

# CURRICULUM VITAE

APRIL 2016

**1. NAME: Robert M. Corless**

**Rank:** Distinguished University Professor  
Department of Applied Mathematics  
Western University  
London, ON, N6A 5B7

Member, Rotman Institute of Philosophy  
Since 2007

Member, Ontario Research Centre for Computer Algebra (ORCCA)  
Since 1999

Telephone: (519) 661-2111 ext. 88785

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**Tenured:** July 1, 1993

**2. EDUCATION:**

1987	Ph.D	University of British Columbia, Mechanical Engineering
1982	M.Math.	University of Waterloo, Applied Mathematics
1980	BSc (Hons)	University of British Columbia, Math & Computer Science

**3. EMPLOYMENT HISTORY:**

1998-	Professor, Applied Math, Western University
1993-1998	Associate Professor (with tenure), Applied Math, Western University
1987-1993	Assistant Professor, Applied Math, Western University

**Leaves Granted:**

Sabbatical and Study Leaves:

2011-12

Visiting Fellow, Division of Neuroscience,  
The John Curtin School of Medical Research,  
The Australian National University, Canberra, Australia

Department of Mathematics & Statistics  
University of Otago, Dunedin, NZ

Department of Mathematics  
University of Newcastle, Newcastle, Australia

2007-08

Visiting Fellow, Division of Neuroscience  
The John Curtin School of Medical Research,  
The Australian National University, Canberra, Australia

2000-01

Ontario Research Centre for Computer Algebra,  
Western University

1994-95

IBM, Thomas J. Watson Research Center,  
Yorktown Heights, NY and  
Centre for Experimental & Constructive Mathematics, SFU

**4. HONORS AND AWARDS:**

2016-	Honorary Professor, Mathematics, Western University
2015-	Honorary Professor, DSAS
2006	Distinguished University Professor
2005	Honorary Professor, Philosophy, Western University
1997-2010, 2015-	Honorary Professor, Computer Science, Western University
2004	NSERC SYNERGY Award
2001	Mapstone Lecturer, SUNY Geneseo
1999-2000	Faculty of Science Distinguished Research Professorship Award
1997-1998	Faculty of Science Award for Excellence in Teaching

**5. TEACHING:****a) Courses Taught - Intramural (teaching ratings given out of 7 for later courses):**

2014-15	AM 1999f	Intro to Experimental Mathematics	6.7/7
	AM 2814g	Numerical Analysis	6.1/7
	CA 2303b	Intermediate Calculus II	6.7/7
2013-14	AM 2813b	Numerical Analysis	6/7
	CA 2303b	Intermediate Calculus II	6.5/7
2012-13	AM 2813b	Numerical Analysis	6/7
	CA 1301b	Calculus II	6.1/7
2010-11	CA 1301b	Calculus II (two sections)	4.6/7
2010-11	CA 1000a	Calculus I	5/7
2009-10	CA 1301b	Calculus II (two sections)	3.0/7
2008-09	CA 1000a(050a)	Calculus I	5.8/7
	CA 1301b(081b)	Calculus II	5.8/7
2006-07	DE 215a	Ordinary Differential Equations	5.5/7
2005-06	DE 215a	Ordinary Differential Equations	5.1/7
2004-05	DE 215a	Ordinary Differential Equations	6/7
	AM 026 (Jan-Apr'05)	Applied Math. For Engineers I	6/7
2003-04	AM 026	Applied Math. For Engineers I	5/7
	AM 475a/563a	Intro to Applied Computer Algebra	5/7
2002-03	AM 026	Applied Math. For Engineers I	5/7
2001-02	AM 026*	Applied Math. For Engineers I	5.4/7
	AM 261b	Numerical Analysis	5/7
	AM 475a/563a	Intro to Applied Computer Algebra	5.5/7
1998-99	AM 261b	Numerical Analysis	6/7
	CS 422a/539a	Numerical Computing II	
1997-98	AM 361b	Numerical Analysis	6/7
	AM 475b/563b	Intro to Applied Computer Algebra	
	PA 478/530	Theory and Evidence in Gravitational Physics	
1996-97	AM 351a	Intro to Continuum Mechanics	
	AM 361b	Numerical Analysis	
	CS 422a/539a	Numerical Computing II	
1995-96	AM 465b/AM 511b	Special Topics in Applied Math	
1993-94	AM 026*	Applied Math. For Engineers I	
	AM 475b/563b	Intro to Applied Computer Algebra	
1992-93	AM 025a*	Linear Algebra for Engineers	

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	AM 026*	Applied Math. For Engineers I
	AM 372b*	Numerical Methods for Engineers
1988-92	AM 026	Applied Math. For Engineers I
	AM 372b	Numerical Methods for Engineers
1987-89	AM 377a	Applied Math for Engineers IV
	AM 372b	Numerical Methods for Engineers
1987-89	AM 026	Applied Math. For Engineers

\*Course Co-ordinator

### b) Undergraduate Supervision

2016	Jonathan Brino-Tarasoff	"Circulant Bohemian Eigenvalues"
2015	Zhixing Guo	Fields Undergraduate Summer Research Program (FUSR)
2015	Oleksandr Rudenko	FUSR
2015	Bohdan Kivva	FUSR
2015	Maksym Chaudkhari	FUSR
2015	Torin Viger	FUSR
2014	Eunice Chan	"Mandelbrot Polynomials"
2014	Ting Yan Wang	"Compact Finite Differences"
2014	Torin Viger	"Experimental Mathematics"
2013	Athanasios (Demetri) Pananos	"Dark Adaptation in the Human Eye"
2012	Steven Thornton	"The Weyr Form"
	Thomas Hu	"Integration"
2011	Matthew Holden	"Clearcut regions for Jacobian Elliptic Functions"
2010	Yi Kang	"Implicitization" (Summer NSERC)
2007	Sam Lavoie	"Refworks and the Mathematician's Library"
2006	Kristen Founk	"Pigment Regeneration Kinetics in the Human Eye"
2005	Ashley Pitcher	"Homotopy methods for the solution of exponential polynomials"
2004	Robin Scott	"Computer Aided Analysis"
1993	Amanda Connell	"Interval Arithmetic in Maple"

### c) Graduate Courses:

2014-15	AM 9561a	Graduate Survey on Numerical Analysis	6.1/7
	AM 9619a	Open Problems in Experimental Mathematics	7.0/7
2013-14	AM 9561a	Graduate Survey on Numerical Analysis	6.4/7
2012-13	AM 9561a	Graduate Survey on Numerical Analysis	6.1/7
2010-11	AM 9561a	Graduate Survey on Numerical Analysis	6.9/7
2009-10	AM 9511a	Special Functions	6.5/7
2009-10	AM 9561a	Graduate Survey on Numerical Analysis	6.1/7
2008-09	AM 9561a	Graduate Survey on Numerical Analysis	4.5/7
2004-05	AM 505b	Partial Differential Equations	5.9/7
	AM533a	Reading Course	
2003-04	AM 563a/475a	Intro to Applied Computer Algebra	7/7
2001-02	AM 563a/475a	Intro to Applied Computer Algebra	7/7
1998-99	AM 505b	Partial Differential Equations	
	CS 422a/539a	Numerical Computing II	
	AM 565b		
1997-98	AM 563b/475b	Intro to Applied Computer Algebra	

