CURRICULUM VITAE

Personal Data

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INSTITUTION:	Dept. of Mathematics and Statistics, University of Vermont
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Education

B.A. (magna cum laude with highest honors in Mathematics), Harvard College, 1977
M. A., University of California at San Diego, 1979
Ph.D., University of California at San Diego, 1982 Thesis Supervisor: Harold M. Stark

Experience

Assistant Professor of Mathematics, University of Maine at Orono, 1982-85
Member of the Institute for Advanced Study, Princeton, N.J., Fall 1985
Instructor, The Ohio State University, Winter-Spring 1986
Assistant Professor of Mathematics, University of Vermont, 1986-91
Guest Professor, Department of Computer Science, University of Saarland, Saarbrücken, Germany, 1992-93
Associate Professor of Mathematics, University of Vermont, 1991-1999
Visitor, Department of Mathematics, University of Texas at Austin, 1999-2000
Professor of Mathematics, University of Vermont, 1999-present
Visitor, Department of Mathematics, University of California at San Diego, 2006-2007
Visitor, Department of Mathematics and Statistics, University of North Carolina at Greensboro, 2015.
Visitor, Department of Mathematics and Statistics, California State University at Chico, 2018.

Publications

1. *Abelian fields and the Brumer-Stark conjecture*, Compositio Mathematica **53** (1984), 337–346.
2. *Galois groups of exponent two and the Brumer-Stark conjecture*, J. reine angew. Math. **349** (1984), 129–135.
3. *Two cases of Stark's conjecture*, Math. Ann. **272** (1985), 349–359.

4. *Stark's conjecture and abelian L-functions with higher order zeros at $s = 0$*, Advances in Math. **66** (1987), 62–87.
5. *An algorithm for testing Leopoldt's conjecture* (with J. Buchmann), Journal of Number Theory **27** (1987), 92–105.
6. *Kummer's and Iwasawa's version of Leopoldt's conjecture*, Canadian Math Bulletin **31** (1988), 338–346.
7. *Leopoldt's conjecture in parameterized families* (with J. Buchmann), Proceedings of the American Math Soc. **104** (1988), 43–48.
8. *P-adic computation of real quadratic class numbers* (with J. Buchmann and H. C. Williams), Mathematics of Computation **54** (1990), 855–868.
9. *Generalization of a theorem of Siegel*, Acta Arithmetica **58** (1991), 47–57.
10. *Computation of Iwasawa lambda invariants for imaginary quadratic fields* (with D. Dummit, D. Ford, and H. Kisilevsky), Journal of Number Theory **37** (1991), 100–121.
11. *On small Iwasawa invariants and imaginary quadratic fields*, Proceedings of the American Mathematical Society **112** (1991), 671–684.
12. *On the non-triviality of the basic Iwasawa lambda-invariant for an infinitude of imaginary quadratic fields*, Acta Arithmetica **65** (1993), 243–248.
13. *A Demjanenko matrix for abelian fields of prime power conductor* (with W. Schwarz), Journal of Number Theory **52** (1995), 85–97.
14. *On the l-adic Iwasawa lambda invariant in a p-extension* (with E. Friedman), Mathematics of Computation **64** (1995), 1659–1674.
15. *Sur quelques modules d'Iwasawa semi-simples* (with J.-F. Jaulent), Compositio Mathematica **99** (1995), 325–341.
16. *Computing Stark units for totally real cubic fields* (with D. Dummit and B. Tangedal), Mathematics of Computation **66** (1997), 1239–1267.
17. *Base change for higher Stickelberger ideals*, Journal of Number Theory **73** (1998), 518–526.
18. *Stark's Question and Popescu's Conjecture for Abelian L-functions*, in "Proceedings of the Turku Symposium on Number Theory in Memory of Kustaa Inkeri," ed. by M. Jutila and T. Metsankyla, Walter de Gruyter, New York, 2001.
19. *Stark's Conjecture in Multiquadratic Extensions, Revisited* (with D. Dummit and B. Tangedal), Journal de Theorie de Nombres de Bordeaux **15** (2003), 83–97.
20. *Numerical Verification of the Stark-Chinburg Conjecture for Some Icosahedral Representation* (with A. Jehanne and X. Roblot), Experimental Mathematics **12** (2003), 419–432.
21. *Popescu's Conjecture in Multiquadratic Extensions*, in "Stark's Conjectures: Recent Work and New Directions," Contemporary Mathematics, Volume 358, American Mathematical Society, Providence, RI, 2004, 127–141.
22. *Values at s=-1 of L-functions for Multiquadratic Extensions of Number Fields, and Annihilation of the Tame Kernel* (with L. Simons), J. London Math. Soc.

