

Field Theory

General Field Theory

12Exx

- [1] R. D. Baker, G. L. Ebert, K. H. Leung, and Q. Xiang. A trace conjecture and flag-transitive affine planes. *J. Combin. Theory Ser. A*, 95(1):158–168, 2001.
- [2] B. V. Petrenko. On the product of two primitive elements of maximal subfields of a finite field. *J. Pure Appl. Algebra*, 178(3):297–306, 2003.
- [3] B. V. Petrenko. On the sum of two primitive elements of maximal subfields of a finite field. *Finite Fields Appl.*, 9(1):102–116, 2003.
- [4] Ruth Schwingel. The tensor product of polynomials. *Experiment. Math.*, 8(4):395–397, 1999.
- [5] Kirby C. Smith and Leon van Wyk. A concrete matrix field description of some Galois fields. *Linear Algebra Appl.*, 403:159–164, 2005.
- [6] Hans-Christian Graf von Bothmer, Oliver Labs, Josef Schicho, and Christiaan van de Woestijne. The Casas-Alvero conjecture for infinitely many degrees. [arXiv:math.AC/0605090](https://arxiv.org/abs/math/0605090), page 6, 2006.

Field Theory

Extensions and Galois Theory

12Fxx

- [1] Alejandro Adem, Wenfeng Gao, Dikran B. Karagueuzian, and Ján Mináč. Field theory and the cohomology of some Galois groups. *J. Algebra*, 235(2):608–635, 2001.
- [2] Bill Allombert. An efficient algorithm for the computation of Galois automorphisms. *Math. Comp.*, 73(245):359–375 (electronic), 2004.
- [3] Johan Bosman. A polynomial with Galois group $SL_2(F_{16})$. [arXiv:math/0701442](https://arxiv.org/abs/math/0701442), 7 pages, 2007.
- [4] Nigel Boston. Reducing the Fontaine-Mazur conjecture to group theory. In *Progress in Galois theory*, volume 12 of *Dev. Math.*, pages 39–50. Springer, New York, 2005.
- [5] Nigel Boston and Charles Leedham-Green. Explicit computation of Galois p -groups unramified at p . *J. Algebra*, 256(2):402–413, 2002.
- [6] Nigel Boston and Harris Nover. Computing pro- p -Galois groups. In *Algorithmic Number Theory*, volume 4076 of *Lecture Notes in Comput. Sci.*, pages 1–10. Springer, Berlin, 2006.
- [7] Nigel Boston and David Perry. Maximal 2-extensions with restricted ramification. *J. Algebra*, 232(2):664–672, 2000.
- [8] Antoine Colin. Relative resolvents and partition tables in Galois group computations. In *Proceedings of the 1997 International Symposium on Symbolic and Algebraic Computation (Kihei, HI)*, pages 78–84 (electronic), New York, 1997. ACM.
- [9] Pilar Fernandez-Ferreiros and M. Angeles Gomez-Molleda. Deciding the nilpotency of the Galois group by computing elements in the centre. *Math. Comp.*, 73(248):2043–2060 (electronic), 2004.
- [10] Louis Granboulan. Construction d’une extension régulière de $\mathbf{Q}(T)$ de groupe de Galois M_{24} . *Experiment. Math.*, 5(1):3–14, 1996.

- [11] Farshid Hajir. On the Galois group of generalized Laguerre polynomials. *J. Théor. Nombres Bordeaux*, 17(2):517–525, 2005.
- [12] Farshid Hajir. Tame pro- p Galois groups: A survey of recent work. In *Arithmetic, Geometry and Coding Theory (AGCT 2003)*, volume 11 of *Sémin. Congr.*, pages 111–124. Soc. Math. France, Paris, 2005.
- [13] G. Hanrot and F. Morain. Solvability by radicals from an algorithmic point of view. In *Proceedings of the 2001 International Symposium on Symbolic and Algebraic Computation*, pages 175–182 (electronic), New York, 2001. ACM.
- [14] Gregor Kemper and Gunter Malle. Invariant fields of finite irreducible reflection groups. *Math. Ann.*, 315(4):569–586, 1999.
- [15] Jürgen Klüners and Gunter Malle. Explicit Galois realization of transitive groups of degree up to 15. *J. Symbolic Comput.*, 30(6):675–716, 2000.
- [16] Jörn Müller-Quade and Rainer Steinwandt. Recognizing simple subextensions of purely transcendental field extensions. *Appl. Algebra Engrg. Comm. Comput.*, 11(1):35–41, 2000.
- [17] Guénael Renault. Computation of the splitting field of a dihedral polynomial. In *ISSAC '06: Proceedings of the 2006 International Symposium on Symbolic and Algebraic Computation*, pages 290–297, New York, NY, USA, 2006. ACM Press.
- [18] Blair K. Spearman, Kenneth S. Williams, and Qiduan Yang. The 2-power degree subfields of the splitting fields of polynomials with Frobenius Galois groups. *Comm. Algebra*, 31(10):4745–4763, 2003.
- [19] Rainer Steinwandt and Jörn Müller-Quade. Freeness, linear disjointness, and implicitization—a classical approach. *Beiträge Algebra Geom.*, 41(1):57–66, 2000.

