

**Michael F. Singer**  
**B.A., M.A., Ph.D.**  
**Professor of Mathematics**  
**North Carolina State University**

**Education**

1970 B.A., Mathematics, New York University  
1972 M.A., Mathematics, University of California at Berkeley,  
1974 Ph.D., Mathematics, University of California at Berkeley, Thesis:  
Functions Satisfying Elementary Relations, Advisor: Maxwell Rosenlicht

**Academic and Related Professional Experience**

May, 2009 Member, Isaac Newton Institute, Cambridge, UK  
May, 2008 Visiting Professor of Mathematics, University Louis Pasteur, Strasbourg  
June, 2006 Member, Max Planck Institute, Bonn  
June, 2005 Member, Isaac Newton Institute, Cambridge, UK  
October, 2003 Visiting Professor of Mathematics, University Louis Pasteur, Strasbourg  
2002 - 2003 Acting Director, MSRI  
2001 - 2002 Deputy Director, MSRI  
1986-present Professor of Mathematics, North Carolina State University  
May, 2000 Visiting Professor of Mathematics, University of Rennes I  
Fall, 2000 Acting Deputy Director, MSRI, Berkeley, California  
Fall, 1998 Chair, Organizing Committee and Member of Special Semester: Symbolic  
Computation in Geometry and Analysis, MSRI, Berkeley, California  
May, June 1998 Visiting Professor of Mathematics, University Louis Pasteur, Strasbourg  
May 1995 Visiting Professor of Mathematics, University of Rennes I  
June, July 1994 Visiting Professor of Mathematics, University Louis Pasteur, Strasbourg  
May 1994 Visiting Professor of Mathematics, University of Lille  
December 1990 Visiting Professor of Computer Science, University of Bonn  
October 1989 Visiting Professor of Computer Science, University of Bonn  
May 1989 Visiting Professor of Mathematics, University Louis Pasteur, Strasbourg  
Spring 1989 Visiting Professor of Mathematics, Johannes Kepler University-Linz  
1982-1986 Associate Professor of Mathematics, North Carolina State University  
Spring 1985 Member, Institute for Advanced Study  
1977-1982 Assistant Professor of Mathematics, North Carolina State University  
1979-1980 Visiting Assistant Professor of Mathematics, Princeton University  
1978-1979 Member, Institute for Advanced Study  
1976-1977 Visiting Assistant Professor of Mathematics, North Carolina State University  
1974-1976 Instructor of Mathematics, SUNY at Stony Brook

## Professional Activities and Society Memberships

1985–present	Member of the editorial board, Journal of Symbolic Computation.
1996–present	Associate editor, Applicable Algebra in Engin., Commun., and Comput.
2004–present	Member of the editorial board, Algorithms and Computation in Mathematics (Springer Book Series)
2006–present	Member of the editorial board, Journal of Algebra and Number Theory
Feb. 2009–present	Member, Editorial Board Committee, American Mathematical Society
March, 2009	Member, Organizing Committee, Differential Algebra and Related Topics (DART III), Rutgers, Newark
June 2008	Member, Organizing Committee, Workshop on Symbolic Analysis, Foundations of Computational Mathematics, Hong Kong
Jan. 2005 -Jan. 2008	Member of the Council of the AMS; Member, Committee on Science Policy; Member, Committee on Committees.
July 2005	Member, Organizing Committee, Workshop on Symbolic Analysis, Foundations of Computational Mathematics, Santander
July 2004	Program Committee Chair, International Symposium on Symbolic and Algebraic Computation (ISSAC 2004), Santander
March 2004	Member, Organizing Committee, Differential and Arithmetic Galois Theory, Luminy
July 2002	Member, Program Committee, International Symposium on Symbolic and Algebraic Computation (ISSAC 2002). Lille
June 2000	Co-organizer and Editor of Proceedings, Effective Methods in Algebraic geometry (MEGA), Bath
April 1999	Co-organizer, East Coast Computer Algebra Day, Raleigh.
Fall 1998	Chair, Organizing Committee, special semester “Symbolic Computation in Geometry and Analysis”, MSRI, Berkeley.
Fall, 1998	Co-organizer of the workshop “Groupes de Galois différentiels” CIRM, Luminy.
April 1996	Co-organizer of the Special Session “Differential Algebra” AMS Meeting, New York.
March 1996	Co-organizer of the “Mid-Atlantic Algebra Conference” North Carolina State University, Raleigh.
June 1992	Co-Organizer of the workshop on “Computer Algebra and Differential Equations” (CADE III) Marseilles.
December 1991	Co-organizer of the workshop “Efficient Interpolation Algorithms” Dagstuhl, Germany. ,
May 1990	Co-organizer of the workshop “Computer Algebra and Differential Equations” (CADE II) Cornell University.
July 1990	Program committee member, ISSAC '90.
May 1989	Co-organizer of the workshop “Symbolic Computation in Differential Equations” IMA, University of Minnesota.
December 1988	Co-organizer of the NSF sponsored conference “Kac-Moody Lie Algebras and Physics” North Carolina State University.

