Algebra meets Algebraic Combinatorics, McMaster University, Hamilton, ON.
2017 Dec CMS Meeting, Waterloo, ON.
Jul Mathematical Congress of the Americas, Montreal, PQ.
2016–Dec CMS Meeting, Niagara Falls, ON.
Aug Introductory workshop to combinatorial algebraic geometry, Fields Institute, Toronto, ON.
Apr AMS Meeting, Fargo, ND.
2015–Oct Route 81 Conference, Queen's University, Kingston ON.

	Oct	AMS Meeting, Chicago, IL.
	Feb	Mini-Workshop: Ideals of Linear Subspaces, Their Symbolic Powers and Waring Problems, Mathematisches Forschungsinstitut Oberwolfach, Germany
	Jan	Combinatorial Algebra meets Algebraic Combinatorics, Queen's University, Kingston, ON
2014	Dec	CMS Meeting, Hamilton, ON.
	Oct	AMS Meeting, Halifax, NS.
2013	Sep	Interactions between Commutative Algebra and Algebraic Geometry II, Tulane University, New Orleans, LA.
	Jun	Commutative Algebra and Combinatorics, CMS Meeting, Halifax, NS.
	Jun	International Workshop in Combinatorial Algebra, Dalhousie and St. Mary's, Halifax, NS.
	Jan	Combinatorial Algebra meets Algebraic Combinatorics, Fields Institute, Toronto, ON.
2012	Dec	Combinatorial Commutative Algebra and Applications, MSRI, Berkeley, CA.
	Oct	Route 81 Conference ("TonyFest"), Kinston, ON.
	Mar	AMS Meeting, Lawrence, KS.
2011	Dec	CMS Meeting, Toronto, ON.
	Jul	MONICA (Monomial Ideals, Computations and Applications), Castro Urdiales, Spain.
	May	19th Ontario Combinatorics Workshop, Toronto, ON
	Jan	Algebraic Combinatorics meets Combinatorial Algebra VIII, Thunder Bay, ON.
2010	Dec	CMS Meeting, Vancouver, BC.
	Nov	AMS Meeting, South Bend, IN.
	Mar	AMS Meeting, Lexington, KY.
	Jan	Algebraic Combinatorics meets Combinatorial Algebra, Kingston, ON.
2009	Oct	AMS Meeting, Boca Raton, FL.
	May	Ontario Combinatorics Workshop, Waterloo, ON.
2008	Dec	CMS Meeting, Ottawa, ON.
	Nov	Clifford Lecture Series: Tropical Algebra, Tulane University, New Orleans, LA.
	Oct	Route 81 Conference, Queen's University, Kingston, ON.
	Oct	AMS Meeting, Vancouver, BC.
	Sep	KUMUNU, University of Nebraska, Lincoln, NE.
	Jun	Macaulay 2 Worksop, Snowbird, Salt Lake City, UT.
	May	Commutative Algebra: Connections with Algebraic Topology and Representation Theory, Lincoln, NE.
2007	Oct	AMS Meeting, Chicago, IL.
	Jul	International Symposium on Symbolic and Algebraic Computation (ISSAC), Waterloo, ON.
	Jun	Commutative Algebra and its Interaction with Algebraic Geometry, Banff International Research Station, Banff, AB.
2006	Dec	CMS Meeting, Toronto, ON.
	Oct	Syzygies and Hilbert Functions, Banff International Research Station, Banff, AB.
	Aug	Computational and Combinatorial Commutative Algebra, workshop at the Fields Institute, Toronto, ON.
	May	AMS Meeting, San Francisco, CA.
	Apr	AMS Meeting, South Bend, IN.
	Apr	AMS Meeting, Miami, FL.

