

Commutative Algebra

Commutative Algebra: General

13Axx excluding 13A50, 13Bxx

- [1] David F. Anderson, Andrea Frazier, Aaron Lauve, and Philip S. Livingston, *The zero-divisor graph of a commutative ring: II*, Ideal Theoretic Methods in Commutative Algebra (Columbia, MO, 1999), Lecture Notes in Pure and Appl. Math., vol. 220, Dekker, New York, 2001, pp. 61–72. MR MR1836591 (2002e:13016)
- [2] David F. Anderson and Philip S. Livingston, *The zero-divisor graph of a commutative ring*, J. Algebra **217** (1999), no. 2, 434–447. MR MR1700509 (2000e:13007)
- [3] G. Chèze and S. Najib, *Indecomposability of polynomials via Jacobian matrix*, J. Algebra **324** (2010), no. 1, 1–11. MR 2646027
- [4] Robert S. Coulter, George Havas, and Marie Henderson, *On decomposition of sub-linearised polynomials*, J. Aust. Math. Soc. **76** (2004), no. 3, 317–328. MR MR2053506 (2005b:13013)
- [5] David A. Cox, John Little, and Donal O’Shea, *Using Algebraic Geometry*, second ed., Graduate Texts in Mathematics, vol. 185, Springer, New York, 2005. MR MR2122859 (2005i:13037)
- [6] Jan Draisma, Gregor Kemper, and David Wehlau, *Polarization of separating invariants*, Canad. J. Math. **60** (2008), no. 3, 556–571. MR MR2414957 (2009c:13011)
- [7] Douglas A. Leonard, *A weighted module view of integral closures of affine domains of type I*, Adv. Math. Commun. **3** (2009), no. 1, 1–11.
- [8] Miles Reid, *Graded rings and birational geometry*, 2000.
- [9] R. J. Shank, *Classical covariants and modular invariants*, Invariant Theory in all Characteristics, CRM Proc. Lecture Notes, vol. 35, Amer. Math. Soc., Providence, RI, 2004, pp. 241–249. MR MR2066471 (2005d:13012)

Invariant Theory

13A50

- [1] Thomas Bayer, *An algorithm for computing invariants of linear actions of algebraic groups up to a given degree*, J. Symbolic Comput. **35** (2003), no. 4, 441–449. MR MR1976577 (2004c:13045)
- [2] Dave Benson, *Dickson invariants, regularity and computation in group cohomology*, Illinois J. Math. **48** (2004), no. 1, 171–197. MR MR2048221 (2005c:20089)
- [3] Mireille Boutin and Gregor Kemper, *On reconstructing n -point configurations from the distribution of distances or areas*, Adv. in Appl. Math. **32** (2004), no. 4, 709–735. MR MR2053842 (2005c:68259)
- [4] ———, *On reconstructing configurations of points in P^2 from a joint distribution of invariants*, Appl. Algebra Engrg. Comm. Comput. **15** (2005), no. 6, 361–391. MR MR2134687 (2006a:13011)
- [5] Abraham Broer, *On Chevalley-Shephard-Todd’s theorem in positive characteristic*, Symmetry and Spaces (H. E. A. Campbell, Aloysius G. Helminck, Hanspeter Kraft, and David Wehlau, eds.), Progress in Mathematics, Birkhäuser Boston, 2010, pp. 21–34.
- [6] H. E. A. Campbell, B. Fodden, and David L. Wehlau, *Invariants of the diagonal C_p -action on V_3* , J. Algebra **303** (2006), no. 2, 501–513. MR MR2255119 (2007f:13009)
- [7] H. E. A. Campbell, I. P. Hughes, G. Kemper, R. J. Shank, and D. L. Wehlau, *Depth of modular invariant rings*, Transform. Groups **5** (2000), no. 1, 21–34. MR MR1745709 (2001a:13004)
- [8] H. E. A. Campbell, R. J. Shank, and D. L. Wehlau, *Vector invariants for the two dimensional modular representation of a cyclic group of prime order*, Advances in Mathematics **225** (2010), no. 2, 1069–1094.
- [9] Chris Charnes, Martin Rötteler, and Thomas Beth, *On homogeneous bent functions*, Applied Algebra, Algebraic Algorithms and Error-correcting Codes (Melbourne, 2001), Lecture Notes in Comput. Sci., vol. 2227, Springer, Berlin, 2001, pp. 249–259. MR MR1913471 (2003e:94065)