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	AM 505b	Partial Differential Equations
1996-97	AM 511y	Special Functions
	CS 422a/539a	Numerical Computing II
1995-96	AM 465b/AM 511b	
1988-94	AM 511a	Special Topics in Applied Math

### d) Graduate Supervision:

#### PhD:

Sonia Gupta	PhD in progress
Steven Thornton	PhD in progress
Rob Moir	PhD in progress
Yiming Zhang	PhD 2013 "Computation Sequences for Perturbation Methods"
Piers Lawrence <sup>1</sup>	PhD 2013 "Eigenvalue Methods for Interpolation Bases"
Hui Ding <sup>1</sup>	PhD 2009 "Numerical and Symbolic Computation of the Lambert W Function in $C^{n \times n}$ "
Azar Shakoori <sup>2</sup>	PhD 2007 "Bivariate Polynomial Solver by Values"
Jichao Zhao <sup>3</sup>	PhD 2006 "Accurate Compact Finite Difference Method and its Applications"
Amir Amiraslani <sup>2</sup>	PhD 2006 "New Algorithms for Matrices, Polynomials and Matrix Polynomials"
M-P. Gagne-Portelance <sup>4</sup>	PhD 2006 "Computing Feynman Integrals in Non-Commutative Spaces"
Silvana Ilie <sup>1,5</sup>	PhD 2005 "Computational Complexity of Numerical Solutions of Initial Value Problems for Differential Algebraic Equations"
M. Benghorbal	PhD 2004 "Power Series Solutions of Fractional DE's and Symbolic Derivatives"
Hualiang Zhong <sup>6</sup>	PhD 2000 "Non-harmonic Fourier Series and Applications"
Xianping Liu	PhD 1999 "Symbolic Tools for the Analysis of Nonlinear Dynamical Systems"
Anne Marie Allison	PhD 1998 "Analytical Investigation of a Semi-empirical Flow-induced Vibration Model"
Mohammad Ahmed <sup>7</sup>	PhD 1997 "Exploration of Compact Methods for Numerical Solution of PDE's"

#### Masters:

Eunice Chan	MSc in progress
Leilei Rafiee Sevyeri	MSc in progress
Nic Fillion	MSc 2011 "Backward Error Analysis as a Model of Computation"
Robert Moir	MSc 2010 "Reconsidering Backward Error"
Nargol Rezvani <sup>2</sup>	MSc 2005 "Approximate Polynomials in Different Bases"
Azar Shakoori	MSc 2003 "Solving Bivariate Polynomials by Eigenvalues"
Xiaofang Xie <sup>8</sup>	MSc 2001 "Symbolic Circuit Analysis in Maple"
Dicheng Liu <sup>9</sup>	MSc 2001 (Comp Sc) "A Notation Selection Tool for Math ML"
Gurjeet Litt	MSc 2000 "Unwinding Numbers for the Inverse Logarithmic, Trigonometric and Inverse Hyperbolic Functions"
Xianping Liu	MSc 1995 "Perturbation Package to Solve ODE's in Maple"
Valentin Vangelov <sup>7</sup>	MSc 1990 <record of project title lost>

**co-supervised with:** 1- DJ Jeffrey, 2-DA Aruliah, 3-M Davison, 4-G McKeon, 5-G Reid, 6-A Boivin, 7-H Rasmussen, 8-S Watt

**e) Postdoctoral Fellows:**

Dhavid Aruliah	2002-04
Hiroshi Kai	2002-03
Lihong Zhi	2001-02
Bill Naylor	2000-01
Arne Storjohann	2000-01
Ilias Kotsireas	1999-2001

**6. PUBLICATIONS:****Lifetime Summary:**

Books	3
Chapters in Books	3
Invited Works	11
Papers in Refereed Journals and Collections	78
Submitted Papers	5
Papers in Refereed Conference Proceedings	40
Book Reviews	5
Technical Newsletters Papers & Reports	33
Volumes Edited	3
PhD Students	13
MSc Students	9

**Books:**

3. R.M. Corless and N. Fillion, "Graduate Introduction to Numerical Methods" 868 pages, Springer, (2013), ISBN 978-1-4614-8452-3. *Selected as a "Notable Book" in ACM Computing Review's list "Best of 2013".*
2. R.M. Corless, "Essential Maple 7" Springer, (2002), 282 pages. (2<sup>nd</sup> ed.), ISBN 0-387-95352-3
1. R.M. Corless, C. Essex and P.J. Sullivan, "First Year Engineering Mathematics Using Supercalculators" SciTex, The University of Western Ontario 1991, 1992, 1993 (2<sup>nd</sup> ed), (1995), 400 pages.

**Chapters in Books:**

3. D.J. Jeffrey, R.M. Corless, "Linear Algebra in Maple, *CRC Handbook of Linear Algebra*", Leslie Hogben ed. (2007), 1<sup>st</sup> ed., 89.1-89.24 2<sup>nd</sup> ed., 2013.
2. R.M. Corless, E. Kaltofen. S.M. Watt, "Hybrid Methods," in *Computer Algebra Handbook*, Springer, eds. J. Grabmeier, E. Kaltofen, V. Weispfenning, December (2002), 113-125.
1. R.M. Corless, "First Encounters of an AXIOM-XL Novice," in the AXIOM-XL Library Compiler User Guide, NAG, (1994), 293-320.

**Invited Works:**

11. R.M. Corless and D. J. Jeffrey, "The Lambert W Function," in the Princeton Companion to Applied Mathematics, August 2015, 151-155.
10. R. M. Corless, "Pseudospectra for Exponential Matrix Polynomials," Proc. SNC 2009, Kyoto. (*A later expanded paper of the same name appears as reference 70.*)
9. R.M. Corless, A. Shakoori, D.A. Aruliah, & L. Gonzalez-Vega, "Barycentric Hermite Interpolants for Event Location in Initial-Value Problems," *Journal of Numerical Analysis, Industrial and Applied Mathematics*, Vol. 3, no. 1-2 (2008) 1-16.
8. R.M. Corless, "On a Generalized Companion Matrix Pencil for Matrix Polynomials Expressed in the Lagrange Basis," SNC 2005, Xi'an, China, D. Wang & L. Zhi eds. July 19-21, (2005), 1-18.
7. R.M. Corless, "Maple in the Physical Sciences," invited tutorial in Proc. Maple Summer