Jan Combinatorial Inverse Systems, workshop at the Fields Institute, Toronto, ON.
2005 Oct AMS Meeting, Lincoln, NE.
Oct Midwest Algebra, Geometry and their Interactions Conference (MAGIC), University of Notre Dame, South Bend, IN.
May Wiegandfest, University of Nebraska, Lincoln, NE.
2004 Oct AMS Meeting, Nashville, TN.
Jun Projective Varieties with Unexpected Properties, Sienna, Italy.
Mar AMS Meeting, Tallahassee, FL.
Jan Inverse Systems meet diagonal coinvariants, Queen's University, Kingston, ON.
2003 Jun Commutative Algebra: Presentations by Young Researchers, Snowbird, UT.
Jun COCOA VIII: Summer School and Conference, Cadiz, Spain.
2002 Nov AMS Meeting, Orlando, FL.
Oct Route 81 Conference, Queen's University, Kingston, ON.
Jun Joint AMS-UMI Meeting, Pisa, Italy.
Jun Zero-Dimensional Schemes, Catania, Italy.
Apr Classical Invariant Theory, Queen's University, Kingston, ON.
Jan Joint AMS-MAA Meeting, San Diego, CA.
2001 Jan COCOA VII Summer School and Conference, Queen's University, Kingston, ON.
2000 Dec Canadian Mathematical Society Winter Meeting, Vancouver, BC.
Oct Route 81 Conference, Cornell University, Ithaca, NY.
Sep AMS Meeting, Toronto, ON.
Jun PRAGMATIC 2000: Special Rings of Algebraic Geometry, a summer school at the Università di Catania, Italy.
Feb Zero-Dimensional Schemes and Applications, Università di Napoli, Naples, Italy.
1999 Dec Canadian Mathematical Society Winter Meeting, Montreal, PQ.
Jul Free Resolutions and Linear Systems, a summer school at Bayreuth, Germany.
Jun COCOA VI Summer School and Conference, Torino, Italy.
1998 Dec Canadian Mathematical Society Winter Meeting, Kingston, ON.
Oct Route 81 Conference, Queen's University, Kingston, ON.
May Graduate Colloque, Université de Sherbrooke, Sherbrooke, PQ.
1997 Oct Route 81 Conference, Cornell University, Ithaca, NY.

Mathematics Education Conferences.

2009 Jun Bridging Mathematics to Mathematics Education, York University, Toronto, ON.

8. Service to the Profession

Committees.

2020–2021 Doctoral Prize Committee, Canadian Mathematical Society.
2017–2020 Endowment Grants Committee, Canadian Mathematical Society.

Conferences organized.

2023 June Co-organizer of "Unexpected and Asymptotic Properties of Algebraic Varieties" with S. Cooper and A. Seleceanu, at the Univerity of Nebraska-Lincoln. [*This conference was supposed to be held in May 2020, but was postponed due to COVID-19. As part of our original submission, S. Cooper, A. Seleceanu, and myself received $14,803 (US) from an NSF Conference Grant.*]

2020 Nov Co-organizer of "Interactions Between Topological Combinatorics and Combinatorial Commutative Algebra" with S. Faradi, S. Murai, I. Novik, and T. Hà. This is a Banff International Research Station (BIRS) conference in Banff, Canada [*This conference ended up being cancelled due to COVID-19.*]

2019 Dec Co-organizer for a special session in "Commutative Algebra" with S. Cooper and S. Faridi at the Canadian Mathematical Society Winter Meeting in Toronto, ON.

2018 Dec Co-organizer for a special session in "Symbolic and Regular Powers of Ideals" with S. Cooper and S. Faridi at the Canadian Mathematical Society Winter Meeting in Vancouver, BC. [Due to health reasons, I couldn't attend the conference, but I had helped pick the speakers.]

Jul Co-organizer for "Graduate Summer School in Algebraic Group Actions" with M. Harada in Hamilton, ON. [As part of this conference, M. Harada and myself received $8,000 from the Fields Institute.]

Jan Co-organizer for "Combinatorial Algebra meets Algebraic Cobminatorics" with M. Harada and M. Zabrocki, Hamilton, ON. [As part of this conference, M. Harada, M. Zabrocki, and myself received $3,000 from the Fields Institute.]

2017 Dec Co-organizer for a special session in "Applications of Combinatorial Topology in Commutative Algebra " with S. Faridi at the Canadian Mathematical Society Winter Meeting in Waterloo, ON.