- [10] ———, *Homogeneous bent functions, invariants, and designs*, Des. Codes Cryptogr. **26** (2002), no. 1-3, 139–154. MR MR1919874 (2003h:05043)
- [11] Wolfram Decker and Theo de Jong, *Gröbner bases and invariant theory*, Gröbner bases and applications (Linz, 1998), London Math. Soc. Lecture Note Ser., vol. 251, Cambridge Univ. Press, Cambridge, 1998, pp. 61–89. MR MR1699814 (2000m:13007)
- [12] Harm Derksen, *Computation of invariants for reductive groups*, Adv. Math. **141** (1999), no. 2, 366–384. MR MR1671758 (2000a:13013)
- [13] Harm Derksen and Gregor Kemper, *Computational Invariant Theory*, Invariant Theory and Algebraic Transformation Groups, I, Springer-Verlag, Berlin, 2002, , Encyclopaedia of Mathematical Sciences, 130. MR MR1918599 (2003g:13004)
- [14] Emilie Dufresne, Jonathan Elmer, and Martin Kohls, *The Cohen-Macaulay property of separating invariants of finite groups*, Transform. Groups **14** (2009), no. 4, 771–785. MR MR2577197
- [15] Alexander Duncan, Michael LeBlanc, and David L. Wehlau, *A SAGBI basis for $F[V_2 \oplus V_2 \oplus V_3]^{C_p}$* , Canad. Math. Bull. **52** (2009), no. 1, 72–83. MR MR2494313
- [16] Jonathan Elmer, *Depth and detection in modular invariant theory*, J. Algebra **322** (2009), no. 5, 1653–1666. MR MR2543628
- [17] Jonathan Elmer and Peter Fleischmann, *On the depth of modular invariant rings for the groups $C_p \times C_p$* , Symmetry and Spaces, Progr. Math., vol. 278, Birkhäuser Boston Inc., Boston, MA, 2010, pp. 45–61. MR MR2562623
- [18] Tom Fisher, *The Hessian of a genus one curve*, 2006.
- [19] P. Fleischmann, M. Sezer, R. J. Shank, and C. F. Woodcock, *The Noether numbers for cyclic groups of prime order*, Adv. Math. **207** (2006), no. 1, 149–155. MR MR2264069 (2007e:13010)
- [20] Karin Gatermann and Frédéric Guyard, *Gröbner bases, invariant theory and equivariant dynamics*, J. Symbolic Comput. **28** (1999), no. 1-2, 275–302, Polynomial elimination—algorithms and applications. MR MR1709907 (2000f:13006)
- [21] Karin Gatermann and Pablo A. Parrilo, *Symmetry groups, semidefinite programs, and sums of squares*, J. Pure Appl. Algebra **192** (2004), no. 1-3, 95–128. MR MR2067190 (2005d:68155)

- [22] Ian Hughes and Gregor Kemper, *Symmetric powers of modular representations, Hilbert series and degree bounds*, *Comm. Algebra* **28** (2000), no. 4, 2059–2088. MR MR1747371 (2001b:13009)
- [23] ———, *Symmetric powers of modular representations for groups with a Sylow subgroup of prime order*, *J. Algebra* **241** (2001), no. 2, 759–788. MR MR1843324 (2002e:13012)
- [24] D. B. Karagueuzian and P. Symonds, *The module structure of a group action on a polynomial ring: Examples, generalizations, and applications*, *Invariant Theory in all Characteristics*, CRM Proc. Lecture Notes, vol. 35, Amer. Math. Soc., Providence, RI, 2004, pp. 139–158. MR MR2066462 (2005g:13011)
- [25] Gregor Kemper, *Calculating invariants of modular reflection groups with Magma*, 1997.
- [26] ———, *Computational invariant theory*, *The Curves Seminar at Queen’s. Vol. XII* (Kingston, ON, 1998), *Queen’s Papers in Pure and Appl. Math.*, vol. 114, Queen’s Univ., Kingston, ON, 1998, pp. 5–26. MR MR1690811 (2000c:13007)
- [27] ———, *The depth of invariant rings and cohomology*, *J. Algebra* **245** (2001), no. 2, 463–531, With an appendix by Kay Magaard. MR MR1863889 (2002h:13009)
- [28] ———, *Computing invariants of reductive groups in positive characteristic*, *Transform. Groups* **8** (2003), no. 2, 159–176. MR MR1976458 (2004b:13006)
- [29] ———, *The computation of invariant fields and a constructive version of a theorem by Rosenlicht*, *Transform. Groups* **12** (2007), no. 4, 657–670. MR MR2365439 (2008m:13011)
- [30] Gregor Kemper, Elmar Körding, Gunter Malle, B. Heinrich Matzat, Denis Vogel, and Gabor Wiese, *A database of invariant rings*, *Experiment. Math.* **10** (2001), no. 4, 537–542. MR MR1881754 (2002k:13011)
- [31] Gregor Kemper and Gunter Malle, *Invariant fields of finite irreducible reflection groups*, *Math. Ann.* **315** (1999), no. 4, 569–586. MR MR1731462 (2001c:13006)
- [32] Gregor Kemper and Allan Steel, *Some algorithms in invariant theory of finite groups*, *Computational Methods for Representations of Groups and Algebras* (Essen, 1997), *Progr. Math.*, vol. 173, Birkhäuser, Basel, 1999, pp. 267–285. MR MR1714617 (2000j:13009)