- Workshop, Wilfrid Laurier University, Waterloo, Canada, (July 2004).
6. R.M. Corless, "Computer-mediated thinking," Proceedings of the TIME-2004 Workshop, July 15-18, (2004), Montreal, Canada.  
<http://www.apmaths.uwo.ca/~rcorless/frames/PAPERS/EDUC/CMTpaper.pdf>
  5. R.M. Corless, "Generalized Companion Matrices in the Lagrange Basis," Proc EACA 2004, University of Cantabria, Santander, Spain, L. González Vega, T. Recio, eds. (2004) 317-322.
  4. R.M. Corless, "Symbolic-Numeric Algorithms for Polynomials: some recent results," Proceedings of Dagstuhl Seminar, Symbolic-Algebraic and Verification Methods, Dagstuhl, Germany (2001), 21-22.
  3. E. Kaltofen, with R.M. Corless & D.J. Jeffrey, "Challenges in symbolic computation: My favourite open problems," 29, 6 Journal of Symbolic Computation, July (2000) 891-919.
  2. R.M. Corless, "Continued Fractions and Chaos," Organic Math Workshop Proceedings, vol. 20, (1997) 205-237. (*This an expanded version of paper #8 listed under "Papers in Refereed Journals and Collections"*).
  1. R.M. Corless and S.M. Watt, "Software tools for mathematical communication," Proceedings on the Future of Mathematical Communication", Mathematical Sciences Research Institute, Berkeley, December, (1999); <http://www.msri.org/publications/videos>

#### Papers in Refereed Journals and Collections:

78. R.M. Corless and J.E. Jankowski, "Variations on a Theme of Euler." Accepted to SIREV 2016.
77. P.W. Lawrence and R.M. Corless, "Backward Stability for Polynomial Eigenvalue Problems solved by linearization of Lagrange interpolants," SIMAX., 36(4), 1425–1442. (October 2015)
76. D.A. Aruliah, R.M. Corless, G.M. Diaz-Toca, L. Gonzalez-Vega, A. Shakoori, "The Bézout matrix for Hermite interpolants," Linear Algebra and its Applications. Vol 474, 12-29, 2015.
75. T.D. Lamb, R.M. Corless, and A.D. Pananos, "The kinetics of regeneration of rhodopsin under enzyme-limited availability of 11-cis retinoid," Vision Research. Vol 110, 23-33, 2015.
74. Y. Zhang and R.M. Corless, "High-Accuracy Series Solution for Two-Dimensional Convection in a Horizontal Concentric Cylinder," SIAM J. Appl. Math. vol 74, no. 3 (2014): 599-617.
73. R.M. Corless, D.J. Jeffrey, and T. Hu, "On some definite integrals containing the Lambert W Function," ACM Communications in Computer Algebra. Vol 48:2, 33--41, 2014.
72. P.W. Lawrence and R.M. Corless, "Stability of Rootfinding for Barycentric Lagrange Interpolants," Numerical Algorithms. vol 65 (3) (March 2014) 447-464
71. N. Fillion and R.M. Corless, "On the epistemological analysis of modeling and computational error in the mathematical sciences," Synthèse, 191 (May 2014): 1451-1467
70. R.M. Corless, "Pseudospectra for Exponential Matrix Polynomials," Theoretical Computer Science, Volume 479 (April 2013) 70–80.
69. C. Chen, R.M. Corless, M. Moreno Maza, P. Yu, and Y. Zhang, "An Application of Regular Chain Theory to the Study of Limit Cycles" Int. J. Bifurcations and Chaos. Volume 23, Issue 9 (September 2013). 21 pages.
68. R.M. Corless, G.M. Diaz-Toca, M. Fioravanti, L. Gonzalez-Vega, I.F. Rua, and A. Shakoori, "Computing the topology of a real algebraic plane curve whose defining equations are available only 'by values'," Computer Aided Geometric Design, 30 (7) (Oct 2013) 675-706
67. R.M. Corless and P.W. Lawrence, "The largest roots of the Mandelbrot polynomials," in D. Bailey, H.H. Bauschke, P. Borwein, F. Garvan, M. Thera, J. Vanderwerff and H. Wolkowicz, editors, Computational and Analytical Mathematics, Springer Proceedings in Mathematics and Statistics, (2013) 305-324.
66. G.A. Kalugin, D.J. Jeffrey, R.M. Corless, "Bernstein, Pick, Poisson and related integral expressions for Lambert W," Integral Transforms and Special Functions. Volume 23, Issue 11 (2012) 817-829.
65. P. W. Lawrence, R.M. Corless, and D.J. Jeffrey, "Algorithm 917: Complex Double-Precision Evaluation of the Wright  $\omega$  Function," ACM Transactions on Mathematical Software, Volume 38 Issue (April 2012), Article No. 20
64. G.A. Kalugin, D.J. Jeffrey, R.M. Corless and P.B. Borwein, "Stieltjes and other integral representations for functions of Lambert W," Integral Transforms and Special Functions, Volume

- 23, Issue 8, 2012 581-593.
63. R.M. Corless, E. Postma, and D.R. Stoutemyer. 2011. "Rounding coefficients and artificially underflowing terms in non-numeric expressions," *ACM Commun. Comput. Algebra* 45, 1/2 (July 2011) 17-48. .
  62. J.C. Butcher, R.M. Corless, L. Gonzalez-Vega and A. Shakoory, "Polynomial Algebra for Birkhoff Interpolants," *Numerical Algorithms*, Volume 56, Issue 3 (March 2011) 319-347.
  61. P. Yu and R. M. Corless, "Symbolic computation of limit cycles associated with Hilbert's 16th problem," *Comm. Nonlinear Science and Numerical Simulation*, Vol 14, (2009), 4041- 4056.
  60. R. M. Corless, K. Gatermann, & I.S. Kotsireas, "Using symmetries in the eigenvalue method for polynomial systems," *Special Issue of the Journal of Symbolic Computation (Chemistry and Biological Applications) in honour of Karin Gatermann* 44:1,(2009) 1536-1550.
  59. S.Brennan & R. M. Corless, "Creating a Warmer Environment for Women in the Mathematical Sciences and in Philosophy," *Atlantis*, Vol 33(2) (2009) 54-61.
  58. A. Amiraslani, P. Lancaster & R. M. Corless, "Linearization of matrix polynomials expressed in polynomial bases," *IMA Journal of Numerical Analysis* Vol 29, No. 1,(2009) 141-157.
  57. M. Bronstein, R. M. Corless, J.H. Davenport & D.J. Jeffrey, "Algebraic Properties of the Lambert W Function from a result of Rosenlicht and of Liouville," *Integral Transforms and Special Functions*, Vol. 19 (10) (2008) 709-712.
  56. R.M. Corless & S. Ilie, "Polynomial cost for solving IVP for high-index DAE," *BIT Numerical Mathematics*, (2008) 48: 29-49.
  55. G. Söderlind, S. Ilie & R.M. Corless, "Adaptivity and Computational Complexity in the Numerical Solution of ODEs," *Journal of Complexity*, 24 3 (2008) 341-361.
  54. S. Ilie, R. M. Corless & G.C. Essex, "The computational complexity of extrapolation methods," *Mathematics in Computer Science* (2008) 557-566.
  53. A. Amiraslani, D.A. Aruliah and R.M. Corless, "Block LU Factors of Generalized Companion Matrix Pencils," *Theoretical Computer Science* 381.1-3 (2007) 134-147.
  52. R. M. Corless, N. Rezvani, & A. Amiraslani, "Pseudospectra of matrix polynomials expressed in alternative bases," *Mathematics and Computer Science*, 1 (2007) 353-374.
  51. C. Essex, S. Ilie, and R.M. Corless, "Symmetry Breaking and Long-Term Forecasting," *J. Geophys. Research* (2007) Vol. 112, D24S17, 9 pgs
  50. J. Zhao, M. Davison & R.M. Corless, "Compact Finite Difference Method for American Option Pricing," *Journal of Computational and Applied Mathematics* 26(1)(2007) 306-321.
  49. R.M. Corless, "On a generalized companion matrix pencil for matrix polynomials expressed in the Lagrange basis," *Trends in Mathematics* (2007) 1-16.
  48. J. Zhao, R.M. Corless & M. Davison "Financial Applications of Symbolically Generated Compact Finite Difference Formulae," *Trends in Mathematics* (2006) 361-374.
  47. S. Ilie, R. M. Corless & G. J. Reid, "Numerical solutions of index-1 differential algebraic equations can be computed in polynomial time" *Numer. Algorithms* 41, (2006) 161-171.
  46. J. Zhao & R.M. Corless, "Compact Finite Difference Method for Integro-Differential Equations," *Appl. Math. Comput.* 177, No. 1, (2006) 271-288.
  45. J. Zhao, T. Zhang, & R.M. Corless, "Convergence of compact finite difference methods for second-order elliptic equations," *Appl. Math. Comput.* 182, No. 2, (2006) 1454-1469.
  44. J. M. Heffernan & R.M. Corless, "Solving some delay differential equations with computer algebra," *The Mathematical Scientist*, 31, no. 1, (2006) 21-34.
  43. M. Bengerhbal & R.M. Corless, "A unified formula for arbitrary order symbolic derivatives and integrals of a rational polynomial," *Int. Journal of Pure and Applied Mathematics*, 16, no. 2 (2004) 193-201.
  42. M. Bengerhbal & R.M. Corless, "Power series solutions of fractional differential equations," *Int. Journal of Pure and Applied Mathematics*, 15, no. 3 (2004) 333-352.
  41. R.M. Corless, S.M. Watt & L. Zhi, "QR Factoring to compute the GCD of univariate approximate polynomials," *IEEE Trans. Sig. Proc.*, 52, no. 12, (December 2004) 3394-3402.
  40. R.M. Corless, L. Gonzalez-Vega, I. Necula, A. Shakoory, "Topology Determination of Implicitly Defined Real Algebraic Plane Curves," *An. Univ. Timisoara Ser. mat.-Inform.*, 41 (Special Issue): (2003) 83-96.
  39. R.J. Bradford, R.M. Corless, J.H. Davenport, D.J. Jeffrey, & S.M. Watt: "Reasoning about the elementary functions of complex analysis," *Ann. Maths Art. Intel.*, 36, (2002) 303-318.
  38. R.M. Corless, "A new view of the computational complexity of initial value problems for ordinary