May 1988 Co-organizer of the workshop “Computer Algebra and Differential Equations” (CADE I) University of Grenoble.

Member, Association for Computing Machinery, AMS, MAA

## Grants

- NSF Graduate Fellowship: 1970-1973
- State University of New York Research Foundation Fellowship: Summer 1975
- N.C. State University Engineering Foundation Fellowship: Summer 1977
- NSF Foundation Research Fellowship: June 1975-November 1976, June 1979-November 1981, June 1985-November 1987, June 1988-November 1990, April 1991-September 1993, June 1995 - May 1998, June 1998 - May 2001, June 2001 - August 2006, September 2006 - August 2009
- N.C. State University Instructional Computing Grant: 1984
- IBM Joint Computer Study: October 1985-1986
- NSF SCREMS (with Shearer, Helminck, Wright) June 1988-June 1989
- NSF Computer Algebra and Differential Equations Conference: March 1988-March 1989
- NSF Kac-Moody Lie Algebras and Physics Conference: March 1988-March 1989
- DAAD Study Visit Research Grant for research in Germany, 1991.
- NSF Scientific Computation: Graduate Level Courses, Computers and Fellowships Grant (with Kelley and Shearer): May 1992-May 1993
- NSA Differential Galois Theory Conference: January 1999 - September 1999
- NSF East Coast Computer Algebra Day (with Hong, Kaltofen): March 99 - September 1999
- NSF SCREMS (with Hong, Kaltofen, Helminck) June 1999-June 2002
- NSA Arithmetic and Differential Galois Theory Conference (Luminy) January 2004-September 2004
- NSF Workshops for NCSU/China Research and Education Partnership in Symbolic Computation (with Hong, Kaltofen, Szanto): July 2005 - June 2008
- NSF SCREMS (with Helminck, Hong, Kaltofen, Kogan, Szanto) August 2005-July 2008
- NSF EMSW21-MCTP: Institute for Mathematics at North Carolina State University (with Banks, Campbell, Helminck, Medhin) September 2006 - August 2009
- NSA Geometric and Differential Galois Theory Workshop (Luminy) January 2010 - December 2010

## Graduate Students

Knowles, Paul, Ph.D. (NCSU), 1986, Associate Professor of Mathematics, D’Youville College.

Ulmer, Felix, Ph.D. (U. of Karlsruhe; Co-director with J. Calmet), 1991, Full Professor of Mathematics, University of Rennes I.

Hessinger, Sabrina, Ph.D. (NCSU), 1997, Associate Professor of Mathematics, Atlantic Armstrong University  
 Berman, Peter, Ph.D. (NCSU), 2002, ActiFi, Inc., Plymouth, MN  
 Person (Faughn), Axelle, Ph. D., (NCSU; Co-dir. F. Ulmer), 2003, Assistant Professor, Western Carolina U  
 Philippe Gaillard, Ph.D., (U. of Rennes; co-directing with F. Ulmer) 2004,  
 Alexey Ovchinnikov, (NCSU), 2007, Assistant Professor, Queens College, City University of New York.

In addition, 3 M.S. students.