76 (2007), 545–555.

23. *L-values and the Fitting Ideal of the Tame Kernel for Relative Quadratic Extensions*, Acta Arith. **131.4** (2008), 389–402.
24. *Values at s=-1 of L-Functions for Multiquadratic Extensions of Number Fields, and the Fitting Ideal of the Tame Kernel*, International Journal of Number Theory **5** (2009) 383–405.
25. *Functorial Properties of Stark Units in Multiquadratic Extensions* (with B. A. Tangedal), in "Proceedings of the 8th Algorithmic Number Theory Symposium," Springer Lecture Notes in Computer Science, Volume 5011 (2008), 253–267.
26. *Annihilation of Motivic Cohomology Groups in Cyclic 2-Extensions* (with M. Kolster), Ann. Sci Math. Quebec. **32** (2008), 175–187.
27. *L-values for Biquadratic Extensions and the Fitting Ideal of the Tame Kernel*, Ann. Sci. Math. Quebec **34** (2010), 109–118.
28. *L-functions at the origin and annihilation of class groups in multiquadratic extensions*, Acta Arith. **154.2** (2012) 173–185.
29. *L-functions for quadratic characters and annihilation of motivic cohomology groups*, Canadian Math. Bulletin **58.3** (2015) 620–631.
30. *Twisted zeta functions of quaternion orders*, J. Number Theory **160** (2016), 32–43.
31. *Zeta functions and ideal classes of quaternion orders*, Rocky Mountain J. Math. **47.4** (2017), 1277–1300.
32. *Computing annihilators of class groups from derivatives of L-series* (with B. Tangedal), Mathematics of Computation, **87.314** (2018), 2937–2953.
33. *Numerical evidence for higher order Stark-type conjectures* (with K. McGown and D. Vallieres), Mathematics of Computation, **88.315** (2019), 389–420.

Grant Support

$12,000 National Science Foundation Grant, *Institute for Advanced Study membership*, 1985

$2,000 University of Vermont Summer Research Fellowship: *Iwasawa Invariants*, 1987

$21,764 National Science Foundation EPSCoR Research Grant: *Iwasawa Invariants* (with D. Dummit), 1987–88

$5,255 National Science Foundation EPSCoR Workshop Grant: *Algebraic Number Theory* (with D. Dorman, D. Dummit, and R. Foote); 1987–88

$6,666 National Science Foundations EPSCoR Research Grant: *Iwasawa Invariants*, 1988–89

$5,600 National Science Foundation EPSCoR Workshop Grant: *Algebraic Number Theory* (with D. Dorman, D. Dummit, R. Foote, and L. Simons); 1988–89

$4,600 National Science Foundation EPSCoR Workshop Grant: *Algebraic Number Theory* (with D. Dorman, D. Dummit, R. Foote, and L. Simons); 1989–90

$86,000 National Security Agency Research Grant: *Iwasawa Invariants* (with D. Dummit), 1990-92

$4,200 National Science Foundation EPSCoR Workshop Grant: *Algebraic Number Theory* (with D. Dorman, D. Dummit, R. Foote, and L. Simons); 1990–91

$12,000 from Deutsche Forschungsgemeinschaft Grant to Lehrstuhl Buchmann, University of Saarland, Germany: *Guest Professor*, 1992-93

$50,000 National Security Agency Research Grant: *Numerical Verifications of Stark's Conjectures and Refinements of the Associated Units* (with D. Dummit); 1992-94

$52,000 National Security Agency Research Grant: *Investigations of Stark's Conjecture* (with D. Dummit and B. Tangedal); 1996-97

$31,850 National Science Foundation Research Grant: *Stark Units* (with D. Dummit); 1996-99

$69,641 National Security Agency Research Grant: *A Generalization of the Abelian Stark Conjecture* (with D. Dummit); 1999-2001

$5,000 Number Theory Foundation Grant for *International Conference on Stark's Conjectures and Related Topics*; 2002

$15,000 National Science Foundation Conference Grant for *International Conference on Stark's Conjectures and Related Topics* (with Cristian Popescu); 2002

$75,403 National Security Agency Research Grant: *Refinements of the Abelian and Non-Abelian Stark Conjecture* (with D. Dummit); 2003-2005

$50,000 National Security Agency Conference Grant for *Algorithmic Number Theory Symposium VI*; 2004.