May Co-organizer of "Ordinary and Symbolic Powers of Ideals" with C. Francisco and T. Hà. This was a Banff International Research Station (BIRS) conference held in Oaxaca.

2016 Dec Co-organizer for a special session in "Recent advances in commutative algebra" with S. Faridi at the Canadian Mathematical Society Winter Meeting in Niagara Falls.

Apr Co-organizer for a special ssesion in "Commutative Algebra and Its Interactions with Combinatorics and Algebraic Geometry" with S. Cooper at NDSU, Fargo, ND.

2014 Dec Co-organizer for a special session in "Commutative Algebra: Interactions with Algebraic Combinatorics, Algebraic Geometry, and Representation Theory" with A.V. Geramita at the Canadian Mathematical Society Winter Meeting in Hamilton.

2013 Sep Co-organizer for "Interactions between Commutative Algebra and Algebraic Geometry II" with H.T. Hà and B. Harbourne at Tulane University.

Jun Co-organizer for a special session in "Commutative Algebra" with J. Biermann, S. Faridi, and A. Hoefel at the Canadian Mathematical Society Summer Meeting in Halifax.

2012 Oct Co-organizer for Route 81 Conference ("TonyFest") with H.T. Hà, B. Harbourne, and G.G. Smith at Queen's University, Kingston, ON. [As part of this conference we received $2,000 from the Fields Institute.]

Oct Co-organizer for a special ssesion in "Combinatorial Commutative Algebra" with H.T. Hà and C. Francisco at Tulane University, New Orleans, LA. [I could not attend this conference, but I helped in picking the speakers.]

2011 Jan Co-organizer for "Combinatorial Algebra meets Algebraic Cobminatorics" with S. Faridi and A.V. Geramita, Thunder Bay, ON (2011). [As part of this conference, S. Faridi, A.V. Geramita, and myself received $10,000 from the Fields Institute and $4,000 from AARMS.]

2010 Dec Co-organizer for a special session in "Commutative Algebra" with S. Faridi at the Canadian Mathematical Society Winter Meeting in Vancouver (2010).

2004 Dec Co-organizer for a special session in "Commutative Algebra" with S. Faridi, L. Sabourin, and W. Traves at the Canadian Mathematical Society Winter Meeting in Montreal (2004).

Workshops.

2017 Jun Instructor for PRAGMATIC (Promotion of Research in Algebraic Geometry for MAThematicians in Isolated Centres), Catania, Italy. This was a three week workshop where four instructors (E. Carlini, T. Hà, B. Harbourne, and myself) gave lectures and mentored graduate students. Students were given research problems to work on.

2011 Jul Instructor for the workshop *MONomial Ideals, Computations and Applications (MONICA)*, CIEM (International Centre for Mathematical meetings), Castro Urdiales Cantabria, Spain.

2006 Jul Instructor for the workshop *Computational and Combinatorial Commutative Algebra*, Fields Institute, Toronto, ON.

2002 Jun Tutor for the workshop *COCOA VIII Summer School*, Cadiz, Spain.

Professional Memberships.

- Canadian Mathematical Society (since 1998).
- American Mathematical Society (since 1997).
- Mathematical Association of America (since 2006).

Refereeing and Reviews.

- Reviewer for Mathematical Reviews (since 2003) [99 reviews]
- Referee for NSA-AMS Proposal [5]
- Referee for NSERC DG Proposal
- Referee for a General Scientific Activity Proposal, Fields Institute
- Referee for National Science Centre (Narodowe Centrum Nauki), Poland
- Referee for following journals: [if more than once, the number of times is indicated]
  - > Algebras and Representation Theory
  - > Annales de la Faculté de Scienes de Toulouse
  - > Archiv der Mathematik [3]
  - > Arkiv för Matematik [2]
  - > Ars Combinatoria [2]
  - > Beiträge zur Algebra und Geometrie
  - > Bulletin of the Canadian Mathematical Society
  - > Bulletin of the Iranian Mathematical Society
  - > Bulletin of the London Mathematical Society
  - > Canadian Journal of Mathematics [2]
  - > Collectanea Mathematica [3]
  - > Communications in Algebra [11]
  - > Czechoslovak Mathematical Journal
  - > Discrete Mathematics [3]
  - > Electronic Journal of Combinatorics [6]
  - > European Journal of Combinatorics [2]
  - > International Journal of Algebra and Computation
  - > International Mathematics Research Notices
  - > Journal of Algebra [3]
  - > Journal of Algebra and its Applications [3]