## Lectures

I have given approximately 150 lectures at professional meetings and at seminars and colloquia at other universities. Since January 1995 I have given the following talks:

- Jan, 1995     Invited one-hour talk, CATHODE Workshop, Nijmegen, The Netherlands
- April, 1995   Principal Speaker, Computer Algebra Day, U. of Delaware
- April, 1995   Third Annual E.R.Kolchin Memorial Lecture, Columbia University
- May, 1995     Invited Seminar talk, U. Paul Sabatier, Toulouse, France
- May, 1995     Invited one-hour talk, Stokes Workshop, Groningen, The Netherlands
- July, 1995    Invited one-hour talk, AMS Summer Institute in Algebraic Geometry, Santa Cruz
- Sept, 1995    Invited one-hour talk, Singularities and Differential Equations Conference, Medina del Campo, Spain
- April, 1996   Invited seminar talk, Rutgers University
- April, 1996   Invited Colloquium talk, Rutgers University
- April, 1996   Invited one-hour address, AMS regional Meeting, New York City
- June, 1996    Invited one-hour address, MEGA96, Eindhoven, The Netherlands
- June, 1996    Invited seminar talk, Paris VI, France
- Nov, 1996     Invited seminar talk, U. of Groningen
- Jan, 1997     Invited half-hour talk, AMS Special Session on Computational Algebraic Geometry, San Diego
- Jan, 1997     Invited one-hour talk, Geometric Model Theory Workshop, Fields Institute, Toronto, Canada
- May, 1997     Invited one-hour talk, Computational Aspects of Commutative Algebra and Algebraic Geometry, Schloss Dagstuhl, Germany
- June, 1997    Invited 40 minute talks, Special Session of an AMS Regional Meeting, Atlanta
- Jan, 1998     Invited two-hour talk, Model Theory Workshop, MSRI, Berkeley
- April, 1998   Two one hour seminar talks, University of Strasbourg, France
- June, 1998    40 minute talk, MEGA98 (a refereed conference), St. Malo, France
- Nov, 1998     Invited Colloquium talk, UCLA
- Feb, 1999     One-hour talk, Differential Galois Theory Conference, Luminy, France
- May, 1999     Two invited one-hour talks, Differential Galois Theory Workshop, Groningen, The Netherlands

July, 1999 Invited one-hour address, ISSAC99, Vancouver  
 March, 2000 Invited seminar talk, U. of Angers, France  
 May, 2000 Invited seminar talk, U. of Rennes, France  
 June, 2000 Invited one-hour talk, AMS Symbolic Computation Conference,  
 Mt. Holyoke College  
 Sept, 2000 Invited algebra seminar talk, UC Berkeley  
 Nov, 2000 Invited one-hour talk, Workshop on Differential Algebra, Rutgers University  
 March, 2001 Invited Colloquium talk, Arizona State University  
 May, 2001 Invited one-hour talk, Differential Galois Theory Conference, Poznan, Poland  
 Aug, 2001 Invited one-hour address, International Society for Analysis, Applications  
 and Computing Conference, Berlin  
 Feb, 2002 Two invited one-hour talks, Differential Algebra Seminar, City College Of New York  
 Feb, 2002 Invited colloquium talk, MIT Applied Mathematics Colloquium  
 May, 2002 Invited talk, Infinite Dimensional Lie Algebra Seminar, MSRI  
 Aug, 2002 Invited one hour talk, Foundations of Computational  
 Mathematics Conference, IMA, Minneapolis  
 Oct. 2003 Invited one-hour talk, Analysis Seminar, U. of Strasbourg, France  
 April 2004 Invited Seminar Talk, Academia Sinica, Beijing  
 April 2004 Invited Plenary Talk, Differential Equations and Symbolic Computation  
 Conference, Beijing  
 Nov. 2004 Invited Plenary Talk, Singularities of Differential Equations, Integrable Systems  
 and Quantum Groups, Strasbourg.  
 Feb. 2005 Invited Seminar Talk, Kolchin Seminar on Differential Algebra  
 March 2005 Contributed Talk, AMS Special Session on Classical And Differential Galois  
 Theory, Lubbock Texas,  
 May 2005 Invited Seminar Talk, Newton Institute  
 May 2006 Invited Talk, Symbolic Analysis and Groebner Basis Conference, Linz, Austria  
 Aug, 2006 Invited Lectures of the London Math Society, Heriot-Watt University, Edinburgh  
 (a series of 10 lectures, *An Introduction to the Galois Theory of Differential and  
 Difference Equations*)  
 Sept, 2006 Invited Talk, Differential Equations and Singularities Conference, Tordesillas  
 March, 2007 Invited Talk, Second NCSU-China Symbolic Computation Collaboration Workshop,  
 Hangzhou China  
 April, 2007 Invited Talk, Differential Algebra and Related Topics Conference  
 (DART II), Newark, NJ  
 April 2007 Invited Talk, Advances in Algebra and Geometry  
 MSRI  
 May, 2007 Invited Talk, Arithmetic and Differential Galois Theory  
 Mathematische Forshungsinstitute Oberwolfach  
 June, 2007 Invited Talk, Differential Fields Workshop, University of Leeds  
 Nov. 2007 Invited Talk, Atelier MODNET de Theorie de Modeles des Corps.  
 CIRM, Luminy, France  
 Feb. 2008 Invited Talk, Algebraic Methods in Dynamical Systems, Barcelona, Spain  
 Feb. 2008 Colloquium, University of Montreal

