

# Algebraic Number Theory

11Rxx and 11Sxx

- [1] Avner Ash, Jos Brakenhoff, and Theodore Zarrabi, *Equality of polynomial and field discriminants*, Experiment. Math. **16** (2007), no. 3, 367–374. MR MR2367325 (2008i:11129)
- [2] Laurent Bartholdi and Michael R. Bush, *Maximal unramified 3-extensions of imaginary quadratic fields and  $SL_2(\mathbb{Z}_3)$* , J. Number Theory **124** (2007), no. 1, 159–166. MR MR2320997 (2008c:11153)
- [3] Ingrid Bauer, Fabrizio Catanese, and Fritz Grunewald, *The absolute Galois group acts faithfully on the connected components of the moduli space of surfaces of general type*, 2007.
- [4] M. Bauer, M. J. Jacobson, Jr., Y. Lee, and R. Scheidler, *Construction of hyperelliptic function fields of high three-rank*, Math. Comp. **77** (2008), no. 261, 503–530 (electronic). MR MR2353964
- [5] Amnon Besser and Rob De Jeu, *li(p)-service? an algorithm for computing p-adic polyalgorithms*, Math. Comp. **77** (2008), no. 262, 1105–1134. MR MR2373194
- [6] Wieb Bosma, *Canonical bases for cyclotomic fields*, Appl. Algebra Engrg. Comm. Comput. **1** (1990), no. 2, 125–134. MR MR1325517 (95k:11135)
- [7] ———, *Computation of cyclotomic polynomials with Magma*, Computational Algebra and Number Theory (Sydney, 1992), Math. Appl., vol. 325, Kluwer Acad. Publ., Dordrecht, 1995, pp. 213–225. MR MR1344932 (96j:11142)
- [8] Wieb Bosma and Bart de Smit, *On arithmetically equivalent number fields of small degree*, Algorithmic Number Theory (Sydney, 2002), Lecture Notes in Comput. Sci., vol. 2369, Springer, Berlin, 2002, pp. 67–79. MR MR2041074 (2005e:11169)
- [9] Wieb Bosma and Peter Stevenhagen, *On the computation of quadratic 2-class groups*, J. Théor. Nombres Bordeaux **8** (1996), no. 2, 283–313. MR MR1438471 (98e:11129a)
- [10] Nigel Boston, *Galois p-groups unramified at p—a survey*, Primes and knots, Contemp. Math., vol. 416, Amer. Math. Soc., Providence, RI, 2006, pp. 31–40. MR MR2276134 (2007k:11191)

- [11] ———, *Galois groups of tamely ramified  $p$ -extensions*, J. Théor. Nombres Bordeaux **19** (2007), no. 1, 59–70. MR MR2332053
- [12] Nigel Boston and Rafe Jones, *Arboreal Galois representations*, Geom. Dedicata **124** (2007), 27–35. MR MR2318536
- [13] Nigel Boston and Charles Leedham-Green, *Counterexamples to a conjecture of Lemmermeyer*, Arch. Math. (Basel) **72** (1999), no. 3, 177–179. MR MR1671275 (99m:11131)
- [14] M. R. Bush, *Computation of Galois groups associated to the 2-class towers of some quadratic fields*, J. Number Theory **100** (2003), no. 2, 313–325. MR MR1978459 (2004f:11130)
- [15] Nigel P. Byott, James E. Carter, Cornelius Greither, and Henri Johnston, *On the restricted hilbert-speiser and leopoldt properties*, Illinois J. Math **To appear** (2011).
- [16] Murat Cenk and Ferruh Özbudak, *On multiplication in finite fields*, J. Complexity **26** (2010), no. 2, 172–186.
- [17] H. Cohen, F. Diaz y Diaz, and M. Olivier, *Subexponential algorithms for class group and unit computations*, J. Symbolic Comput. **24** (1997), no. 3-4, 433–441, Computational algebra and number theory (London, 1993). MR MR1484490 (98m:11138)
- [18] Henri Cohen, *A survey of computational class field theory*, J. Théor. Nombres Bordeaux **11** (1999), no. 1, 1–13, Les XXèmes Journées Arithmétiques (Limoges, 1997). MR MR1730429 (2000j:11169)
- [19] B. de Smit and H. W. Lenstra, Jr., *Linearly equivalent actions of solvable groups*, J. Algebra **228** (2000), no. 1, 270–285. MR MR1760965 (2001f:20069)
- [20] Bart de Smit, *On arithmetically equivalent fields with distinct  $p$ -class numbers*, J. Algebra **272** (2004), no. 2, 417–424. MR MR2028064 (2005f:11252)
- [21] Bart de Smit and Robert Perlis, *Zeta functions do not determine class numbers*, Bull. Amer. Math. Soc. (N.S.) **31** (1994), no. 2, 213–215. MR MR1260520 (95a:11100)
- [22] Daniel Delbourgo and Thomas Ward, *The growth of CM periods over false Tate extensions*, Experiment. Math. **19** (2010), no. 2, 195–210. MR 2676748