- [33] Simon King, *Fast computation of secondary invariants*, 2007.
- [34] ———, *Minimal generating sets of non-modular invariant rings of finite groups*, 2007.
- [35] Martin Kohls, *Invarianten zusammenhaengender gruppen und die Cohen-Macaulay eigenschaft*, Diplomarbeit, Technische Universitaet Muechen, 2005.
- [36] ———, *Üeber die tiefe von invariantenringen unendlicher gruppen*, PhD Thesis, Technische Universitaet Muechen, 2007.
- [37] Martin Kohls, *On the depth of invariant rings of infinite groups*, J. Algebra **322** (2009), no. 1, 210–218. MR MR2526384
- [38] P. H. Kropholler, S. Mohseni Rajaei, and J. Segal, *Invariant rings of orthogonal groups over \mathbf{F}_2* , Glasg. Math. J. **47** (2005), no. 1, 7–54. MR MR2200953 (2006i:13009)
- [39] Martin Lorenz, *Multiplicative Invariant Theory*, Encyclopaedia of Mathematical Sciences, vol. 135, Springer-Verlag, Berlin, 2005, Invariant Theory and Algebraic Transformation Groups, VI. MR MR2131760 (2005m:13012)
- [40] A. Marschner and J. Müller, *On a certain algebra of higher modular forms*, Algebra Colloq. **16** (2009), 371–380.
- [41] Jürgen Müller and Christophe Ritzenthaler, *On the ring of invariants of ordinary quartic curves in characteristic 2*, J. Algebra **303** (2006), no. 2, 530–542. MR MR2255121
- [42] Gabriele Nebe, Eric M. Rains, and Neil J. A. Sloane, *Self-dual Codes and Invariant Theory*, Algorithms and Computation in Mathematics, vol. 17, Springer-Verlag, Berlin, 2006. MR MR2209183
- [43] Mara D. Neusel and Müfit Sezer, *The invariants of modular indecomposable representations of Z_{p^2}* , Math. Ann. **341** (2008), no. 3, 575–587. MR MR2399159 (2009b:13007)
- [44] W. Plesken and D. Robertz, *Constructing invariants for finite groups*, Experiment. Math. **14** (2005), no. 2, 175–188. MR MR2169521
- [45] Marc Stetson Renault, *Computing Generators for Rings of Multiplicative Invariants*, PhD Thesis, Temple University, 2002.
- [46] Müfit Sezer and R. James Shank, *On the coinvariants of modular representations of cyclic groups of prime order*, J. Pure Appl. Algebra **205** (2006), no. 1, 210–225. MR MR2193198

- [47] R. J. Shank, *Classical covariants and modular invariants*, Invariant Theory in all Characteristics, CRM Proc. Lecture Notes, vol. 35, Amer. Math. Soc., Providence, RI, 2004, pp. 241–249. MR MR2066471 (2005d:13012)
- [48] R. James Shank and David L. Wehlau, *On the depth of the invariants of the symmetric power representations of $SL_2(\mathbf{F}_p)$* , J. Algebra **218** (1999), no. 2, 642–653. MR MR1705766 (2000f:13010)
- [49] ———, *Computing modular invariants of p -groups*, J. Symbolic Comput. **34** (2002), no. 5, 307–327. MR MR1937464 (2003j:13006)
- [50] ———, *Noether numbers for subrepresentations of cyclic groups of prime order*, Bull. London Math. Soc. **34** (2002), no. 4, 438–450. MR MR1897423 (2003a:13005)
- [51] ———, *Decomposing symmetric powers of certain modular representations of cyclic groups*, Progress in Mathematics **278** (2010), 169–196.
- [52] Nicolas M. Thiéry, *Algebraic invariants of graphs; A study based on computer exploration*, SIGSAM Bulletin **34** (2000), no. 3, 9–20.

Modules and Ideals

13Cxx

- [1] Jon F. Carlson, *Cohomology, computations, and commutative algebra*, Notices Amer. Math. Soc. **52** (2005), no. 4, 426–434. MR MR2127572 (2006f:20061)
- [2] Gregor Kemper, *The depth of invariant rings and cohomology*, J. Algebra **245** (2001), no. 2, 463–531, With an appendix by Kay Magaard. MR MR1863889 (2002h:13009)
- [3] R. James Shank and David L. Wehlau, *On the depth of the invariants of the symmetric power representations of $SL_2(\mathbf{F}_p)$* , J. Algebra **218** (1999), no. 2, 642–653. MR MR1705766 (2000f:13010)
- [4] Arno van den Essen, Andrzej Nowicki, and Andrzej Tyc, *Generalizations of a lemma of Freudenburg*, J. Pure Appl. Algebra **177** (2003), no. 1, 43–47. MR MR1948836 (2003m:13017)

Homological Methods

13Dxx

- [1] Selma Altınok, Gavin Brown, and Miles Reid, *Fano 3-folds, K3 surfaces and graded rings*, Topology and Geometry: Commemorating SISTAG, Contemp. Math., vol. 314, Amer. Math. Soc., Providence, RI, 2002, pp. 25–53. MR MR1941620 (2004c:14077)
- [2] Gavin Brown, *Graded rings and special K3 surfaces*, Discovering Mathematics with Magma, Algorithms Comput. Math., vol. 19, Springer, Berlin, 2006, pp. 137–159. MR MR2278926
- [3] Laurent Busé and Jean-Pierre Jouanolou, *On the closed image of a rational map and the implicitization problem*, J. Algebra **265** (2003), no. 1, 312–357. MR MR1984914 (2004e:14024)
- [4] Jeffrey B. Farr and Shuhong Gao, *Computing Gröbner bases for vanishing ideals of finite sets of points*, Applied Algebra, Algebraic Algorithms and Error-correcting Codes, Lecture Notes in Comput. Sci., vol. 3857, Springer, Berlin, 2006, pp. 118–127. MR MR2243500 (2007c:13039)
- [5] Ian Hughes and Gregor Kemper, *Symmetric powers of modular representations, Hilbert series and degree bounds*, Comm. Algebra **28** (2000), no. 4, 2059–2088. MR MR1747371 (2001b:13009)
- [6] ———, *Symmetric powers of modular representations for groups with a Sylow subgroup of prime order*, J. Algebra **241** (2001), no. 2, 759–788. MR MR1843324 (2002e:13012)
- [7] Mikael Johansson, *Computation of Poincaré-Betti series for monomial rings*, Rend. Istit. Mat. Univ. Trieste **37** (2005), no. 1-2, 85–94 (2006). MR MR2227050 (2007b:13020)
- [8] Gregor Kemper, *Computational invariant theory*, The Curves Seminar at Queen’s. Vol. XII (Kingston, ON, 1998), Queen’s Papers in Pure and Appl. Math., vol. 114, Queen’s Univ., Kingston, ON, 1998, pp. 5–26. MR MR1690811 (2000c:13007)
- [9] Gregor Kemper and Allan Steel, *Some algorithms in invariant theory of finite groups*, Computational Methods for Representations of Groups and Algebras (Essen, 1997), Progr. Math., vol. 173, Birkhäuser, Basel, 1999, pp. 267–285. MR MR1714617 (2000j:13009)