Invited Addresses

1. Lecture "Brumer-Stark for Abelian Fields," NSF Summer Conference on Special Values of L-Functions, University of New Hampshire, Durham, 6/28/82.
2. Colloquium "Stark's Conjectures for L-Series," University of New Brunswick, Fredericton, 3/4/83.
3. Seminars "Brumer-Stark for Multiquadratic Extensions" and "Stark's Conjecture over Real Quadratic Base Fields," Laval University, Quebec, 2/4/84.
4. Colloquium "Forecasting Arithmetic with L-Functions," University of Massachusetts, Amherst, 4/4/85.
5. Lecture "Stark's Conjecture and Multiquadratic Extensions," Quebec-Ontario Mathematics Meeting, Laval University, Quebec, 4/7/85.
6. Seminar "Stark's Conjecture and Higher Order Zeroes," University of Vermont, Burlington, 5/9/85.
7. Colloquium "L-Functions, Higher Arithmetic and Hilbert's 12th Problem," University of Vermont, 5/10/85.
8. Seminar "Brumer-Stark for Abelian Fields," McGill University, Montreal, 2/27/86.
9. Colloquium "Kummer's Contribution to a 1962 Conjecture," University of Vermont, 2/28/86.

10. Lecture "Abelian L-Functions and a Refinement of Stark's Conjecture," Ohio State - Denison Math. Conf., Denison University, Granville, OH, 5/9/86.
11. Lecture "Higher Order Zeros of Abelian L-functions," Workshop on Artin L-functions, University of Montreal, 11/14/86.
12. Seminar "Principal Homogeneous Spaces and Descent," University of Maine, Orono, 3/19/87.
13. Lecture "Leopoldt's Conjecture in Parameterized Families," International Number Theory Conference, Laval University, Quebec, 7/6/87.
14. Colloquium "Kummer's Contribution to a 1962 Conjecture," University of British Columbia, Vancouver, 1/14/88.
15. Seminar "Algebraic and Analytic Aspects of Iwasawa's Lambda Invariant," University of British Columbia, Vancouver, 1/15/88.
16. Lecture "Computation of Iwasawa Lambda Invariants," First Conference of the Canadian Number Theory Association, Banff, Alberta 4/26/88.
17. Lecture "Computation of Iwasawa Lambda-Invariants," AMS Summer Workshop on Computational Number Theory, Bowdoin College, Maine, 7/12/88.
18. Colloquium "Primality and Factorization via Gauss' Theory of Quadratic Forms," Dartmouth University, New Hampshire, 9/28/88.
19. Seminar "Iwasawa Invariants over Imaginary Quadratic Fields," University of Toronto, 2/28/90.
20. Colloquium "When Does Continuity Mean Divisibility?" Middlebury College, Vermont, 3/13/90.
21. Colloquium "When Does Continuity Mean Divisibility?" St. Michael's College, Vermont, 4/19/90.
22. Lecture "Iwasawa Invariants over Imaginary Quadratic Fields," Seaway Number Theory Conference, SUNY Buffalo, 6/1/90.
23. Lecture "Computation of Stable Iwasawa Invariants," Workshop on Computational Number Theory, Oberwolfach, Germany, 7/12/91.
24. Seminar "Semisimple Iwasawa Modules," Five College Number Theory Seminar, Amherst College, Massachusetts, 11/12/91.
25. Seminar "Semisimple Iwasawa Modules," University of Saarland, Germany, 10/26/92.
26. Seminar "Semisimple Iwasawa Modules," University of Besançon, France, 1/21/93.
27. Seminar "The Extended Riemann Hypothesis in Computational Number Theory," Computer Science Department, University of Saarland, Germany, 2/12/93.
28. Seminar "The Extended Riemann Hypothesis in Computational Number Theory," University of Düsseldorf, Germany, 3/10/93.
29. Seminar "Semisimple Iwasawa Modules," University of Bordeaux, France, 3/25/93.
30. Seminar "Stable Iwasawa Invariants," University of Turku, Finland, 5/12/93.
31. Seminar "Semisimple Iwasawa Modules," University of Turku, Finland, 5/13/93.
32. Seminar "Stable Iwasawa Invariants," University of Saarland, Germany, 6/7/93.
33. Seminar "Class Numbers as Determinants," Berlin Technical University, Germany, 6/23/93.