March, 2008	Invited Talk, Differential Algebra and Related Computer Algebra, Catania, Italy.
May 2008	Invited Talk, Séminaire Equations fonctionnelles, University of Strasbourg.
Oct. 2008	Colloquium, Cornell University
Oct. 2008	Invited Talk, Lie Groups Seminar, Cornell University
Dec. 2008	Invited Talk, Kolchin Seminar in Differential Algebra
Feb. 2009	Colloquium, University of Illinois at Chicago
April 2009	Colloquium, Indiana University-Purdue University
May 2009	Tutorial Lectures, Algebraic Theory of Difference Equations, Leeds
July 2009	Invited Talk, Algebraic Analysis and Computer Algebra, Linz
July 2009	Invited Speaker, Formal Power Series and Algebraic Combinatorics Conference, Linz
July 2009	Seminar talk, RISC, Linz

## Bibliography

Many of these papers can be retrieved on the Internet through links from my homepage with URL <http://www.math.ncsu.edu/~singer>.

## Books Edited or Authored by Michael F. Singer

1. *Differential Equations and Computer Algebra*, M.F. Singer, editor, Academic Press, 1991. (This is a collection of papers from the Computer Algebra and Differential Equations Conference held in Ithaca in May 1990).
2. *Galois Theory of Difference Equations* (with M. van der Put), 178 pages, Vol. 1666 of the series *Lecture Notes in Mathematics*, Springer-Verlag 1997 .
3. *Effective Methods in Algebraic Geometry*, M.F. Singer (editor). Selected papers from the conference Méthodes Éffectives en Géométrie Algébriques (MEGA2000), *Journal of Pure and Applied Algebra*, Volume 164, Issues 1-2, October 2001.
4. *Galois Theory of Linear Differential Equations* (with M. van der Put), Vol 328 of *Grundlehren der mathematischen Wissenschaften*, Springer-Verlag, 2003.

## Papers

1. Elementary Solutions of Differential Equations, *Pacific Journal of Mathematics*, **59**(2), 1975, 535-547.
2. Solutions of Linear Differential Equations in Function Fields of One Variable, *Proceedings of the American Mathematical Society*, Vol. 54, January 1976, 69-72.
3. Functions Satisfying Elementary Relations, *Transactions of the American Mathematical Society*, **227**, 1977, 185-206.
4. On Elementary, Generalized Elementary, and Liouvillian Extension Fields, **Contributions to Algebra**, Academic Press, 1977 (with M. Rosenlicht).