- [10] Peter Symonds, *Cyclic group actions on polynomial rings*, Bull. Lond. Math. Soc. **39** (2007), no. 2, 181–188. MR MR2323446

Differential Algebra

12H05, 13Nxx

- [1] Alin Bostan, Frédéric Chyzak, and Nicolas Le Roux, *Products of ordinary differential operators by evaluation and interpolation*, ISSAC '08: International Symposium on Symbolic and Algebraic Computation (New York, NY, USA), ACM, 2008, pp. 23–30.
- [2] Alin Bostan, Frédéric Chyzak, Bruno Salvy, Grégoire Lecerf, and Éric Schost, *Differential equations for algebraic functions*, ISSAC 2007, ACM, New York, 2007, pp. 25–32. MR MR2396180
- [3] Alin Bostan, Thomas Cluzeau, and Bruno Salvy, *Fast algorithms for polynomial solutions of linear differential equations*, ISSAC'05: Proceedings of the 2005 International Symposium on Symbolic and Algebraic Computation, ACM, New York, 2005, pp. 45–52 (electronic). MR MR2280528
- [4] Olivier Cormier, *On Liouvillian solutions of linear differential equations of order 4 and 5*, ISSAC '01: Proceedings of the 2001 International Symposium on Symbolic and Algebraic Computation (New York), ACM, 2001, pp. 93–100 (electronic). MR MR2049736
- [5] Olivier Cormier, Michael F. Singer, and Felix Ulmer, *Computing the Galois group of a polynomial using linear differential equations*, Proceedings of the 2000 International Symposium on Symbolic and Algebraic Computation (St. Andrews) (New York), ACM, 2000, pp. 78–85 (electronic). MR MR1805111 (2002f:12008)
- [6] Boris Feigin and Boris Shoikhet, *On $[A, A]/[A, [A, A]]$ and on a W_n -action on the consecutive commutators of free associative algebra*, Math. Res. Lett. **14** (2007), no. 5, 781–795. MR MR2350124 (2009b:16055)
- [7] Julia Hartmann, *Invariants and differential Galois groups in degree four*, Differential Galois Theory, Banach Center Publ., vol. 58, Polish Acad. Sci., Warsaw, 2002, pp. 79–87. MR MR1972447 (2004c:12011)
- [8] Sabrina A. Hessinger, *Computing the Galois group of a linear differential equation of order four*, Appl. Algebra Engrg. Comm. Comput. **11** (2001), no. 6, 489–536. MR MR1831942 (2002c:12009)

- [9] V.A. Krasikov and T.M. Sadykov, *Linear differential operators for generic algebraic curves*, 2010.
- [10] Ariane Péladan-Germa, *Testing equality in differential ring extensions defined by PDE's and limit conditions*, Appl. Algebra Engrg. Comm. Comput. **13** (2002), no. 4, 257–288. MR MR1953194 (2003k:12010)
- [11] Kira Samol and Duco van Straten, *Frobenius polynomials for Calabi-Yau equations*, Commun. Number Theory Phys. **2** (2008), no. 3, 537–561. MR MR2482942
- [12] Michael F. Singer, *Testing reducibility of linear differential operators: A group-theoretic perspective*, Appl. Algebra Engrg. Comm. Comput. **7** (1996), no. 2, 77–104. MR MR1462491 (98e:12007)
- [13] Michael F. Singer and Felix Ulmer, *Galois groups of second and third order linear differential equations*, J. Symbolic Comput. **16** (1993), no. 1, 9–36. MR MR1237348 (94i:34015)
- [14] ———, *Liouvillian and algebraic solutions of second and third order linear differential equations*, J. Symbolic Comput. **16** (1993), no. 1, 37–73. MR MR1237349 (94i:34016)
- [15] ———, *On a third order differential equation whose differential Galois group is the simple group of 168 elements*, Applied algebra, algebraic algorithms and error-correcting codes (San Juan, PR, 1993), Lecture Notes in Comput. Sci., vol. 673, Springer, Berlin, 1993, pp. 316–324. MR MR1251988 (95e:34010)
- [16] ———, *Necessary conditions for Liouvillian solutions of (third order) linear differential equations*, Appl. Algebra Engrg. Comm. Comput. **6** (1995), no. 1, 1–22. MR MR1341890 (96j:34005)
- [17] Felix Ulmer, *On algebraic solutions of linear differential equations with primitive unimodular Galois group*, Applied Algebra, Algebraic Algorithms and Error-correcting Codes (New Orleans, LA, 1991), Lecture Notes in Comput. Sci., vol. 539, Springer, Berlin, 1991, pp. 446–455. MR MR1229340 (94e:68094)
- [18] ———, *On Liouvillian solutions of linear differential equations*, Appl. Algebra Engrg. Comm. Comput. **2** (1992), no. 3, 171–193. MR MR1325527 (96e:12007)
- [19] ———, *Liouvillian solutions of third order differential equations*, J. Symbolic Comput. **36** (2003), no. 6, 855–889. MR MR2021282 (2004k:34007)