> Journal of Algebraic Combinatorics [12]
> Journal of Combinatorial Theory, Series A [4]
> Journal of Commutative Algebra [4]
> Journal of Geometry
> Journal of the Korean Mathematical Society
> Journal of Pure and Applied Algebra [7]
> Journal of Symbolic Computation
> Le Matematiche
> Mathematica Scandinavica [2]
> Mathematische Nachrichten
> Mathematische Zeitschrift
> Michigan Journal of Mathematics
> Proceedings of the American Mathematical Society [2]
> Rocky Mountian Journal of Mathematics [2]
> SIAM Journal on Discrete Mathematics
> Springer Proceedings in Mathematics & Statistics
> Springer Lecture Notes in Computer Science
> Transactions of the American Mathematical Society [2]

- Referee for following conference proceedings:
  > Article for a book published by de Gruyter

9. Service to the University and Department

Service at McMaster.

2020 - 2022 Associate Chair (Undergraduate)
2021 - 2022 Department Appointments Committee [1 position]
2020 - 2021 Department Appointments Committee [1 positions (CRC Tier 1)]
2019 - 2020 Department Appointments Committee [5 positions]
2018 Winter 2018, Harvey Travel Awards Adjudication, GSA.
2018 - 2019 Department Tenure and Promotion Committee
2018 - 2020 Department Colloquium Committee
2018 Chair, PhD Defence of Peter Sinclair (Aug. 2018)
2018 Winter 2018, Mathematics & Statistics Chair Selection Committee
2017 Fall 2017, NSERC and OGS Doctoral Adjudication, GSA
2017 - 2018 Department Appointments Committee [1 positin]
2017 Winter 2017 Travel Assistance Awards Adjudication, GSA
2017 - 2019 Faculty of Science representative to the Faculty of Humanities.
2016 - 2017 Department Awards Committee
2015 - 2019 Deparment Undergraduate Committee
2015 - 2019 Day at Mac, Ontario University Fair, and Level II information day.
2015 - 2019 Putnam tutoring

Service at Lakehead. N.B – I was on sabbatical from 2008-2009 and 2014-2015.

2013 Organized the regional section of the Canadian Kangaroo Mathematics Contest.
2013 Provost Task Force: Organizational Structure of Orillia.
2013 Lakehead University Chancellor Search Committee.
2012 - 2013 Chair, Senate Library Committee.
2012 - 2013 Senate Executive Committee.

2012 - 2013 Senate Academic Committee.
2012 - 2013 Promotion, Tenure, and Renewal Committee (Arts & Science and Professional Schools committees).
2012 Nomination Committee for Economics Chair.
2012 Merit Committee.
2011 - 2012 Promotion, Tenure, and Renewal Committee (Arts & Science and Professional Schools committees).
2011 Internal Reviewer for Department of History Undergraduate Program Review.
2011 Nomination Committee for Physics Chair.
2010 - 2013 Senate Library Committee.
2010 Appointments Committee for Joint Position in Mathematics and Interdisciplinary Studies in Orillia (Chair).
2010 Nomination Committee for Women's Studies Chair.
2009 - 2013 Chair, Department of Mathematical Sciences.
2009 - 2010 Promotion, Tenure, and Renewal Committee (Arts & Science committee).
2008 Merit Committee.
2008 Nomination Committee for Mathematics Chair.
2007 - 2008 Hiring Committee for Tenure-Track position in Mathematics
2006 - 2012 High School Math Contest Committee.
2006 Nomination Committee for Mathematics Chair.
2006 Orillia Taskforce Committee.
2005 - 2008 Department Undergraduate Committee.
2005 - 2008 Sessional Selection Committee.
2004 - 2005 Regulations Committee.
2003 - 2004 Hiring Committee for Tenure-Track position in Mathematics.
2002 Chair Nomination Committee for Mathematics.
2002 - 2003 Hiring Committee for Tenure-Track position in Mathematics.
2001 - 2006 High School Recruitment Committee.