5. A Class of Differential Fields with Minimal Differential Closures, *Proceedings of the American Mathematical Society*, **69**(2), 1979, 319-322.
6. The Model Theory of Ordered Differential Fields, *The Journal of Symbolic Logic*, **43**(1), 1979, 82-91.
7. Remarks on Analytic Continuation, *Bulletin of the London Mathematical Society*, **12**, 1980, 9-12, (with F. Haimo and M. Tretkoff).
8. Planar Polynomial Foliations, *Proceedings of the American Mathematical Society*, **79**(4), August 1980, 649-656 (with S. Schecter).
9. Singular Points of Planar Vector Fields, *Globay Theory of Dynamic Systems*, Lecture Notes in Mathematics, **819**, Springer-Verlag, 393-410 (with S. Schecter).
10. Separatrices at Singular Points of Planar Vector Fields, *Acta Mathematica*, **45**, 1980, 47-78 ; (with S. Schecter); correction in **151**, 297-298.
11. Algebraic Solutions of  $n^{\text{th}}$  Order Linear Differential Equations, *Proceedings of the Queen's University 1979 Conference on Number Theory*, Queens Papers in Pure and Applied Mathematics, (54), pp. 379-420.
12. Liouvillian Solutions of  $n^{\text{th}}$  Order Homogeneous Linear Differential Equations, *Am. J. Math.*, **103**(4), 1981, pp. 661-682.
13. Elliptic Sectors at Singular Points of Planar Polynomial Vector Fields (with S. Schecter). Unpublished (after this paper was written, we discovered that the result had already appeared in print).
14. Elementary First Integrals of Differential Equations, *Transactions of the American Mathematical Society*, **279**(1), September 1983, 215-229 (with M. Prella).
15. An Extension of Liouville's Theorem on Integration in Finite Terms, *SIAM Journal of Computing*, **14**, 1985, 966-990 (with B. D. Saunders and B. F. Caviness).
16. Solving Homogeneous Linear Differential Equations in Terms of Second Order Linear Differential Equations, *Am. J. of Math.*, **107**, 1985, pp. 663-696.
17. Applications of Linear Groups to Differential Equations, *American Journal of Mathematics*, **107**, 1985 1093-1109 (with M. Tretkoff).
18. A Classification of Differential Equations of Fuchsian Class, *American Journal of Mathematics*, **107**, 1985 1111-1121 (with M. Tretkoff).
19. A Class of Vectorfields on  $S^2$  that are Topologically Equivalent to Polynomial Vectorfields, *Journal of Differential Equations*, **57**(3), 1985, 406-435 (with S. Schecter).

20. A Differentially Algebraic Elimination Theorem with Applications to Analog Computability in the Calculus of Variations, *Proceedings of the American Mathematical Society*, **94**(4), 1985, 635-658 (with L. Rubel).
21. Algebraic Relations Among Solutions of Linear Differential Equations, *Transactions of the American Mathematics Society*, **295**(2), 1986,753-763.
22. Elementary and Liouvillian Solutions of Linear Differential Equations, *Journal of Symbolic Computation*, **2**(3), 1986, 237-260 (with J. Davenport).
23. Algebraic Relations Among Solutions of Linear Differential Equations: Fano's Theorem, *Am. J. of Math.*, **110**, 1988, pp. 115-143.
24. Autonomous Functions, *Journal of Differential Equations*, **75**(2), 1988 (with L. Rubel).
25. Algebraic Properties of the Ring of General Exponential Polynomials, *Complex Variables Theory and Applications*, **13**, 1989, 1-20 (with C. W. Henson, L. Rubel).
26. An Outline of Differential Galois Theory, *Computer Algebra and Differential Equations*, E. Tournier, ed., Academic Press, 1989, 3-58.
27. Solving Ordinary Differential Equations in Terms of Series with Real Exponents, *Transactions of the A.M.S.*, **327**(1), 1991, 329-351, (with D. Yu. Grigor'ev).
28. Liouvillian Solutions of Linear Differential Equations with Liouvillian Coefficients, *J. of Symbolic Computation*, **11**, No. 3, 1991, pp.251-274.
29. Fast Parallel Algorithms for Sparse Multivariate Polynomial Interpolation over Finite Fields, *SIAM J. of Computation*, **19**(6), December 1990, pp. 1059 - 1063. (with D. Yu. Grigor'ev and M. Karpinski)
30. Formal Solutions of Differential Equations, *J. of Symbolic Computation*, **10**, 1990, pp. 59-94.
31. The Interpolation Problem for k-Sparse Sums of Eigenfunctions of Operators, *Advances in Applied Mathematics*, **12**, pp. 76-81 (with D. Yu. Grigor'ev, M. Karpinski).
32. Size efficient parallel algebraic circuits for partial derivatives, in *IV International Conference on Computer Algebra in Physical Research*, D. V. Shirkov, V. A. Rostovtsev, and V. P. Gerdt, ed., World Scientific Publ., Singapore, 133-145 (with E. Kaltofen).
33. Liouvillian First Integrals of Differential Equations, *Trans. AMS*, Vol. 333, No. 2, October 1992, pp. 673-688.
34. Moduli of Linear Differential Equations on the Rieman Sphere with Fixed Galois Groups, *Pacific Journal of Mathematics*, Vol. 106, No. 2, 1993, pp. 343-395.