Computational Methods

13-04

- [1] I. Abdeljaouad-Tej, S. Orange, G. Renault, and A. Valibouze, *Computation of the decomposition group of a triangular ideal*, Appl. Algebra Engrg. Comm. Comput. **15** (2004), no. 3-4, 279–294. MR MR2104299 (2005h:13036)
- [2] Fatima Abu Salem, Shuhong Gao, and Alan G. B. Lauder, *Factoring polynomials via polytopes*, ISSAC 2004, ACM, New York, 2004, pp. 4–11. MR MR2126918 (2006a:13040)
- [3] Gwénolé Ars, Jean-Charles Faugère, Hideki Imai, Mitsuru Kawazoe, and Makoto Sugita, *Comparison between XL and Gröbner basis algorithms*, Advances in Cryptology—Asiacrypt 2004, Lecture Notes in Comput. Sci., vol. 3329, Springer, Berlin, 2004, pp. 338–353. MR MR2150425 (2006k:13056)
- [4] Philippe Aubry and Marc Moreno Maza, *Triangular sets for solving polynomial systems: A comparative implementation of four methods*, J. Symbolic Comput. **28** (1999), no. 1-2, 125–154, Polynomial elimination—algorithms and applications. MR MR1709420 (2000g:13017)
- [5] Mohamed Ayad and Peter Fleischmann, *On the decomposition of rational functions*, J. Symbolic Comput. **43** (2008), no. 4, 259–274. MR MR2402031 (2009a:13047)
- [6] Bernd Bank, Marc Giusti, Joos Heintz, Mohab Safey El Din, and Eric Schost, *On the geometry of polar varieties*, Appl. Algebra Engrg. Comm. Comput. **21** (2010), no. 1, 33–83. MR 2585564
- [7] Aurélie Bauer and Antoine Joux, *Toward a rigorous variation of Coppersmith’s algorithm on three variables*, Advances in cryptology—EUROCRYPT 2007, Lecture Notes in Comput. Sci., vol. 4515, Springer, Berlin, 2007, pp. 361–378. MR MR2449220
- [8] Karim. Belabas, Mark van Hoeij, J. Klüners, and Allan Steel, *Factoring polynomials over global fields*, Journal de Théorie des Nombres de Bordeaux (2009), no. 21, 15–39.
- [9] Thomas Beth, Jörn Müller-Quade, and Rainer Steinwandt, *Computing restrictions of ideals in finitely generated k -algebras by means of Buchberger’s algorithm*, J. Symbolic Comput. **41** (2006), no. 3-4, 372–380. MR MR2202557 (2006j:13027)

- [10] Alin Bostan, Bruno Salvy, and Éric Schost, *Fast algorithms for zero-dimensional polynomial systems using duality*, Appl. Algebra Engrg. Comm. Comput. **14** (2003), no. 4, 239–272. MR MR2020362 (2005b:13050)
- [11] Richard Brent and Paul Zimmermann, *A multi-level blocking distinct degree factorization algorithm*, Finite Fields and Applications, Contemporary Mathematics, vol. 461, 2008.
- [12] Michael Brickenstein and Alexander Dreyer, *PolyBoRi: A framework for Gröbner-basis computations with Boolean polynomials*, J. Symbolic Comp. **44** (2009), no. 9, 1326–1345.
- [13] Michael Brickenstein, Alexander Dreyer, Gert-Martin Greuel, Markus Wedler, and Oliver Wienand, *New developments in the theory of Gröbner bases and applications to formal verification*, J. Pure Appl. Algebra **213** (2009), no. 8, 1612–1635. MR MR2517997
- [14] Stanislav Bulygin and Ruud Pellikaan, *Bounded distance decoding of linear error-correcting codes with Gröbner bases*, J. Symb. Comput. **44** (2009), no. 12, 1626–1643.
- [15] Daniel Cabarcas, *An Implementation of Faugère’s F_4 Algorithm for Computing Gröbner Bases*, Master of Science Thesis, University of Cincinnati, 2010.
- [16] G. Chèze and S. Najib, *Indecomposability of polynomials via Jacobian matrix*, J. Algebra **324** (2010), no. 1, 1–11. MR 2646027
- [17] Mihai Cipu, *Gröbner bases and Diophantine analysis*, J. Symbolic Comput. **43** (2008), no. 10, 681–687. MR MR2426566
- [18] Jennifer de Kleine, Michael Monagan, and Allan Wittkopf, *Algorithms for the non-monic case of the sparse modular GCD algorithm*, Proceedings of the 2005 International Symposium on Symbolic and Algebraic Computation: ISSAC’05, ACM, New York, 2005, pp. 124–131 (electronic). MR MR2280538
- [19] Wolfram Decker and Theo de Jong, *Gröbner bases and invariant theory*, Gröbner bases and applications (Linz, 1998), London Math. Soc. Lecture Note Ser., vol. 251, Cambridge Univ. Press, Cambridge, 1998, pp. 61–89. MR MR1699814 (2000m:13007)
- [20] Harm Derksen, *Computation of invariants for reductive groups*, Adv. Math. **141** (1999), no. 2, 366–384. MR MR1671758 (2000a:13013)