- [23] Daniel Delbourgo and Tom Ward, *Non-abelian congruences between  $L$ -values of elliptic curves*, Ann. Inst. Fourier (Grenoble) **58** (2008), no. 3, 1023–1055. MR MR2427518 (2009i:11129)
- [24] Lassina Dembele, Matthew Greenberg, and John Voight, *Nonsolvable number fields ramified only at 3 and 5*, 2009.
- [25] Darrin Doud, *Supersingular Galois representations and a generalization of a conjecture of Serre*, Experiment. Math. **16** (2007), no. 1, 119–128. MR MR2312982 (2007m:11076)
- [26] Kirsten Eisenträger and Kristin Lauter, *Computing Igusa class polynomials via the chinese remainder theory*, 2004.
- [27] Jordan S. Ellenberg and Akshay Venkatesh, *The number of extensions of a number field with fixed degree and bounded discriminant*, Ann. of Math. (2) **163** (2006), no. 2, 723–741. MR MR2199231 (2006j:11159)
- [28] Claus Fieker, *Applications of the class field theory of global fields*, Discovering Mathematics with Magma, Algorithms Comput. Math., vol. 19, Springer, Berlin, 2006, pp. 31–62. MR MR2278922
- [29] ———, *Sparse representation for cyclotomic fields*, Experiment. Math. **16** (2007), no. 4, 493–500. MR MR2378488
- [30] ———, *Minimizing representations over number fields II. Computations in the Brauer group*, J. Algebra **322** (2009), no. 3, 752–765. MR MR2531221
- [31] Claus Fieker and Michael E. Pohst, *Dependency of units in number fields*, Math. Comp. **75** (2006), no. 255, 1507–1518 (electronic). MR MR2219041 (2007a:11168)
- [32] ———, *A lower regulator bound for number fields*, J. Number Theory **128** (2008), no. 10, 2767–2775. MR MR2441075
- [33] Felix Fontein, *The infrastructure of a global field of arbitrary unit rank*, 2008.
- [34] David Ford, Sebastian Pauli, and Xavier-François Roblot, *A fast algorithm for polynomial factorization over  $Q_p$* , J. Théor. Nombres Bordeaux **14** (2002), no. 1, 151–169. MR MR1925995 (2003g:11134)

- [35] Robert Fraatz, *On the computation of integral closures of cyclic extensions of function fields*, LMS J. Comput. Math. **10** (2007), 141–160 (electronic). MR MR2308855 (2008b:11123)
- [36] Irene García-Selfa, Enrique González-Jiménez, and José M. Tornero, *Galois theory, discriminants and torsion subgroup of elliptic curves*, J. Pure Appl. Algebra **214** (2010), no. 8, 1340–1346. MR 2593667 (2011b:11076)
- [37] S. P. Glasby, *Generators for the group of units of  $Z_n$* , Austral. Math. Soc. Gaz. **22** (1995), no. 5, 226–228. MR MR1378923 (97a:11199)
- [38] Norbert Goeb, *Computing the automorphism groups of hyperelliptic function fields*, 2003.
- [39] Ralph Greenberg, *On the structure of certain Galois cohomology groups*, Doc. Math. (2006), no. Extra Vol., 335–391 (electronic). MR MR2290593 (2008b:11112)
- [40] J. Guardia, J. Montes, and E. Nart, *Higher Newton polygons and integral bases*, arXiv:0902.3428v1 (2009).
- [41] Jordi Guardia, Jesus Montes, and Enric Nart, *Higher Newton polygons in the computation of discriminants and prime ideal decomposition in number fields*, 2008.
- [42] Lajos Hajdu, *Optimal systems of fundamental  $S$ -units for LLL-reduction*, Period. Math. Hungar. **59** (2009), no. 1, 53–79. MR MR2544620
- [43] Emmanuel Hallouin and Christian Maire, *Cancellation in totally definite quaternion algebras*, J. Reine Angew. Math. **595** (2006), 189–213. MR MR2244802 (2007g:11146)
- [44] Emmanuel Hallouin and Marc Perret, *On the kernel of the norm in some unramified number fields extensions*, 2007.
- [45] Stephan Hell, *Die nenner des kontsevich-integrals und ein spezieller drinfeld-assoziator*, Ph.D. thesis, Freie Universität Berlin, July 2002, p. 92.
- [46] F. Hess, *An algorithm for computing isomorphisms of algebraic function fields*, Algorithmic Number Theory, Lecture Notes in Comput. Sci., vol. 3076, Springer, Berlin, 2004, pp. 263–271. MR MR2137359
- [47] Florian Hess, Sebastian Pauli, and Michael E. Pohst, *Computing the multiplicative group of residue class rings*, Math. Comp. **72** (2003), no. 243, 1531–1548 (electronic). MR MR1972751 (2004f:11126)