10. Classes Taught

All courses prior to 2001 were at Queen's University. All courses from 2001-2015 were at Lakehead University. All courses from 2015 to the present were at McMaster University. The $\star$ indicates course overload.

Year	Course No.	Course Title	Enrolment
2020-2021	Math 701/5GT3	Algebra I	13
	Math 2R03	Linear Algebra II	TBD
2020-2021	Math 1B03	Linear Algebra I (+ coordinator)	396
	Math 2R03	Linear Algebra II	130
2019-2020	Math 1B03	Linear Algebra I (+ coordinator)	236
	Math 3ET3	Mathematics Teaching Placement*	1
	Math 3GR3	Abstract Algebra	105
	Math 3H03	Number Theory	121
	Math 799	Reading course (Graded Resolutiosn)* (joint with M. Harada)	2
2018-2019	Math 1B03	Linear Algebra I	357
	Math 2R03	Liner Algebra II	92
	Math 3ET3	Mathematics Teaching Placement*	4
	Math 3GR3	Abstract Algebra	69
	Math 4ET3	Reading Course (Algebraic Geometry)*	2
2017-2018	Math 1B03	Linear Algebra I	280
	Math 3ET3	Mathematics Teaching Placement*	3
	Math 3GR3	Abstract Algebra	40
	Math 4ET3	Advanced Topics in Linear Algebra*	3
	Math 4ET3/702	Algebra II	5
	Math 799	Reading course (Toric ideals)*	1
2016-2017	Math 1B03	Linear Algebra I	295
	Math 1XX3	Calculus for Math and Stats II	200
	Math 3ET3	Mathematics Teaching Placement*	1
	Math 3U03	Combinatorics	31
2015-2016	Math 1XX3	Calculus for Math and Stats II	120
	Math 3V03	Graph Theory	30
	Math 4ET3/702	Algebra II	6
2014-2015		[No teaching - Sabbatical Year]	
2013-2014	Math 3375	Theory of Cryptology	32
	Math 4301/5301	Honours Seminar	5

Year	Course No.	Course Title	Enrolment
2012-2013	Math 1271/3071	Discrete Math/Discrete Math for Engineers	41
	Math 4301/5301	Honours Seminar	14
	Math 5119	Abstract Algebra* (joint with Dr. G. Lee)	2
2011-2012	Math 1271/3071	Discrete Math/Discrete Math for Engineers	55
	Math 2275	Linear Algebra II	40
	Math 4301	Honours Seminar*	7
	Math 5132	Algebraic Geometry*	3
2010-2011	Math 1281	Discrete Math	52
	Math 2231	Ring Theory	12
	Math 3211	Reading Course (Groebner Bases)*	1
	Math 4301	Honours Seminar*	6
	Math 5213	Abstract Algebra* (joint with Dr. G. Lee)	1
	Math 5301	Graduate Seminar*	1
2009-2010	Math 1281	Discrete Math	36
	Math 2231	Ring Theory	12
2008-2009		[No teaching - Sabbatical Year]	
2007-2008	Math 1281	Discrete Math	49
	Math 2255	Linear Algebra I	38
	Math 2233	Group Theory	8
	Math 4211/5281	Abstract Algebra*	2
	Math 5331	Operations Research Seminar*	2
2006-2007	Math 1281	Discrete Math	54
	Math 2255	Linear Algebra I	45
	Math 2030	Calculus for Engineers II	110
	Math 5211	Reading Course (Algebraic Geometry)*	1
	Math 5211	Reading Course (Linear Algebra)*	1
2005-2006	Math 1281	Discrete Math	55
	Math 2255	Linear Algebra I	50
	Math 2275	Linear Algebra II	50
	Math 5211	Reading Course (Combinatorial Commutative Algebra)*	1
	Math 4211/5281	Abstract Algebra*	3
2004-2005	Math 1281	Discrete Math	44
	Math 2231	Ring Theory	22
	Math 4301	Honours Seminar (Galois Theory)	4
2003-2004	Math 1281	Discrete Math	77
	Math 2010	Calculus for Engineers I	150
	Math 2231	Ring Theory	22
	Math 2233	Group Theory	14