- [21] Harm Derksen and Gregor Kemper, *Computational Invariant Theory*, Invariant Theory and Algebraic Transformation Groups, I, Springer-Verlag, Berlin, 2002, , Encyclopaedia of Mathematical Sciences, 130. MR MR1918599 (2003g:13004)
- [22] Clémence Durvye and Grégoire Lecerf, *A concise proof of the Kronecker polynomial system solver from scratch*, Expo. Math. **26** (2008), no. 2, 101–139. MR MR2413831
- [23] Tobias Eibach, Enrico Pilz, and Gunnar Völkel, *Attacking Bivium using SAT solvers*, Theory and Applications of Satisfiability Testing, SAT 2008, Lecture Notes in Computer Science, vol. 4996, Springer, Berlin, 2008, pp. 63–76.
- [24] Tobias Eibach, Gunnar Völkel, and Enrico Pilz, *Optimising Gröbner bases on Bivium*, Math. Comput. Sci. **3** (2010), no. 2, 159–172.
- [25] Nicholas Eriksson, *Toric ideals of homogeneous phylogenetic models*, ISSAC 2004, ACM, New York, 2004, pp. 149–154. MR MR2126937 (2005j:92017)
- [26] Jeffrey B. Farr and Shuhong Gao, *Computing Gröbner bases for vanishing ideals of finite sets of points*, Applied Algebra, Algebraic Algorithms and Error-correcting Codes, Lecture Notes in Comput. Sci., vol. 3857, Springer, Berlin, 2006, pp. 118–127. MR MR2243500 (2007c:13039)
- [27] ———, *Gröbner bases and generalized Padé approximation*, Math. Comp. **75** (2006), no. 253, 461–473 (electronic). MR MR2176409
- [28] Jean-Charles Faugère, Guillaume Moroz, Fabrice Rouillier, and Mohab Safey El Din, *Classification of the perspective-three-point problem, discriminant variety and real solving polynomial systems of inequalities*, ISSAC '08: International Symposium on Symbolic and Algebraic Computation (New York, NY, USA), ACM, 2008, pp. 79–86.
- [29] Akpodigha Filatei, *Implementation of fast polynomial arithmetic in Aldor*, Master of Science thesis, University of Western Ontario, 2006.
- [30] Shuhong Gao, Daqing Wan, and Mingsheng Wang, *Primary decomposition of zero-dimensional ideals over finite fields*, Math. Comp. **78** (2009), no. 265, 509–521. MR MR2448718
- [31] Karin Gatermann, *Computer algebra methods for equivariant dynamical systems*, Lecture Notes in Mathematics, vol. 1728, Springer-Verlag, Berlin, 2000. MR MR1755001 (2001k:37040)

- [32] Karin Gatermann and Frédéric Guyard, *Gröbner bases, invariant theory and equivariant dynamics*, J. Symbolic Comput. **28** (1999), no. 1-2, 275–302, Polynomial elimination—algorithms and applications. MR MR1709907 (2000f:13006)
- [33] V. P. Gerdt and Yu. A. Blinkov, *On selection of nonmultiplicative prolongations in computation of Janet bases*, Programming and Computer Software **33** (2007), no. 3, 147–153.
- [34] V. P. Gerdt and Yu. A. Blinkov, *Strategies for selecting non-multiplicative prolongations in computing Janet bases*, Programmirovaniye (2007), no. 3, 34–43. MR MR2347312
- [35] Vladimir P. Gerdt, *Involutive algorithms for computing Gröbner bases*, Computational Commutative and Non-commutative Algebraic Geometry, NATO Sci. Ser. III Comput. Syst. Sci., vol. 196, IOS, Amsterdam, 2005, pp. 199–225. MR MR2179201
- [36] Vladimir P. Gerdt and Yuri A. Blinkov, *On computing Janet bases for degree compatible orderings*, Proceedings of the 10th Rhine Workshop on Computer Algebra (Basel), 2006, University of Basel, Basel, 2006, pp. 107–117.
- [37] Massimo Giulietti, *Involuppi di k -archi in piani proiettivi sopra campi finiti e basi di Gröbner*, Rendiconti del Circolo Matematico di Palermo **48** (1999), no. 1, 191–200.
- [38] Marc Giusti, Grégoire Lecerf, and Bruno Salvy, *A Gröbner free alternative for polynomial system solving*, J. Complexity **17** (2001), no. 1, 154–211. MR MR1817612 (2002b:68123)
- [39] Marc Giusti and Éric Schost, *Solving some overdetermined polynomial systems*, ISSAC '99: Proceedings of the 1999 International Symposium on Symbolic and Algebraic Computation (Vancouver, BC) (New York), ACM, 1999, pp. 1–8 (electronic). MR MR1802060 (2002b:65084)
- [40] Hoans-Christian Graf von Bothmer, Oliver Labs, Josef Schicho, and Christiaan van de Woestijne, *The Casas-Alvero conjecture for infinitely many degrees*, J. Algebra **316** (2007), no. 1, 224–230. MR MR2354861
- [41] Gert-Martin Greuel, Santiago Laplagne, and Frank Seelisch, *Normalization of rings*, J. Symbolic Comput. **45** (2010), no. 9, 887–901.