- differential equations," Numerical Algorithms, 31 (2002) 115-124.
37. S.R. Valluri, R.M. Corless, & D.J. Jeffrey, "Some applications of the Lambert W function to physics", 78, Canadian J. of Physics (2000) 823-831.
  36. L.F. Shampine & R.M. Corless, "Initial value problems for ODEs in problem solving environments," J. Computational and Applied Mathematics, 125 (2000) 31-40.
  35. J.M. Borwein & R.M. Corless, "Emerging tools in experimental mathematics," American Mathematical Monthly, vol. 106, (December 1999) 889-909.
  34. E. Katende, A. Jutan & R.M. Corless, "Quadratic nonlinear predictive control," Industrial and Engineering Chemistry Research, 37 (1998) 2721-2728.
  33. R.M. Corless, "Variations on a theme of Newton," vol. 71, Math Mag, (February 1998) 34-41.
  32. D. J. Jeffrey, D.E.G. Hare, & R.M. Corless, "Exact rational solutions of a transcendental equation," Comptes Rendus (Mathematics), vol 20, 3 (1998) 71-76.
  31. H.B. Bauschke & R.M. Corless, "Analyzing a projection method with Maple," Maple Tech (special issue Maple in the Mathematical Sciences), vol 4, no. 1 (1997) 2-7.
  30. R.M. Corless & D.J. Jeffrey, "Scientific computing: One part of the revolution," special issue J. of Symbolic Computation 23 (1997) 485-495.
  29. R.M. Corless, D.J. Jeffrey, Pratibha & M.B. Monagan, "Two perturbation calculations in fluid mechanics using large expression management," J. Symbolic Computation, 23 (1997) 427-443.
  28. J.M. Borwein, P.B. Borwein, S. Braham, R. Corless, & L. Jorgenson, "Digitally activated mathematics for a brave new world wide web," Ed. Res. & Perspec, 23, no. 2 (1996) 28-47.
  27. R.M. Corless, G.H. Gonnet, D.E.G. Hare, D.J. Jeffrey & D.E. Knuth, "On the Lambert W function", Advances in Computational Mathematics 5 (1996) 329-359.
  26. D.J. Jeffrey, D.E.G. Hare & R.M. Corless, "Unwinding the branches of the Lambert W Function," Mathematical Scientist, 21, (1996) 1-7.
  25. D.J. Jeffrey, R.M. Corless, D.E.G. Hare & D.E. Knuth, "Sur l'inversion de  $y^a e^y$  au moyen des nombres de Stirling associés," Comptes Rendus de L'Académie des Sciences, Paris, 320, 1, 12 (1995) 1449-1452.
  24. R.M. Corless & S. Yu Pilyugin, "Approximate and real trajectories for generic dynamical systems," J. Mathematical Analysis & Applications, 189 (1995) 409-423.
  23. R.M. Corless, "Bifurcation in a flow-induced vibration model," American Math Society; Fields Institute Communications, vol. 4 (1995) 43-59.
  22. R.M. Corless & S. Yu Pilyugin, "Evaluation of upper Lyapunov exponents on hyperbolic sets," Journal of Mathematical Analysis and Applications 189 (1995) 145-159.
  21. R.M. Corless, "Symbolic computation in nonlinear dynamics," Open Systems & Information Dynamics 3.1 (1995) 131-147.
  20. R.M. Corless & M.B. Monagan, "Simplification and the assume facility", Mapletech (1994) 24-31.
  19. T. Scott, B. Madore & R.M. Corless, "Maple in Science education," Special Issue of MapleTech (1994) 58-68.
  18. T. Scott, G. Fee, R. Corless & M.B. Monagan, "Applications of Maple to mathematical, scientific, and engineering problems," Special Issue of MapleTech (1994) 49-57.
  17. R.M. Corless, "What good are numerical solutions of chaotic differential equations?," Computers in Mathematics with Applications vol 28, no. 10-12 (1994) 107-121.
  16. R.M. Corless, "Error backward," Contemporary Mathematics 172 (1994) 31-62.
  15. R.M. Corless, "Six, Lies, and Calculators," American Mathematical Monthly, vol 100, no. 4, (1993) 344-350.
  14. R.M. Corless & G.V. Parkinson, "Mathematical modelling of the combined effects of vortex-induced vibration and galloping, Part II," J. of Fluids & Structures 7, (1993) 825-848.
  13. A.G. Connell & R.M. Corless, "An experimental interval arithmetic package in Maple," Interval Computations, No. 2, (1993) 120-134.
  12. R.M. Corless, G.H. Gonnet, D.E.G. Hare and D.J. Jeffrey, "Lambert's W function in Maple," MapleTech #9 (1993) 12-22.
  11. T.C. Scott, M.B. Monagan, G.J. Fee & R.M. Corless, "Some Applications of Maple to mathematical, scientific and engineering problems," Artificial Intelligence, Expert Systems & Symbolic Computing (1992) 165-176.
  10. P.A. Rosati, R.M. Corless, C. Essex, & P.J. Sullivan, "An evaluation of the HP28S calculator in calculus," Australian J. of Engineering Education vol 3, no. 1 (1992) 79-88.
  9. R.M. Corless, "Defect-controlled numerical methods and shadowing for chaotic differential