34. Seminar "Class Numbers as Determinants," Masarykovy University, Brno, Czech Republic, 6/29/93
35. Lecture "Relative Class Numbers as Determinants," Fields Institute Conference on L-functions, University of Waterloo, Ontario, 3/23/94.
36. Seminar "Introduction to Stark's Conjectures," Laval University, Quebec, 3/20/95.
37. Special Session Talk "Computations Related to Stark's Conjecture," Burlington (Vermont) Mathfest, 8/6/95.
38. Special Session Talk "Computational Evidence for Stark's Conjecture," Fifth Conference of the Canadian Number Theory Association, Carleton University, Ottawa, Canada, 8/20/96
39. Seminar "The Story of Base Change for the Brumer-Stark Conjecture," Brown University, Providence, RI, 9/22/97.
40. Seminar "The Story of Base Change for the Brumer-Stark Conjecture," Laval University, Quebec City, Canada, 12/12/97.
41. Invited Address, "Stark's Question and Popescu's Conjecture," Conference on Constructive Number Theory, Laval University, Quebec City, Canada, 7/6/98.
42. Seminar "Stark's Question and Popescu's Conjecture," University of Texas at Austin, Austin, TX 9/9/99.
43. Seminar "Stark's Question and Popescu's Conjecture," University of Colorado, Boulder, CO, 4/4/00.
44. Special Session Talk "Stark's Conjecture in Multiquadratic Extensions, Revisited," American Mathematical Society Regional Meeting, Lafayette, Louisiana, 4/16/00.
45. Contributed Conference Talk "Stark's Conjecture in Multiquadratic Extensions, Revisited," Journees Arithmetiques, Lille, France, 7/5/01.
46. Lecture "Popescu's Conjecture in Multiquadratic Extensions," Quebec-Maine Number Theory Conference, Orono, Maine, 10/4/03.
47. Invited Address "Popescu's Conjecture in Multiquadratic Extensions," Eighth Conference of the Canadian Number Theory Association, Toronto, 6/21/04.
48. Lecture "L-functions of Multiquadratic Extensions at $s = -1$ and Annihilation of the Tame Kernel," Workshop on Stark's Conjectures, University of Montreal, 11/1/05.
49. Lecture "L-functions of Multiquadratic Extensions at $s = -1$ and Annihilation of the Tame Kernel," Five College Number Theory Seminar, Amherst College, Massachusetts, 3/28/06.
50. Seminar "Values at $s = -1$ of L-functions for Multiquadratic Extensions and Annihilation of the Tame Kernel," University of California at San Diego Number Theory Seminar, 11/9/06
50. "Dedekind Zeta Functions at $s = -1$ and the Fitting ideal of the Tame Kernel in a Relative Quadratic Extension of Number Fields," University of California at Irvine Number Theory Seminar, 2/13/07
51. Seminar "Dedekind Zeta Functions at $s = -1$ and the Fitting ideal of the Tame Kernel in a Relative Quadratic Extension of Number Fields," University