- [42] Renault Guénaél and Yokoyama Kazuhiro, *Multi-modular algorithm for computing the splitting field of a polynomial*, ISSAC '08: International Symposium on Symbolic and Algebraic Computation (New York, NY, USA), ACM, 2008, pp. 247–254.
- [43] David Harvey, *A cache-friendly truncated FFT*, Theor. Comput. Sci. **410** (2009), no. 27-29, 2649–2658.
- [44] David Harvey, *Faster polynomial multiplication via multipoint Kronecker substitution*, J. Symbolic Comp. **44** (2009), no. 10, 1502–1510.
- [45] Mikael Johansson, *Computation of Poincaré-Betti series for monomial rings*, Rend. Istit. Mat. Univ. Trieste **37** (2005), no. 1-2, 85–94 (2006). MR MR2227050 (2007b:13020)
- [46] Gregor Kemper, *Computational invariant theory*, The Curves Seminar at Queen's. Vol. XII (Kingston, ON, 1998), Queen's Papers in Pure and Appl. Math., vol. 114, Queen's Univ., Kingston, ON, 1998, pp. 5–26. MR MR1690811 (2000c:13007)
- [47] ———, *An algorithm to calculate optimal homogeneous systems of parameters*, J. Symbolic Comput. **27** (1999), no. 2, 171–184. MR MR1672128 (2000a:13046)
- [48] ———, *The calculation of radical ideals in positive characteristic*, J. Symbolic Comput. **34** (2002), no. 3, 229–238. MR MR1935080 (2003j:13039)
- [49] ———, *Computing invariants of reductive groups in positive characteristic*, Transform. Groups **8** (2003), no. 2, 159–176. MR MR1976458 (2004b:13006)
- [50] Simon King, *Fast computation of secondary invariants*, 2007.
- [51] ———, *Minimal generating sets of non-modular invariant rings of finite groups*, 2007.
- [52] Alexey Koloydenko, *Symmetric measures via moments*, Bernoulli **14** (2008), no. 2, 362–390.
- [53] Teresa Krick, *Straight-line programs in polynomial equation solving*, Foundations of Computational Mathematics: Minneapolis, 2002, London Math. Soc. Lecture Note Ser., vol. 312, Cambridge Univ. Press, Cambridge, 2004, pp. 96–136. MR MR2189629
- [54] G. Lecerf, *Quadratic Newton iteration for systems with multiplicity*, Found. Comput. Math. **2** (2002), no. 3, 247–293. MR MR1907381 (2003f:65090)

- [55] Grégoire Lecerf, *Computing the equidimensional decomposition of an algebraic closed set by means of lifting fibers*, J. Complexity **19** (2003), no. 4, 564–596. MR MR1991984 (2004j:68200)
- [56] ———, *Fast separable factorization and applications*, Appl. Algebra Engrg. Comm. Comput. **19** (2008), no. 2, 135–160. MR MR2389971 (2009b:13069)
- [57] ———, *New recombination algorithms for bivariate polynomial factorization based on Hensel lifting*, Appl. Algebra Engrg. Comm. Comput. **21** (2010), no. 2, 151–176. MR 2600710
- [58] Xin Li, Marc Moreno Maza, Raqeeb Rasheed, and Eric Schost, *High-performance symbolic computation in a hybrid compiled-interpreted programming environment*, International Conference on Computational Sciences and Its Applications. ICCSA. June 30- July 3, 2008, 2008, pp. 331–341.
- [59] Xin Li, Marc Moreno Maza, and Éric Schost, *Fast arithmetic for triangular sets: from theory to practice*, ISSAC 2007, ACM, New York, 2007, pp. 269–276. MR MR2402271
- [60] Xin Li, Marc Moreno Maza, and Éric Schost, *Fast arithmetic for triangular sets: from theory to practice*, J. Symbolic Comput. **44** (2009), no. 7, 891–907. MR MR2522589
- [61] A. Marschner and J. Müller, *On a certain algebra of higher modular forms*, Algebra Colloq. **16** (2009), 371–380.
- [62] Mbakop Guy Merlin, *Eziente losung reeller polynomialer gleichungssysteme*, PhD Thesis, Humboldt-Universität, Berlin, 1999.
- [63] V. A. Mityunin and E. V. Pankratiev, *Parallel algorithms for Gröbner-basis construction*, J. Math. Sci. (N. Y.) **142** (2007), no. 4, 2248–2266.
- [64] Michael Monagan and Mark van Hoeij, *A modular algorithm for computing polynomial GCDs over number fields presented with multiple extensions*.
- [65] Teo Mora, *The FGLM problem and Möller’s algorithm on zero-dimensional ideals*, Sala, Massimiliano (ed.) and Mora, Teo (ed.) and Perret, Ludovic (ed.) and Sakata, Shojiro (ed.) and Traverso, Carlo (ed.), Gröbner Bases, Coding, and Cryptography, Springer, Berlin, 2009.