35. Interpolation of Sparse Rational Functions without Knowing the Bounds on Exponents, extended abstract *Proceedings of the 1990 IEEE Foundations of Computer Science Conference*, IEEE Computer Society Press, 1990, pp. 840 - 847 (with D. Yu. Grigor'ev, M. Karpinski).
36. On Integer Zeros of Exponential Polynomials, to appear in *Complex Variables Theory and its Applications*, (with C. W. Henson, L. A. Rubel, L. van den Dries), *Complex Variables Theory and Applications*.
37. Computational Complexity of Sparse Rational Function Interpolation, *SIAM J. of Complexity*, **23**, 1994, pp. 1-11.(with D. Yu. Grigor'ev, M. Karpinski).
38. Computational Complexity of Sparse Real Algebraic Function Interpolation, in the *Proceedings of the Conference on Effective Methods in Algebraic Geometry (MEGA '92)*, April 1992, *Progr. in Math.*, Birkhäuser, v. 109, 1993, p. 91–104 (with D. Yu. Grigor'ev, M. Karpinski).
39. Galois Groups of Second and Third Order Linear Differential Equations, *Journal of Symbolic Computation*, **16**, July 1993, pp. 9 - 36. (with F. Ulmer)
40. Liouvillian and Algebraic Solutions of Second and Third Order Linear Differential Equations, *Journal of Symbolic Computation*, **16**, July 1993, pp. 37 - 74. (with F. Ulmer)
41. On a third order differential equation whose differential galois group is a simple group with 168 elements, *Proceedings of the 10th International Symposium on Applied Algebra, Algebraic Algorithms and Error Correcting Codes, Puerto Rico, May 1993*, LNCS, **519**. (with F. Ulmer)
42. Necessary Conditions for Liouvillian Solutions of (Third Order) Linear Differential Equations, *Applied Algebra in Engineering, Communication and Computing*, **6**(1), 1995, pp. 1-22; an extended abstract of this paper appeared in the *Proceedings of the International Symposium on Symbolic and Algebraic Computation (ISSAC '92)*, ACM Press. (with F. Ulmer).
43. Group Theoretic Obstructions to Integrability, *Ergodic Theory and Dynamical Systems* , **15**, 1995, pp. 15 -48. (with R. Churchill, D. Rod)
44. On Computing Algebraic Functions using Logarithms and Exponential, *SIAM J. of Comp.*, **24**(2), 1995, 242-246. (with D. Grigoriev, A. Yao)
45. On the Infinitesimal Geometry of Integrable Systems, **Mechanics Day**, Shadwich et. al., eds, Fields Institute Communications, 7 , American Mathematical Society, 1996, pp. 5-56. (with A. Baider, R. Churchill, D. Rod)
46. Testing Reducibility of Linear Differential Operators: A Group Theoretic Perspective, *Applicable Algebra in Engineering, Communication and Computing*, **7**(2), 1996, 77-104.
47. On Ramis's Solution of the Local Inverse Problem of Differential Galois theory, *Journal of Pure and Applied Algebra*, **110**, 1996, 185-194. (with C. Mitschi)