of California at San Diego Number Theory Seminar, 3/15/07

52. Plenary Address "Galois Module Structure Analogies between Ideal Class Groups and the Tame Kernel," Palmetto Number Theory Seminar, College of Charleston, South Carolina, 9/9/07.
53. Lecture "Dedekind Zeta Functions at $s = -1$ and the Fitting ideal of the Tame Kernel in a Relative Quadratic Extension of Number Fields," Quebec-Maine Number Theory Conference, Orono, Maine, 9/30/07.
54. Seminar "Dedekind Zeta Functions at $s = -1$ and the Fitting ideal of the Tame Kernel in a Relative Quadratic Extension of Number Fields," Front Range Number Theory Seminar, Colorado State University, Fort Collins, CO, 4/3/08.
55. Lecture "Embedding Biquadratic Extensions of Number Fields in Dihedral extensions, and the Tame Kernel as a Galois Module," Quebec-Maine Number Theory conference, Orono, Maine, 10/3/09.
56. Special Session Talk: "L-functions at the origin and annihilation of S-class groups in multiquadratic extensions," American Mathematical Society Spring Western Section Meeting, Honolulu, Hawaii, 3/3/12.
57. Invited Talk "L-functions at $s = -1$ and annihilation of S-tame kernels in multiquadratic extensions," Hawaii Conference on Algebraic Number Theory, Algebraic Geometry, and Modular Forms, Honolulu, Hawaii, 3/7/12.
58. Invited Talk "Zeta Functions of Orders in Quaternion Algebras," Mini-Conference on Number Theory, University of Maine, Orono, Maine, 6/23/14.
59. Invited Talk "Zeta Functions and the Finiteness of the Number of Ideal Classes in Quaternion Orders," Quebec-Maine Number Theory Conference, University of Laval, Quebec City, Canada, 9/27/14.
60. Invited Session Talk "Zeta Functions and the Arithmetic of Quaternion Orders," Canadian Mathematical Society Winter Meeting, Hamilton, Ontario, Canada, 12/6/14.
61. Seminar "Zeta-functions and quaternion orders I," University of North Carolina at Greensboro Number Theory Seminar, 1/28/15.
62. Seminar "Zeta-functions and quaternion orders II," University of North Carolina at Greensboro Number Theory Seminar, 2/9/15.
63. Invited Talk "L-functions for quadratic characters and annihilation of motivic cohomology groups," Workshop on Mahler Measures, Regulators, and Special Values of L-functions, Centre de Recherche Mathematiques, U. Montreal, 2/17/15.
64. Invited Talk "Computing Annihilators of Class Groups from Derivatives of L-series," Quebec-Maine Number Theory Conference, University of Maine, Orono, ME, 10/3/15.
65. Invited Talk "Quotients of Zeta-Functions for Quaternion Algebras," Quebec-Maine Number Theory Conference, Laval University, Quebec City, 10/8/16.
66. Colloquium "Are Quotients of Zeta Functions Entire?" California State University at Chico, 3/20/17.
67. Lecture "Numerical Evidence for Higher-Order Stark-Type Conjectures," Canadian Number Theory Association XV Conference, Quebec City, Canada, 7/14/18.

68. Colloquium "A Potential Game-Changer for Speedy Factoring: Schor's Algorithm," California State University at Chico, 9/21/18.
69. Invited Talk, "L-Functions for Graph Coverings and Annihilation of Graph Jacobians," West Coast Number Theory Seminar, Cal. State U. at Chico, 12/16/18.
70. Invited Talk "The Index of the Stickelberger Ideal for Graph Coverings," Hawaii Number Theory Conference HINT, Honolulu, Hawaii, 3/20/19.
71. Special Session Talk: "L-functions for Graph Coverings and Annihilation of Graph Jacobians," American Mathematical Society Spring Western and Central Section Meeting, Honolulu, Hawaii, 3/23/19.

Regional Presentations

1. Seminar "Iwasawa's Approach to Leopoldt's Conjecture," University of Vermont, Burlington, 9/25/86.
2. Seminar "Leopoldt's Conjecture in Families of Fields," Concordia University, Montreal, 12/15/86.
3. Seminar "The p-adic Artin Conjecture," McGill University, Montreal, 3/12/87.
4. Poster "Verifying Leopoldt's Conjecture," EPSCoR Conference on Science and Technology, University of Vermont, Burlington, 6/3/87.
5. Seminar "The Ferrero-Washington Trick," University of Vermont, Burlington, 9/24/87.
6. Poster "Iwasawa Invariants in Number Theory," EPSCoR Conference on Science and Technology, University of Vermont, Burlington, 6/3/88.
7. Colloquium "Primality and Factorization via Gauss' Theory of Quadratic Forms," University of Vermont, Burlington, 11/11/88.
8. Seminar "Arithmetic of Orders in Number Fields," Concordia University, Montreal, 1/19/89.
9. Seminar "On the Vanishing of Iwasawa's μ-invariant I.," McGill University, Montreal, 9/14/89.
10. Seminar "On the Vanishing of Iwasawa's μ-invariant II.," University of Vermont, 9/28/89.
11. Seminar "Kolyvagin's System of Gauss Sums I.," McGill University, Montreal, 12/14/89.
12. Seminar "Kolyvagin's System of Gauss Sums II.," University of Vermont, 2/8/90.
13. Seminar "Small Iwasawa Invariants and Imaginary Quadratic Fields," Concordia University, Montreal, 3/22/90.
14. Seminar "Semisimple Iwasawa Modules," McGill University, Montreal, 12/13/90.
15. Seminar "How to Express a Class Number as a Determinant," University of Vermont, 10/7/93.
16. Seminar "Constructing Imaginary Quadratic Fields with Non-trivial Lambda Invariants," McGill University, Montreal, 11/18/93.
17. Seminar "Report on the Fields Institute Conference on L-functions," University of Vermont, 4/21/94
18. Seminar "Introduction to Stark's Conjectures," University of Vermont, 2/9/95.