- equations," *Physica D* 60(special issue on Experimental Mathematics: Computational Issues in Nonlinear Science) (1992) 323-334.
8. R.M. Corless, "Continued fractions and chaos," *The American Mathematical Monthly* vol. 99, no. 3, March (1992) 203-215.
  7. R.M. Corless, D.J. Jeffrey & H. Rasmussen, "Numerical evaluation of Airy functions with complex arguments," *J. Computational Physics* vol. 99, no. 1 March (1992) 106-114.
  6. R.M. Corless, C. Essex, M.A.H. Nerenberg, "Numerical methods can suppress chaos," *Physics Letters A* 157, 1 (1991) 27-36.
  5. R.M. Corless, G.W. Frank & J.G. Monroe, "Chaos & Continued Fractions," *Physica D.* 46 (1990) 241-253.
  4. R.M. Corless & D.J. Jeffrey, "Solution of a hydrodynamic lubrication problem with Maple," *J. Symbolic Computation* 9 (1990) 503-513.
  3. R.M. Corless & G.V. Parkinson, "A model of the combined effects of vortex-induced oscillation and galloping," *J. Fluids and Structures* 2 (1988) 203-220.
  2. R.M. Corless & D.J. Jeffrey, "Stress moments of nearly touching spheres in low Reynolds number flows," *ZAMP* 39 (1988) 874-884.
  1. D.J. Jeffrey & R.M. Corless, "Forces and Stresslets for the axisymmetric motion of nearly touching unequal spheres," *J. Physico-Chemical Hydrodynamics*, vol. 10, no. 4 (1988) 461-470.

**Submitted papers:**

5. R. M. Corless, M. Moreno Maza, R.H.C. Moir, and N. Xie, "Symbolic-Numeric Integration of Rational Functions."
4. R. M. Corless and N. Fillion, "Backward Error Analysis for Perturbation Methods"
3. R. M. Corless and J. E. Jankowski, "Revisiting the Discharge Time of a Cylindrical Leaking Bucket."
2. A.D. Pananos, R.M. Corless, and T.D Lamb, "Stability Analysis of an Enzymatic Model of Rhodopsin Kinetics."
1. R.M. Corless, D.J. Jeffrey, M. Moreno Maza, and S.E. Thornton, "Computing the rank of a parametric matrix using regular chains."

**Single-Author Papers by my students while they were under my supervision**

3. P.W. Lawrence, "Fast reduction of Generalized Companion Matrix Pairs for Barycentric Lagrange Interpolants", *SIAM J. Matrix Anal Appl.* vol 35, no. 3 (2013): 1277-1300.
2. A. Amiraslani, "Dividing polynomials when you only know their values", *Proc. EACA* (2004) 5-10.
1. A. Shakoori, "The Bézout matrix in the Lagrange basis", *Proc. EACA* (2004) 295-299.

**Papers in Refereed Conference Proceedings:**

40. S. Ilie, D.J. Jeffrey, R.M. Corless, and X. Zhang, "Computation of Stirling numbers and generalizations." *SYNASC Proceedings* (2015), 57-60.
39. R.M. Corless, S.E. Thornton, "A Package for Parametric Matrix Computations, *Mathematical Software–ICMS 2014.*", Springer, eds. H. Hong, C. Yap, January (2014), 442-449.
38. D.A. Aruliah, R.M. Corless, G.M. Diaz-Toca, L. Gonzalez-Vega and A. Shakoori, "The Confluent Bezout Matrix", *Proc. EACA*, J.Elias et al. eds, Barcelona (2014) 49-52.
37. R.M. Corless, M.Moreno Maza and S.E. Thornton, "Zigzag Form over Families of Parametric Matrices", *Proc. EACA 2014*, J.Elias et al. eds, Barcelona (2014) 87-91.
36. R.H.C. Moir, R.M. Corless and D.J. Jeffrey, "Unwinding Paths on the Riemann Sphere for Continuous Integrals of Rational Functions", *Proc. EACA 2014*, J.Elias et al. eds, Barcelona (2014) 141-144.
35. R.M Corless, D.J Jeffrey and F. Wang, "The asymptotic analysis of some interpolated nonlinear recurrence relations," *Proc. ISSAC 2014*, Kobe, Japan, 115-121.
34. N. Rezvani and R.M. Corless, "Using Weighted Norms to Find Nearest Polynomials Satisfying Linear Constraints," *Proc. SNC* (2011) 81-87.
33. P.W. Lawrence and R.M. Corless, "Numerical Stability of Barycentric Hermite root-finding," *Proc. SNC* (2011) 147-148.
32. R.M. Corless, E. Postma and D.R. Stoutemyer, "GCD of Multivariate