- [66] Marc Moreno Maza, Greg Reid, Robin Scott, and Wenyuan Wu, *On approximate triangular decompositions in dimension zero*, J. Symbolic Comput. **42** (2007), no. 7, 693–716. MR MR2348057
- [67] Bernard Mourrain, *Generalized normal forms and polynomial system solving*, IS-SAC'05: Proceedings of the 2005 International Symposium on Symbolic and Algebraic Computation, ACM, New York, 2005, pp. 253–260 (electronic). MR MR2280555
- [68] Bernard Mourrain and Philippe Trébuchet, *Stable normal forms for polynomial system solving*, Theoret. Comput. Sci. **409** (2008), no. 2, 229–240. MR MR2474338 (2009m:13036)
- [69] Jörn Müller-Quade and Rainer Steinwandt, *Basic algorithms for rational function fields*, J. Symbolic Comput. **27** (1999), no. 2, 143–170. MR MR1672124 (2000a:13043)
- [70] ———, *Gröbner bases applied to finitely generated field extensions*, J. Symbolic Comput. **30** (2000), no. 4, 469–490. MR MR1784753 (2001i:13040)
- [71] G. H. Norton and A. Salagean, *Cyclic codes and minimal strong Gröbner bases over a principal ideal ring*, Finite Fields Appl. **9** (2003), no. 2, 237–249. MR MR1968033 (2004d:13039)
- [72] Graham H. Norton and Ana Sălăgean, *Strong Gröbner bases for polynomials over a principal ideal ring*, Bull. Austral. Math. Soc. **64** (2001), no. 3, 505–528. MR MR1878902 (2003a:13036)
- [73] Daniel Robertz, *Noether normalization guided by monomial cone decompositions*, J. Symbolic Comput. **44** (2009), no. 10, 1359–1373. MR MR2543424
- [74] Fabrice Rouillier, Mohab Safey El Din, and Éric Schost, *Solving the Birkhoff interpolation problem via the critical point method: An experimental study*, ADG '00: Revised Papers from the Third International Workshop on Automated Deduction in Geometry (Zurich, 2000) (Jürgen Richter-Gebert and Dongming Wang, eds.), Lecture Notes in Computer Science, vol. 2061, Springer-Verlag, Berlin, 2001, Lecture Notes in Artificial Intelligence, pp. viii+325. MR MR1908025 (2003a:68007)
- [75] Luciano Sbaiz, Patrick Vandewalle, and Martin Vetterli, *Groebner basis methods for multichannel sampling with unknown offsets*, Appl. Comput. Harmon. Anal. **25** (2008), no. 3, 277 – 294.

- [76] Roberto La Scala and Viktor Levandovskyy, *Letterplace ideals and non-commutative Gröbner bases*, J. Symbolic Comp. **44** (2009), no. 10, 1374–1393.
- [77] Éric Schost, *Degree bounds and lifting techniques for triangular sets*, Proceedings of the 2002 International Symposium on Symbolic and Algebraic Computation (New York), ACM, 2002, pp. 238–245 (electronic). MR MR2035255 (2005a:13054)
- [78] ———, *Complexity results for triangular sets*, J. Symbolic Comput. **36** (2003), no. 3–4, 555–594, International Symposium on Symbolic and Algebraic Computation (ISSAC’2002) (Lille). MR MR2004042 (2004m:68295)
- [79] ———, *Computing parametric geometric resolutions*, Appl. Algebra Engrg. Comm. Comput. **13** (2003), no. 5, 349–393. MR MR1959170 (2003k:13035)
- [80] R. James Shank and David L. Wehlau, *Computing modular invariants of p -groups*, J. Symbolic Comput. **34** (2002), no. 5, 307–327. MR MR1937464 (2003j:13006)
- [81] Jessica Sidman and Seth Sullivant, *Prolongations and computational algebra*, Canad. J. Math. **61** (2009), no. 4, 930–949. MR MR2541390
- [82] Allan Steel, *Conquering inseparability: Primary decomposition and multivariate factorization over algebraic function fields of positive characteristic*, J. Symbolic Comput. **40** (2005), no. 3, 1053–1075. MR MR2167699
- [83] Till Stegers, *Faugère’s F5 algorithm revisited*, Masters thesis, Technische Universität Darmstadt, 2005.
- [84] Rainer Steinwandt, *Decomposing systems of polynomial equations*, Computer Algebra in Scientific Computing—CASC’99 (Munich), Springer, Berlin, 1999, pp. 387–407. MR MR1729638 (2000j:12012)
- [85] ———, *Implicitizing without tag variables*, Proceedings of the 8th Rhine Workshop on Computer Algebra, 2002, pp. 217–224.
- [86] Rainer Steinwandt and Jörn Müller-Quade, *Freeness, linear disjointness, and implicitization—a classical approach*, Beiträge Algebra Geom. **41** (2000), no. 1, 57–66. MR MR1745579 (2001a:12011)
- [87] Mark van Hoeij, *Factoring polynomials and the knapsack problem*, J. Number Theory **95** (2002), no. 2, 167–189. MR MR1924096 (2003f:13029)

- [88] Pawel Wocjan, *Brill-Noether algorithm construction of geometric Goppa codes and absolute factorization of polynomials*, Ph.D. thesis, Institut für Algorithmen und Kognitive Systeme, Universität Karlsruhe, 1999, p. 108.