Year	Course No.	Course Title	Enrolment
2002-2003	Math 1281	Discrete Math	55
	Math 2010	Calculus for Engineers I	110
	Math 2233	Group Theory	11
	Math 4301	Honours Seminar (Algebraic Number Theory)	2
2001-2002	Math 1281	Discrete Math	55
	Math 4231	Ring Theory	2
	Math 4233	Group Theory	2
	Math 4213/5213	Introduction to Commutative Algebra	3
1998-2001	Math 126	Differential and Integral Calculus [Queen's University]	120

11. Highly Qualified Personnel

PostDocs.

1. Jay Yang, (co-supervised with Dr. M. Harada and Dr. J. Rajchgot) Aug. 2021 - July 2023.
2. Sergio Da Silvia, (co-supervised with Dr. M. Harada and Dr. J. Rajchgot) Aug. 2020 - July 2022.
3. Jeremy Lane, (co-supervised with Dr. M. Harada) Aug. 2019 - July 2022.
4. Johannes Hofscheier, (co-supervised with Dr. M. Harada) Aug. 2017 - July 2019.
5. Federico Galetto, (co-superivsed with Dr. M. Harada) Aug. 2015 - July 2018.
6. Jennifer Biermann, Aug. 2011 - July 2013.

PhD Students.

1. Graham Keiper, Sept. 2016 - Dec. 2021 (expected)
   Thesis title: *TBD*
2. Craig Kohne, (co-supervised with Dr. A. Deza) Sept. 2017 - Aug. 2021 (expected)
   Thesis title: *TBD*
3. Eduardo Camps, Jan. 2020-June 2020 (Visiting Ph.D. student from Escuela Superior de Fsica y Matemticas, IPN, Mexico)
4. Beatrice Picone, (co-supervised with Dr. E. Guardo) Sept. 2015-December 2018 (Completed)
   Thesis title: *Homological invariants of some special varieties.*
   (Picone was a PhD student at the Università di Catania, Italy.)
5. Miguel Eduardo Paczka, Jan. 2018-June 2018 (Visiting Ph.D. student from Escuela Superior de Fsica y Matemticas, IPN, Mexico)

PhD Committees.

1. Jie Chen (supervised by H. Boden), Ph.D. Candidate, McMaster University [On Supervisory Committee] (Expected, 2022).
2. Lindsay White (supervised by H. Boden and A. Nicas), Ph.D. Candidate, McMaster University [On Supervisory Committee] (Completed, 2016).
3. Amay Cheam (supervised by Paul McNicolas) Ph.D. Candidiate, McMaster University [On Defense Committee-Internal Examanier] (Completed, 2016).
4. Lauren Dedieu (supervised by Megumi Harada) Ph.D. Candidiate, McMaster University [On Defense Committee-Internal Examanier]. (Completed, 2016)

External Committee Member.

1. Iman Jafarloo, Ph.D. Candidate, Università degli Studi di Torino, Italy, 2019 [External Report on Ph.D. Thesis]
2. Benjamin Cameron, Ph.D. Candidate, Dalhousie University, Canada, 2019 [External Committee Member]
3. Gabriele Calussi, Ph.D. Candidate, Università di Firenze and Pergugia, Italy. 2018 [External Report on Ph.D. Thesis]
4. Davide Bolognini, Ph.D. Candidate, Università di Genova, Italy. 2015 [External Report on Ph.D. Thesis; attended Ph.D. defense]
5. Oscar Fernández Ramos, Ph.D. Candidate, Universidad de Valladolid, Spain. 2012 [External Report on Ph.D. Thesis]
6. Augustine (Tina) O'Keefe, Ph.D. Candidate, Tulane University, New Orleans, LA. 2012 [Ph.D. Committee]
7. Augustine (Tina) O'Keefe, Ph.D. Candidate, Tulane University, New Orleans, LA. 2009 [Comprehensive Exam]
8. Aurora Llamas Núñez, Ph.D. Candidate, Centro de Investigación Y de Estudios Avanzads del Instituto Politécnico Nacional, Mexico 2011 [External Report on Ph.D. Thesis]

MSc Students.