- [48] David Hubbard, *Dihedral side extensions and class groups*, J. Number Theory **128** (2008), no. 4, 731–737. MR MR2400036
- [49] Jean-François Jaulent, Sebastian Pauli, Michael E. Pohst, and Florence Soriano-Gafiuk, *Computation of 2-groups of positive classes of exceptional number fields*, J. Théor. Nombres Bordeaux **20** (2008), no. 3, 715–732. MR MR2523314
- [50] ———, *Computation of 2-groups of narrow logarithmic divisor classes of number fields*, J. Symbolic Comput. **44** (2009), no. 7, 852–863. MR MR2522586 (2010d:11133)
- [51] Henri Johnston, *On the trace map between absolutely abelian number fields of equal conductor*, Acta Arith. **122** (2006), no. 1, 63–74. MR MR2217325 (2006k:11203)
- [52] John W. Jones and David P. Roberts, *A database of local fields*, J. Symbolic Comput. **41** (2006), no. 1, 80–97. MR MR2194887 (2006k:11230)
- [53] John Jossey, *Galois 2-extensions unramified outside 2*, J. Number Theory **124** (2007), no. 1, 42–56. MR MR2320990
- [54] Masanari Kida, *Kummer theory for norm algebraic tori*, J. Algebra **293** (2005), no. 2, 427–447. MR MR2172348 (2007h:14061)
- [55] Masanari Kida, *Descent Kummer theory via Weil restriction of multiplicative groups*, J. of Number Theory **130** (2010), no. 3, 639–659.
- [56] ———, *A Kummer theoretic construction of an  $S_3$ -polynomial with given quadratic subfield*, Interdisciplinary Information Sciences **16** (2010), no. 1, 17–20.
- [57] Masanari Kida, Guénaél Renault, and Kazuhiro Yokoyama, *Quintic polynomials of Hashimoto-Tsunogai, Brumer and Kummer*, Int. J. Number Theory **5** (2009), no. 4, 555–571. MR MR2532276
- [58] Masanari Kida, Yuichi Rikuna, and Atsushi Sato, *Classifying Brumer’s quintic polynomials by weak Mordell-Weil groups*, IJNT **6** (2010), no. 3, 691–704.
- [59] Norbert Klíngen, *Leopoldt’s conjecture for imaginary Galois number fields*, J. Symbolic Comput. **10** (1990), no. 6, 531–545. MR MR1087978 (92e:11124)
- [60] Jürgen Klíners and Gunter Malle, *Counting nilpotent Galois extensions*, J. Reine Angew. Math. **572** (2004), 1–26. MR MR2076117 (2005f:11259)

- [61] Jürgen Klüners and Sebastian Pauli, *Computing residue class rings and Picard groups of orders*, J. Algebra **292** (2005), no. 1, 47–64. MR MR2166795
- [62] Elisavet Konstantinou and Aristides Kontogeorgis, *Computing polynomials of the Ramanujan  $t_n$  class invariants*, Canad. Math. Bull. **52** (2009), no. 4, 583–597. MR MR2567152
- [63] M. Künzer and H. Weber, *Some additive Galois cohomology rings*, Comm. Algebra **33** (2005), no. 12, 4415–4455. MR MR2188320 (2006k:11221)
- [64] Matthias Künzer and Eduard Wirsing, *On coefficient valuations of Eisenstein polynomials*, J. Théor. Nombres Bordeaux **17** (2005), no. 3, 801–823. MR MR2212127 (2006m:11151)
- [65] Thorsten Lagemann, *Codes und automorphismen optimaler artin-schreier-turme*, Ph.D. thesis, Ruprecht-Karls-Universität Heidelberg, April 2006, p. 92.
- [66] Y. Lee, R. Scheidler, and C. Yarrish, *Computation of the fundamental units and the regulator of a cyclic cubic function field*, Experiment. Math. **12** (2003), no. 2, 211–225. MR MR2016707 (2004j:11143)
- [67] Franck Leprévost, Michael Pohst, and Andreas Schöpp, *Units in some parametric families of quartic fields*, Acta Arith. **127** (2007), no. 3, 205–216. MR MR2310343 (2008a:11133)
- [68] Aaron Levin, *Ideal class groups and torsion in Picard groups of varieties*, 2008.
- [69] Melissa L. Macasieb, *Derived arithmetic Fuchsian groups of genus two*, Experiment. Math. **17** (2008), no. 3, 347–369. MR MR2455706 (2009i:11135)
- [70] Piotr Maciak, *Primes of the form  $x^2 + n * y^2$  in function fields*, 2009.
- [71] Kazuo Matsuno, *Construction of elliptic curves with large Iwasawa  $\lambda$ -invariants and large Tate-Shafarevich groups*, Manuscripta Math. **122** (2007), no. 3, 289–304. MR MR2305419
- [72] William G. McCallum and Romyar T. Sharifi, *A cup product in the Galois cohomology of number fields*, Duke Math. J. **120** (2003), no. 2, 269–310. MR MR2019977 (2004j:11136)