48. Connected Linear Groups as Differential Galois Groups, *Journal of Algebra*, **184**, 1996, 333-361. (with C. Mitschi).
49. The Inverse Problem in Differential Galois Theory in **The Stokes Phenomenon and Hilbert's 16th Problem**, B.L.J. Braaksma, et. al., eds., World Scientific, Singapore, 1996, 185-196. (with C. Mitschi)
50. Linear Differential Equations and Products of Linear Forms, *Journal of Pure and Applied Algebra*, **117-118**, 1997, 549-563. (with F. Ulmer)
51. Direct and Inverse Problems in Differential Galois Theory, **Selected Works of Ellis Kolchin with Commentary**, Bass, Buium, Cassidy, eds., American Mathematical Society, 1999, 527-554.
52. Computing Galois Groups of Completely Reducible Differential Equations, *Journal of Symbolic Computation*, 28/4-5, 1999, 473-494.
53. Relations Linéaires entre Solutions d'une Equation Différentielle (with E. Compoint), *Annales des Fac. des Science de Toulouse*, Vol. VII, No. 4, 1998, 659-670.
54. Calculating the Galois group of  $L_1(L_2(y)) = 0$ ,  $L_1, L_2$  Completely Reducible Operators (with P. Berman), *Journal of Pure and Applied Algebra*, 139/1-3, 1999, 3-24.
55. Solving Difference Equations in Finite Terms (with P. Hendriks) *Journal of Symbolic Computation*, 27/3, 1999, 239-259.
56. Linear Differential Operators for Polynomial Equations, (with O. Cormier, B. M. Trager, F. Ulmer) *Journal of Symbolic Computation*, 34, 2002, 355-398. A preliminary version of this paper appeared as Computing the Galois Group of a Polynomial Using Linear Differential Equations (with O. Cormier, F. Ulmer). *Proceedings of ISSAC 2000*, 78 - 85.
57. Solvable-by-Finite Groups as Differential Galois Groups (with C. Mitschi), *Ann. Fac. Sci. Toulouse Math.*, (6) 11/3 (2002), 403-423.
58. On the Constructive Inverse Problem in Differential Galois Theory, (with W. Cook and C. Mitschi) *Comm. in Algebra*, 33/10, 2005, 3639-3665
59. Parameterized Linear Differential Equations and Linear Differential Algebraic Groups, (with P. Cassidy), *Differential Equations and Quantum Groups* (IRMA Lectures in Mathematics and Theoretical Physics Vol. 9), ed. D. Bertrand, B. Enriquez, C. Mitschi, C. Sabbah, R. Schaefer, EMS Publishing house pp. 113- 157 (2006).
60. A Recursive Method for Determining the One-Dimensional Submodules of Laurent-Ore Modules (with Z. Li, M. Wu, D. Zheng), *Proceedings of ISSAC 2006*, pp.200-208.
61. Model Theory of Differential Fields: From Commuting to Noncommuting Derivations, *Proceedings of the AMS.*, 135 (2007), 1929-1934.

62. On the Definitions of Difference Galois Groups (with Z. Chatzidakis, C. Hardouin) *Model Theory with applications to algebra and analysis, I and II*, (Z. Chatzidakis, H.D. Macpherson, A. Pillay, A.J. Wilkie editors), Cambridge University Press, Cambridge.(2008), 73-109.
63. Differential Galois Theory of Linear Difference Equations (with C. Hardouin) *Mathematische Annalen*, 342(2) 2008, 333-377.
64. Introduction to the Galois Theory of Linear Differential Equations, in *Algebraic Theory of Differential Equations*, M.A.H. MacCallum and A.V. Mikhalov, eds., London Mathematical Society Lecture Note Series (no. 357), Cambridge University Press, 2009, 1-82.
65. Liouvillian solutions of difference-differential equations (with R. Feng, M. Wu) to appear in *Journal of Symbolic Computation*, (23 pages). 2009.
66. An algorithm to compute liouvillian solutions of prime order difference-differential equations (with R. Feng, M. Wu) to appear in *Journal of Symbolic Computation*, (21 pages). 2009.
67. A Jordan-Hölder Theorem for Differential Groups (with P. Cassidy), preprint, (32 pages), 2009.