- Approximate Polynomials using Beautification with the Subtractive Algorithm," Proc. SNC (2011) 153-154.
31. R.M. Corless, H. Ding, N.J. Higham, & D.J. Jeffrey, "The solution of  $S \exp S = A$  is not always Lambert  $W(A)$ ," Proc. ISSAC (2007) 116-121.
  30. R. M. Corless & D. Assefa, "A Case Study on Elliptic Functions in a CAS: Jeffery-Hamel Flow in Maple," Proc. ISSAC (2007) 108 - 115.
  29. R.M. Corless, Y. Lin, L. Ma & J. Zhao, "A highly efficient and accurate algorithm fo solving partial differential equation in cardiac tissue models," WSEAS, Miami, USA, (January 2006) 81-86.
  28. W. Zou, D.J. Jeffrey & R.M. Corless, "Fraction-free forms of LU matrix factoring," Proceedings of Transgressive Computing, Granada, Spain, (2006) 443-446.
  27. R.M. Corless, S. Ilie, & G. Reid, "Computational complexity of numerical solution of polynomial systems," Proc. Transgressive Computing, Granada, Spain (2006) 405-408.
  26. J. Zhao, R.M. Corless, & M. Davison, "Financial Applications of Symbolically Generated Compact Finite Difference Formulae," SNC, Xi'an, China, D. Wang & L. Zhi eds. (July 2005) 220-234.
  25. R.M. Corless & S.M. Watt, "Bernstein Bases are Optimal, but, sometimes, Lagrange bases are Better," Symbolic and Numeric Algorithms for Scientific Computing, SYNASC (2004) 141-152.
  24. D.A. Aruliah, & R.M. Corless, "Numerical Parameterization of Affine Varieties Using ODEs", Proc. ISSAC, University of Cantabria, Santander, Spain, J. Gutierrez, ed. (2004) 12-18.
  23. R.M. Corless, A. Galligo, I.S. Kotsireas, & S.M. Watt, "A Geometric-Numeric Algorithm for Absolute Factorization of Multivariate Polynomials," Proc. ISSAC (2002) 37-4
  22. R.M. Corless & D.J. Jeffrey, "On the Wright  $\omega$  Function," Proceedings of Joint International Conferences, AISC Artificial Intelligence, Automated Reasoning 2002, and Symbolic Computation, and Calculemus 2002, Marseille, France, (July 2002) 76-90.
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  20. D.J. Jeffrey, M.W. Giesbrecht, & R.M. Corless, "Integer roots computation for Integer-power-content calculations," Computer Mathematics, Proc. ASCM, World Scientific Lecture Notes Series on Computing, vol. 8, (2001) 71-74.
  19. R.M. Corless, M.W. Giesbrecht, I. Kotsireas, & S.M. Watt, "Numerical Implicitization of Curves and Surfaces," Proc AISC, Madrid, LNAI, vol. 1930, (2001) 174-183.
  18. R.M. Corless, J.H. Davenport, D.J. Jeffrey, G. Litt, & S.M. Watt, "Reasoning About the Elementary Functions of Complex Analysis," Proc. AISC (2001) 115-126.
  17. R.M. Corless, M.W. Giesbrecht, D.J. Jeffrey, X. Liu & S.M. Watt, "Approximate Polynomial Decomposition", Proc. FRISCO Workshop, Oxford, (1999), 6-8
  16. R.M. Corless, M. W. Giesbrecht, D.J. Jeffrey, & S.M. Watt, "Approximate Polynomial Decomposition," Proc. ISSAC, Vancouver, (1999) 213-220.
  15. P. Chin, R. M. Corless, and G.F. Corliss, "Optimization Strategies for the Approximate GCD Problem," Proc. ISSAC (1998) 228-235.
  14. J.M. Borwein, P.B. Borwein, R.M. Corless, Loki Jørgenson & N. Sinclair, "What is Organic Mathematics," Proc. Organic Mathematics Workshop, Dec. 12-14, 1995. eds. J.M. Borwein, P.B. Borwein, R.M. Corless, & L. Jorgenson; <http://www.cecm.sfu.ca/organics>, Canadian Mathematical Society Proceedings vol. 20. (1997), 1-18.
  13. R.M. Corless, P.M. Gianni, & B.M. Trager, "A reordered Schur factorization method for zero-dimensional polynomial systems with multiple roots," Proc. ISSAC, Maui, July 21-23 (1997), 133-140.
  12. R.M. Corless, D.J. Jeffrey, & D.E. Knuth, "A sequence of series for the Lambert  $W$  function," Proc. ISSAC, Maui, July 21-23, (1997) 197-204.
  11. R.M. Corless & Jacek Rokicki, "The symbolic generation of finite difference formulae," Proc. ICIAM, Hamburg, eds. G. Alefeld, O. Mahrenholtz, R. Mennicken, Zeitschrift für Angewandte Mathematik und Mechanik, 76, supp. 1 (1996) 381-382.
  10. Anne-Marie E. Allison and R.M. Corless, "A Bifurcation Study of a flow-induced vibration model," Proc. American Soc. Mech. Engineering Meeting on Flow-Induced Vibrations, Montreal, M.J. Pettigrew ed., vol. PVP-328 (July 1996) 143-156.
  9. R.M. Corless, P.M. Gianni, B.M. Trager, & S.M. Watt, "The Singular Value Decomposition for Polynomial Systems," Proc. ISSAC (1995) 195-207.

8. R.M. Corless and K. El-Sawy, "Solution of banded linear systems of equations in Maple using LU factorization," Maple V: Mathematics and Its Application – Proc. of the Maple Summer Workshop and Symposium, Rensselaer Polytechnic Inst., Troy, NY, (August 1994) 219-227.
7. R.M. Corless, "Sufficiency conditions in the calculus of variations," Proc. ISSAC, Oxford, U.K., July (1994) 197-204.
6. R.M. Corless & G.V. Parkinson, "Mathematical modelling of the combined effects of vortex-induced vibration and galloping, Part II," Proc. ASME International Symposium on Flow-Induced Vibration and Noise, vol. 6 (1992) 39-62.
5. R.M. Corless & Honglin Ye "Solving linear integral equations in Maple," Proc. ISSAC Symposium Berkeley, CA. (July 1992) 95-103.
4. R.M. Corless, C. Essex, T. Lookman, P.A. Rosati, & P.J. Sullivan, "The HP28S/HP48S in first year engineering mathematics," The Fourth Annual Int'l. Conference on Technology in Collegiate Mathematics, Portland, Oregon, (November 1991) 244-250.
3. R.M. Corless & G.F. Corliss, "Rationale for guaranteed ODE defect control," Proc. SCAN International Symposium, Oldenburg, Germany (1992) 11 pages.
2. P.A. Rosati, R.M. Corless, C. Essex, P. Sullivan, "Student Reaction to the HP28s Calculator in Calculus," Proc. East-West Congress on Engineering Education, Jagiellonian University, Cracow, Poland, (1991) 80-84.
1. R.M. Corless, "Chaos in a Flow-induced Vibration Model," Proc. ASME International Symposium on Flow Induced Vibrations and Noise, Chicago, vol. 7, (1988) 77-85.

#### Volumes Edited

3. R.M. Corless & I.S. Kotsireas, editors, Special Issue of the Canadian Applied Mathematics Quarterly (Scientific and Symbolic Computing), vol 17, no 3, (2009)
2. R.M. Corless, R. Lauterbach & H.M. Möller, editors, Special Issue of the Journal of Symbolic Computation in honour of Karin Gatermann, vol 44, no 1, (2009)
1. J.M. Borwein, P.B. Borwein, R.M. Corless, & L. Jorgenson, editors, Proceedings of The Organic Mathematics Workshop, CMS Conference Proceedings, vol 20, (1997), 412 pages

#### Book Reviews:

5. R.M. Corless, "Review of Approximation Theory and Approximation Practice, by L.N. Trefethen" SIAM Review, vol. 58, issue 1 (March 2016)
4. R.M. Corless, "Review of Solving Transcendental Equations, by John P. Boyd" SIAM Review vol. 57, issue 4 (December 2015).
3. R.M. Corless, "A review of Modern Computer Algebra, by Joachim von zur Gathen and Jürgen Gerhard" SIGSAM Bulletin, vol. 35, no. 1, issue 135, (2001).
2. J.M. Borwein & R.M. Corless, review of "An Encyclopedia of Integer Sequences by N.J.A. Sloane and S. Plouffe," SIAM Review 38, 2 (June 1996) 333-337.
1. R.M. Corless, review of "Differential Equations with Maple V by M.L. Abell and J.P. Braselton," SIGSAM Bulletin, vol. 30, no. 1, March 1996, 57-60.

#### Other

The Lambert W Function Poster (2005)

This poster describes some interesting properties of a recently named mathematical function. 4000 copies were produced and widely distributed.