1. Büşra Atar (co-supervsied with Dr. M. Harada, Dr. J. Rajchgot) September 2021-August 2022
   Project Title: *TBD*
2. Kieran Bhaskara (co-supervsied with Dr. M. Harada, Dr. J. Rajchgot) September 2021-August 2023
   Project Title: *TBD*
3. Adrian Cook (co-supervsied with Dr. M. Harada, Dr. J. Rajchgot) September 2021-April 2023
   Project Title: *TBD*
4. Runyue Wang (co-supervsied with Dr. M. Harada, Dr. J. Rajchgot) September 2021-April 2023
   Project Title: *TBD*
5. Maryam Nowroozi, (co-supervsied with Dr. M. Harada) Sept 2019 - May 2021
   Project Title: *Virtual resolutions of points in sufficiently general position in* $\mathbb{P}^1 \times \mathbb{P}^1$
6. Jarvis, Kennedy, (co-supervised with Dr. M. Harada) Sept 2019 - August 2020
   Project Title: *An Algebraic Condition for a Complex to be Virtual.*
7. Michael Cox, (co-supervised with Dr. K.N. Vander Meulen) Sept. 2017 - Dec. 2018.
   Project Title: *On condition numbers of companion matrices*
8. Jason Palombaro, Jan. 2017 - Dec. 2017.
   Project Title: *On the Groebner bases of ideals of points in* $\mathbb{P}^1 \times \mathbb{P}^1$.
9. Michael Riddell, (co-supervised with Dr. K.N. Vander Meulen) Sept. 2016 - June 2017
   Project Title: *Zero forcing number of circulant graphs.*
10. Sam Budd, Sept. 2016 - June 2017.
    Project Title: *A introduction to f-ideals and their complements.*
11. Becky Hooper, Sept. 2016 - June 2017.
    Project Title: *Shellability of the van der Waerden complex.*
12. Ashwini Bhat, Sept. 2010 - May 2012.
    Project Title: *Associated primes of powers of the Alexander dual of path ideals of trees.*

13. Kevin Jurcik, (co-supervised with Dr. W. Huang) Sept. 2007 - Aug. 2009.
    Project Title: *Open Shop Scheduling to Minimize Makespan.*
14. Jing (Jane) He, Sept. 2005 - May 2007.
    Project Title: *The path ideal of a tree and its properties.*

MSc Committees.

1. Myles Marin (supervised by Dr. M. Lovric), M.Sc. Candidate, McMaster University, [On Defense Committee-Internal Examanier]. (Completed, 2018)
2. Julia Gibson (supervised by Dr. M. Harada), M.Sc. Candidate, McMaster University, [On Defense Committee-Internal Examanier]. (Completed, 2018)
3. Craig Kohne (supervised by Dr. M. Harada), M.Sc. Candidate, McMaster University, [On Defense Committee-Internal Examanier]. (Completed, 2017)
4. Graham Keiper (supervised by Dr. I. Hambleton), M.Sc. Candidate, McMaster University, [On Defense Committee-Internal Examanier]. (Completed, 2016)

NSERC Undergraduate Summer Research Students.

1. Mike Cummings (co-supervised with Dr. J. Racjchot and Dr. S. Da Silva) Summer 2021.
   Project Title: *Toric ideals of graphs and geometric vertex decomposability*
2. Joseph Voskamp (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2021.
   Project Title: *Condition numbers of companion matrices*
3. Fady Abdelmalek (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2020.
   Project Title: *Double vertex graphs*
4. Esther Vander Meulen (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2019.
   Project Title: *Double vertex graphs*
5. Fady Abdelmalek (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2019.
   Project Title: *Double vertex graphs*
6. Biran Falk-Dotan (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2016.
   Project Title: *Refined interia of zero-nonzero patterns*
7. Jonathan Baker (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2015.
   Project Title: *Shedding vertices of vertex decomposable graphs*
8. Jonathan Earl, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2014.
   Project Title: *Matrices with zero-nonzero patterns*
9. Jonathan Earl, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2014.
   Project Title: *Independence complexes of circulant graphs.*
10. Catriona Watt, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2012.
    Project Title: *Graded Betti numbers of some edge ideals.*
11. Ben Babcock, Summer 2011.
    Project Title: *Combinatorial Commutative Algebra.*