19. Seminar "The Story of Base Change for the Brumer-Stark Conjecture," University of Vermont, 12/10/98.
20. Seminar "Consequences of Burns' Conjecture I and II," University of Texas, Austin, 3/31/00 and 4/3/00.
21. Seminar "On Burns' Conjecture, I and II," University of Vermont, 7/7/00 and 7/10/00.
22. Seminar "Popescu's Conjecture in Multiquadratic Extensions," University of Montreal, 9/11/03.
23. Seminar "Introduction to $K_2(R)$," University of Vermont 10/7/04 and 10/21/04.
24. Seminar "A map from $K_2(F)$ to the Brauer group of F," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 3/27/08.
25. Seminar " The tame kernel in biquadratic extensions," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 10/23/08.
26. Seminar "The Riemann-Roch Theorem," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 2/5/09 and 4/2/09.
27. Seminar " Annihilation of Ideal Class Groups and The Equivariant Main Conjecture of Greither and Popescu," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 4/22/11 and 5/5/11, and Saint Michael's College, Colchester VT 4/28/11.
28. Seminar "Annihilating class groups and tame kernels with derivatives of L-functions," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 2/23/12.
29. Seminar "Introduction to Clifford Algebras," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 1/30/13 and 2/6/13.
30. Seminar "Zeta Functions of Quaternion Orders," Vermont Algebra/Number theory Seminar, University of Vermont, Burlington VT 9/11/14 and 9/18/14.
31. Seminar "Introduction to Stark's Conjectures and their Generalizations," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 1/24/17 and 1/31/17.
32. Seminar "The Mordell-Lang Conjecture," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 4/12/18.
33. Seminar "An Introduction to Iwasawa Theory," California State University at Chico, 11/28/18, 12/5/18 and 12/12/18.
34. Seminar "L-functions of Graphs," Discrete Mathematics Seminar, University of Vermont, Burlington VT 4/1/19.
35. Seminar "A Stickelberger Theorem for Graphs," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 4/4/19.
36. Seminar "The Index of the Graph-Theoretic Stickelberger Ideal," Vermont Algebra/Number Theory Seminar, University of Vermont, Burlington VT 4/18/19.

Professional Service

1. *Refereeing:* Canadian Mathematics Bulletin, Journal of Number Theory, International Journal of Number Theory, Bordeaux Journal of Number Theory,

Czechoslovak Journal of Mathematics, Journal of Symbolic Computation, Journal of Combinatorial Design, Mathematics of Computation, Proceedings of the American Mathematical Society, Transactions of the American Mathematical Society, Pacific Journal of Mathematics, Journal für die Reine und Angewandte Mathematik, Mathematica Slovaka, Proceedings of Conference of Canadian Number Theory Association 2002, Experimental Mathematics, Science in China, Rocky Mountain Journal of Mathematics, Compositio Mathematica, Proceedings of Park City Math Institute 2009, Annals Math. Quebec.

2. *Reviewing:* NSF Algebra and Number Theory Grant Program, NSERC Canada Operating Grants in Mathematics, Mathematical Reviews, Euresco conference proposal
3. *External Examiner:* Carleton University, Ottawa, Ph.D. program; Laval University, Quebec, Ph.D. program.
4. *Conference Planning:* Local Arrangements Chair for Burlington Mathfest 1995, Special Session Co-Organizer at Burlington Mathfest 1995, Co-organizer of Conference on Stark's Conjecture at Johns Hopkins University in August 2002, Co-organizer of Algorithmic Number Theory Symposium (ANTS) at University of Vermont in June 2004, Co-organizer of Conference in Honor of Harold Stark's 65th Birthday at University of Minnesota in August 2004.
5. *Editing:* Co-Editor (with D. Burns, C. Popescu and D. Solomon) of "Stark's Conjectures: Recent Work and New Directions," Contemporary Mathematics, vol. 358 (2004), American Mathematical Society, Providence, RI.
6. *Memberships:* American Mathematical Society