<http://www.orcca.on.ca/LambertW/>

Applied Math Coffee Mug Design (1998)

<http://www.apmaths.uwo.ca/~rcorless/frames/PAPERS/LambertW/about.html>

#### Technical Newsletter Papers and Reports:

33. R.M. Corless, M.M. Maza, and S.E. Thornton, "Zigzag Form of Families of Parametric Matrices," ACM Communications in Computer Algebra. Vol 48:3, 109-112, 2015
32. R.M. Corless, K Hill, C.E. Jones, S Macfie, A.J. Moehring, E Shemyakova, & L.M. Wahl, "Engaging faculty in the pedagogical literature," Conference Presentation at Western Conference on Science Education (2011).

31. R.M Corless, D. Aruliah, L. Gonzalez-Vega, A. Shakoori, "Geometric Applications of the Bezout Matrix in the Bivariate Tensor-Product Lagrange basis", ORCCA Technical Report TR-07-02, (2007) 8 pages
30. R.M. Corless, N. Rezvani, "The Nearest Polynomial with Lower Degree", ORCCA Technical Report TR-06-03, (2006), 9 pages
29. R. M. Corless, "What's nu about the derivative?", ORCCA Technical Report TR-06-02, (2006)
28. R.M Corless, J. Zhao, "Symbolic Generation of Finite Differences", ORCCA Technical Report TR-05-05, (2005)
27. A.B. Pitcher, R.M Corless, "Quasipolynomial root-finding and applications" (Poster), ORCCA Technical Report TR-05-04, (2005), 1 page
26. N.Rezvani & R. M. Corless, "The nearest polynomial with a given zero, revisited," SIGSAM Bulletin, (September 2005) 73-79.
25. A.Pitcher & R. M. Corless, "Quasipolynomial root-finding: A numerical homotopy method," Electronic proceedings of the Canadian Undergraduate Mathematics Conference, Queen's University (August 2005) <http://eaton.math.rpi.edu/csums/papers/Homotopy/pitcher.pdf>.
24. R.M Corless, D.J. Jeffrey, "Complex Numerical Values for the Wright omega function", ORCCA Technical Report TR-04-04, (2004), 28 pages
23. R.M Corless, D.J. Jeffrey, "Computer Algebra Support for the Wright omega function", ORCCA Technical Report TR-04-03, (2004), 27 pages
22. R.M. Corless, H. Kai, S.M. Watt, "Approximate computation of pseudovarieties," SIGSAM Bulletin, vol. 37, no. 3, issue 145, (September 2003) 67-71.
21. M. Bengerhbal and R.M. Corless. "The  $n$ th derivative," SIGSAM Bulletin, vol. 36, no. 1, (2002)10-14.
20. R.M. Corless, "Closures of branch cuts for elementary functions in Maple 7", ORCCA Technical Report TR-01-08, (2001)
19. R.M. Corless, "HIV and Antiviral Therapy", ORCCA Technical Report TR-00-22, (2000)
18. R.M. Corless, D.J. Jeffrey, "Still More Fun Results on the Lambert W Function", ORCCA Technical Report TR-00-22, (2000)
17. R.M. Corless, J. Schicho, "Iterated Improvement using the SVD for Singular Linear Systems", ORCCA Technical Report TR-00-09, (2000), 10 pages
16. R.M. Corless. "An elementary solution of a minimax problem arising in algorithms for automatic mesh selection," SIGSAM Bulletin: vol. 34, no. 4, issue 134, (December 2000) 7-15.
15. R.M. Corless, J.H. Davenport, D.J. Jeffrey, S.M. Watt, "According to Abramowitz & Stegun, or Arcoth needn't be uncouth," SIGSAM Bulletin, vol. 34, no. 2, issue 132, (June 2000) 58-65.
14. R.M. Corless and S.M. Watt, "Report on the SNAP mini at SIAM '98," vol. 32, no. 2, issue 124, (June 1998) 35-37.
13. R.M. Corless and D.J. Jeffrey, "Graphing elementary Riemann surfaces," SIGSAM Bulletin, vol. 32, no. 1, issue 123, (March 1998) 11-17.
12. R.M. Corless and D.J. Jeffrey, "The Turing factorization of a matrix," SIGSAM Bulletin, vol. 31, no. 3, issue 121, (September 1997) 21-29.
11. M.O. Ahmed and R.M. Corless, "The method of modified equations in Maple," Electronic Proceedings 3rd International IMACS conference, Applications of Computer Algebra, Maui, (July 1997); eds. M. Wester & S. Steinberg; <http://math.unm.edu/ACA/1997.html>.
10. R.M. Corless, "Gröbner Bases and matrix eigenproblems," SIGSAM Bulletin, vol. 30, no. 4, issue 118, (December 1996) 26-32.
9. R.M. Corless and D.J. Jeffrey, "The unwinding number," SIGSAM Bulletin, vol. 30, no. 2, issue 116, (June 1996) 28-35.
8. R.M. Corless, "Cofactor iteration," SIGSAM Bulletin vol. 30, no. 1, issue 115, (March 1996) 34-39.
7. Anne-Marie E. Allison and R.M. Corless, "Prediction of closed-loop hysteresis with a flow-induced vibration model," Proc. CANCAM , Victoria, vol. 2, (1995) 512-513.
6. T. Chen, R.M. Corless and H. Rasmussen, "A numerical study of flow past circular cylinder using vortex method," Proc.Third Annual Conference of the CFD Society of Canada, Banff, Alberta, (June 1995) vol. 1, 409-413.
5. R.M. Corless, "What is a solution to an ODE?," SIGSAM Bulletin, vol. 27, no. 4, issue 106, (December 1993) 15-19.

## CURRICULUM VITAE

APRIL 2016

4. R.M. Corless and D.J. Jeffrey, "Well, It isn't quite that simple," SIGSAM Bulletin vol. 26, no. 3, issue 101 (1992) 2-6.
3. R.M. Corless, C. Essex, P. Sullivan and P. Rosati, "Using the HP28S calculator in the calculus course for engineering students," Proc.7th Canadian Conference on Engineering Education, University of Toronto (1990).
2. R.M. Corless and D.J. Jeffrey, "A comparison of three computer algebra systems for the solution of a problem in hydrodynamic lubrication," SIGSAM Bulletin vol. 22, no. 2 (1988): 50-62.
1. R.M. Corless and R.B. Simpson, "An 'off-the-shelf' dynamic mesh capability", ACM SIGNUM Newsletter vol. 18, no 2 (1983): 23-24

### Selected Invited Lectures:

16. "Twenty plus years of the Lambert W. Function", International Conference on Analysis, Applications, and Computations: In Memory of Lee Lorch, Fields Institute (September 2015).
15. "Stirling Numbers and Generalizations"\*, OPSFA13 (Maryland, May 2015)
14. "Optimal Backward Error and the Leaky Bucket", ACMES (Western University, May 2015)
13. "Optimal Backward Error and the Dahlquist Test Problem", SPCOM (Newcastle AU, February 2015)
12. "Computer Algebra for Experimental Mathematics", TRICS (Western University, November 2014)
11. "What is Experimental Mathematics?", Society of Applied Mathematics (Western University, October 2014)
10. "Numerical Stability of Polynomial Eigenvalue Algorithms in the Lagrange Basis," MATFUN (Manchester, UK) ( April 2013).
9. "Polynomial or Rational Interpolants in the Lagrange Basis," ANODE (Auckland, NZ) (January 2013).
8. "Defect assessment for numerical solutions of chaotic DE," MAGIC (Mistletoe Bay, NZ) (February 2012).
7. "First encounters of a Chebfun Novice," ICIAM, Vancouver (L.N.Trefethen) (2011).
6. "Polynomial Algebra for Birkhoff Interpolants," SANUM, Stellenbosch, SA (2010).
5. "Pseudospectra of Matrix Exponential Polynomials," SNC, Kyoto, Japan (August 2009).
4. "Polynomial Algebra by Values," Special Semester on Gröbner Basis, ApCoA, Linz, Austria, (February 2006).
3. "On a Generalized Companion Matrix Pencil for Matrix Polynomials Expressed in the Lagrange Basis," International Workshop on Symbolic-Numeric Computation, Xi'an, China, (July 2005).
2. "Numerical Nonlinear Algebra," COSCOMP Conference on Scientific Computing, Vienna, Austria, (June 2005).
1. "Computer-Mediated Thinking," Invited plenary lecture at "Technology in Mathematics Education", TIME, Montreal, (July 2004).