12. Hannah Bergsma, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2011.
    Project Title: *Inertially arbitrary patterns.*
13. Ben Babcock, Summer 2010.
    Project Title: *Revisiting the spreading and covering numbers.*
14. Hannah Bergsma, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2010.
    Project Title: *Construction of Nilpotent Patterns.*
15. Natalie Campbell, (co-supervised with Dr. K. Vander Meulen at Redeemer University College) Summer 2009.
    Project Title: *Nilpotent Patterns over Finite Fields.*
16. John Kimball, (co-supervised with Dr. G. Lee) Summer 2005.
    Project Title: *Graded Betti numbers of edge ideals.*
17. Olivia Wdowiak, Summer 2003.
    Project Title: *Regularity of fat points.*

Honours Projects Supervised.

1. Runyue Wang, Sept. 2020-April 2021
   Project Title: *Minimal resolutions of the Alexander dual of the Van Der Waerden Complex.* (Math 4P06)
2. Adrian Cook, Sept. 2020-April 2021
   Project Title: *Symbolic defect of the cover ideal of disjoint grpahs.* (ArtSci 4C06)
3. Eden Petruccelli, Sept. 2019-April 2020
   Project Title: *Vertex decomposibility and the regularity of down-left graphs.* (Math 4P06)
4. Prabin Niroula, Sept. 2018-April 2019
   Project Title: *Powers of edge ideals and their multiplicities.* (Math 4P06)
5. Michael Chong, Sept. 2017-April 2018
   Project Title: *Levelable independence complexes.* (ISCI 4A12)
6. Dominque Dupont-Jillings, Sept. 2016-April 2017
   Project Title: *Reduced Simplicial Homology and Circulant Graphs* (Math 4P06)
7. Lindsey Daniels, Sept 2013-April 2014 (co-supevised with Dr. G. Lee)
   Project Title: *Group Theory and the Rubik's Cube.*
8. Mitchell Gallinger, Sept 2012-April 2013 (co-supervised with Dr. J. Biermann)
   Project Title: *Gröbner Bases: ideal membership and graph colouring.*
9. Jesse Krauel, Sept. 2012-April 2013 (co-supervised with Dr. J. Biermann)
   Project Title: *Some methods of primality testing.*
10. Jessica Reinikka, Sept. 2011-April 2012
    Project Title: *Mutually orthogonal Latin Squares and their applications.*

Other Supervision.

1. Emily Keaveney, Winter 2020, Math 3ET3.
2. Emily Keaveney, Spring 2019, Math 3ET3.
3. Monika Sandoval, Spring 2019, Math 3ET3.
4. Olivia Epelbaum, Winter 2019, Math 3ET3.
5. Kelly Morrcelino, Winter 2019, Math 3ET3.
6. Mithula Selvagnanam, Fall 2018, Math 3ET3.
7. Lauren Boria, Spring 2018, Math 3ET3.
8. Katie Chiasson, Spring 2018, Math 3ET3.

9. Katrina Moic, Fall 2017, Math 3ET3.
10. Katie Chiasson, Fall 2017, Math 3ET3.
11. Victoria Piccioni, Winter 2016, Math 3ET3.
12. Vishal Malik, May-June 2014 (co-supervised with Dr. M.G. Viola)
    Project Title: *Introduction to Homology*.
13. Matheus Bordin Marchi, May-August 2014
    Project Title: *Primality Testing*.
    (Marchi was an exchange student from Brazil; as part of his exchange he had to do an independent study. He was formally enrolled in Math 3211 SA/SB/SC/SD; I supervised this project.)