- [73] Harris Nover, *Computation of Galois groups associated to the 2-class towers of some imaginary quadratic fields with 2-class group  $c_2 \times c_2 \times c_2$* , Journal of Number Theory **129** (2009), no. 1, 231 – 245.
- [74] Sebastian Pauli, *Efficient enumeration of extensions of local fields with bounded discriminant*, Ph.D. thesis, Concordia University, June 2001, p. 82.
- [75] Sebastian Pauli, *Constructing class fields over local fields*, J. Théor. Nombres Bordeaux **18** (2006), no. 3, 627–652. MR MR2330432 (2008f:11135)
- [76] Sebastian Pauli and Florence Soriano-Gafiuk, *The discrete logarithm in logarithmic  $l$ -class groups and its applications in  $K$ -theory*, Algorithmic Number Theory, Lecture Notes in Comput. Sci., vol. 3076, Springer, Berlin, 2004, pp. 367–378. MR MR2138008 (2006a:11155)
- [77] Diana Savin, *About certain prime numbers*, 2009, p. 9.
- [78] René Schoof, *Arakelov class groups and ideal lattices*, 2005, pp. 23–24.
- [79] René Schoof, *Computing Arakelov class groups*, Algorithmic number theory: lattices, number fields, curves and cryptography, Math. Sci. Res. Inst. Publ., vol. 44, Cambridge Univ. Press, Cambridge, 2008, pp. 447–495. MR MR2467554
- [80] Andreas M. Schöpp, *Fundamental units in a parametric family of not totally real quintic number fields*, J. Théor. Nombres Bordeaux **18** (2006), no. 3, 693–706. MR MR2330436 (2008f:11121)
- [81] Romyar T. Sharifi, *Iwasawa theory and the Eisenstein ideal*, Duke Math. J. **137** (2007), no. 1, 63–101. MR MR2309144
- [82] ———, *On Galois groups of unramified pro- $p$  extensions*, Math. Ann. **342** (2008), no. 2, 297–308. MR MR2425144
- [83] William Stein and Yan Zhang, *On power bases in number fields*, 2005.
- [84] Aliza Steurer, *On the Galois groups of the 2-class towers of some imaginary quadratic fields*, J. Number Theory **125** (2007), no. 1, 235–246. MR MR2333129
- [85] Mark van Hoeij and John Cremona, *Solving conics over function fields*, J. Théor. Nombres Bordeaux **18** (2006), no. 3, 595–606. MR MR2330429 (2008f:11133)

- [86] Stéphane Vinatier, *Structure galoisienne dans les extensions faiblement ramifiées de  $Q$* , J. Number Theory **91** (2001), no. 1, 126–152. MR MR1869322 (2002h:11112)
- [87] John Voight, *The gauss higher relative class number problem*, Ann. Sci. Math. Québec **Accepted** (2009).
- [88] Gabor Wiese, *On projective linear groups over finite fields as Galois groups over the rational numbers*, Edixhoven, Bas et al., Modular forms on Schiermonnikoog. Based on the conference on modular forms, Schiermonnikoog, Netherlands, October 2006, Cambridge University Press, Cambridge, 2008, pp. 343–350. MR )
- [89] Qingquan Wu and Renate Scheidler, *An explicit treatment of biquadratic function fields*, Contrib. Discrete Math. **2** (2007), no. 1, 43–60 (electronic). MR MR2291883 (2008a:11144)
- [90] Dan Yasaki, *Binary Hermitian forms over a cyclotomic field*, J. Algebra **322** (2009), no. 11, 4132–4142. MR MR2556143
- [91] Alexey Zaytsev and Gary McGuire, *On the zeta functions of an optimal tower of function fields over  $F_4$* , 2009.