\*talk given by David Jeffrey

## 7. RESEARCH FUNDING

2015-2020	NSERC Discovery, "Design and Analysis of Algorithms for Structured Nonlinear Problems"	\$24 000/yr
2014-2015	Graduate Incentive Fund	\$16 000
2015	Fields Institute (ACMES 2015)	\$6000
2014	Rotman Institute Catalyst Fund, "Structure, Nonlinearity, and Complexity in Computational Epistemology"	\$8850
2012	Visiting Faculty Research Fellowship, University of Newcastle	\$5000
2010-2015	NSERC Discovery	\$34,000/yr

## CURRICULUM VITAE

APRIL 2016

	“Design and analysis of algorithms for numerical nonlinear algebra”	
2006	UWO Distinguished University Professor Award	\$10,000
2005-2010	NSERC Discovery	\$39,000/yr
2003-2007	MITACS (Mathematics of Information Technology and Complex Systems) (Western University portion of \$200,000) Borwein, P., Corless, R., Jeffrey, D., Reid, G. et al “Mathematics of computer algebra and analysis”	\$50,000/yr
2001-2005	NSERC Discovery “Symbolic Numeric Algorithms”	\$35,000/yr
1999-2002	R.M. Corless, under S. Watt (Western); K. Geddes (Waterloo)	\$514,090
1999-2003	ORDCF (Ontario Research and Development Challenge Fund) R.M. Corless, under S. Watt, PI; “Ontario Research Centre in Computer Algebra”	\$400,000/yr

### 8. SCHOLARLY & PROFESSIONAL ACTIVITIES:

2015	Scientific Director, Ontario Research Centre for Computer Algebra (ORCCA)
2005	OCGS Review Appraiser (with Jack Dongarra), McMaster University - MEng/MASc/MSc/PhD Program in Computational Engineering and Science
2005-2011	Member-at-large, Canadian Applied and Industrial Mathematics Board
2001-2003	SGB Conference Advisor, Association for Computing Machinery
2002-2003	Chair, Western Fields Research Committee
1998-2002	Deputy Director, ORCCA
1999-2003	Chair, ACM Special Interest Group on Symbolic & Algebraic Manipulation

#### Conference Organizer:

2016	Program Chair Twenty Years of Lambert W. London, Ontario.
2016	Program Chair ACMES 2: Computational Discovery, London, Ontario
2015	Program Chair ACMES: Algorithms and Complexity in Mathematics, Epistemology, and Science, London, Ontario
2014	Program Committee Member, SNC 2014, Shanghai
2009	Symbolic/Scientific Computing Theme, CAIMS Annual Meeting, 2009
2007	Program Committee, Milestones in Computer Algebra (MICA 2008), May 2008
2006	Program Committee, Transgressive Computing 2006, April 2006, Granada, Spain
2005	Program Committee, ISSAC 2005, July, 2005, Beijing, China
2003	Organizer Workshop on Numerical Polynomial Algebra, SIAM, Montreal (with D. Aruliah)

#### Membership in Academic/Professional Societies:

1980-2004	Mathematical Association of America
1988-1996, 2009, 2013-2017	S.I.A.M.
1992 -	Association for Computing Machinery
1980-	Canadian Applied and Industrial Math Society, Life Member

#### Editorial Work:

2013	Series Editor, Texts and Monographs in Symbolic
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Computation, A Series of the Research Institute for Symbolic Computation, Springer Wien, New York

- 2003-2009 Member, Editorial Board J. Symbolic Computation
- 1996-1999 Editor, SIGSAM Bulletin (Association for Computing Machinery)
- 1992-1996 Associate Editor, SIGSAM Bulletin (Association for Computing Machinery)  
Member Editorial Board, Maple Tech.

**NASA Ames Research Center Short Course:**

R.M. Corless, "What Good are Numerical Simulations of Nonlinear Differential Equations", sponsored by the AD division and RIACS, January 25, 1995

Reviewer for many journals, conferences, book publishers, and granting agencies, including NSERC, NSF (South Africa), UAE Research Council, FWF (Austria), SIAM, Springer, Birkhäuser, SYNASC, ISSAC; Journal of Fluids and Structures, SIAM J. Matrix Analysis, and Numerical Algorithms, Linear Algebra and its Applications, Foundations of Computational Mathematics, AMS Transactions, Mathematics and the Arts, Applied Mathematics and Computation, J. Mathematical Arts

**Outreach Activities**

- 2014 Discovery Cafe Group Leader
- 2014 Judge in CASE Study Competition (Cystic Fibrosis Model)

**9. UNIVERSITY ADMINISTRATIVE DUTIES:**

**Departmental Duties:**

- 2015-- Colloquium Committee Chair
- 2014-14 Undergraduate Affairs Committee Member
- 2014-15 Communications Officer
- 2014-15 Chair Selection Committee, Department of Applied Mathematics
- 2013-14 Curriculum Reform Committee
- 2013-14 Search Committee, Joint CRC (Philosophy and Applied Mathematics) in the Foundations of Physics
- 2002-07 Department Chair\*
- 2001-02 Colloquium Committee Chair
- 1998-99 Graduate Affairs Committee Member

During my time as Department Chair, I directed the hiring of five tenure-stream faculty, and successfully lobbied for market adjustments in salary for several outstanding faculty and staff members, successfully nominated many people for research and teaching awards, and fostered the increase in percentage of female PhD students, to the point where we were the first mathematical sciences department of any substantial size to reach 50%. Overall the Department's profile grew significantly while I was Chair. Oversaw a fundamental change in research direction, away from classical fluid mechanics and into mathematical biology, mathematical finance, and computational materials and biomaterials

**Faculty of Science Committees**

- 2010-11 Selection Committee for Chair, Department of Computer Science
- 2005-06 Selection Committee for Chair, Department of Mathematics
- 2004-06 Senate Subcommittee on Priorities in Academic Development

## CURRICULUM VITAE

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2002-03 Selection Committee for Chair, Department of Mathematics

### **University Committees:**

2015 Search Committee for Director, Rotman Institute

2012-13 SERAC, Science External Research Award Committee

2004-06 Decanal Selection Committee, Faculty of Science

2004-07 Promotion & Tenure Committee, Mechanical & Materials Engineering