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Homological Methods and Galois Cohomology

12Gxx

- [1] Alejandro Adem, Wenfeng Gao, Dikran B. Karagueuzian, and Ján Mináč. Field theory and the cohomology of some Galois groups. *J. Algebra*, 235(2):608–635, 2001.
- [2] Nigel Boston. Reducing the Fontaine-Mazur conjecture to group theory. In *Progress in Galois theory*, volume 12 of *Dev. Math.*, pages 39–50. Springer, New York, 2005.

Field Theory

Differential Algebra

12Hxx

- [1] Alin Bostan, Frederic Chyzak, Grégoire Lecerf, Bruno Salvy, and Éric Schost. Differential equations for algebraic functions. [arXiv:cs/0703121](https://arxiv.org/abs/cs/0703121), 16 pages, 2007.
- [2] Olivier Cormier. On Liouvillian solutions of linear differential equations of order 4 and 5. In *ISSAC '01: Proceedings of the 2001 International Symposium on Symbolic and Algebraic Computation*, pages 93–100 (electronic), New York, 2001. ACM.
- [3] Olivier Cormier, Michael F. Singer, and Felix Ulmer. Computing the Galois group of a polynomial using linear differential equations. In *Proceedings of the 2000 International Symposium on Symbolic and Algebraic Computation (St. Andrews)*, pages 78–85 (electronic), New York, 2000. ACM.
- [4] Julia Hartmann. Invariants and differential Galois groups in degree four. In *Differential Galois Theory*, volume 58 of *Banach Center Publ.*, pages 79–87. Polish Acad. Sci., Warsaw, 2002.
- [5] Sabrina A. Hessinger. Computing the Galois group of a linear differential equation of order four. *Appl. Algebra Engrg. Comm. Comput.*, 11(6):489–536, 2001.
- [6] Ariane Péladan-Germa. Testing equality in differential ring extensions defined by PDE's and limit conditions. *Appl. Algebra Engrg. Comm. Comput.*, 13(4):257–288, 2002.
- [7] Michael F. Singer. Testing reducibility of linear differential operators: A group-theoretic perspective. *Appl. Algebra Engrg. Comm. Comput.*, 7(2):77–104, 1996.
- [8] Michael F. Singer and Felix Ulmer. Necessary conditions for Liouvillian solutions of (third order) linear differential equations. *Appl. Algebra Engrg. Comm. Comput.*, 6(1):1–22, 1995.

- [9] Felix Ulmer. Liouvillian solutions of third order differential equations. *J. Symbolic Comput.*, 36(6):855–889, 2003.

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Computational Methods

12-04

- [1] Gregory V. Bard, Nicolas T. Courtois, and Chris Jefferson. Efficient methods for conversion and solution of sparse systems of low-degree multivariate polynomials over $\text{GF}(2)$ via SAT-solvers. *Preprint*, 14 pages, 2007.
- [2] 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(3-4):372–380, 2006.
- [3] A. Bostan, G. Lecerf, B. Salvy, É. Schost, and B. Wiebelt. Complexity issues in bivariate polynomial factorization. In *ISSAC '04: Proceedings of the 2004 International Symposium on Symbolic and Algebraic Computation*, pages 42–49, New York, NY, USA, 2004. ACM Press.
- [4] Guillaume Chèze and Grégoire Lecerf. Lifting and recombination techniques for absolute factorization. *Preprint*, 35 pages, 2005.
- [5] Jennifer de Kleine, Michael Monagan, and Allan Wittkopf. Algorithms for the non-monic case of the sparse modular GCD algorithm. In *ISSAC '05: Proceedings of the 2005 International Symposium on Symbolic and Algebraic Computation*, pages 124–131, New York, NY, USA, 2005. ACM Press.
- [6] Akpodigha Filatei, Xin Li, Marc Moreno Maza, and Éric Schost. Implementation techniques for fast polynomial arithmetic in a high-level programming environment. In *ISSAC '06: Proceedings of the 2006 International Symposium on Symbolic and Algebraic Computation*, pages 93–100, New York, NY, USA, 2006. ACM Press.
- [7] Sara Khodadad and Michael Monagan. Fast rational function reconstruction. In *ISSAC '06: Proceedings of the 2006 International Symposium on Symbolic and Algebraic Computation*, pages 184–190, New York, NY, USA, 2006. ACM Press.

- [8] Hsin-Chao Liao and Richard J. Fateman. Evaluation of the heuristic polynomial GCD. In *ISSAC '95: Proceedings of the 1995 International Symposium on Symbolic and Algebraic Computation*, pages 240–247, New York, NY, USA, 1995. ACM Press.
- [9] Michael Monagan. Maximal quotient rational reconstruction: An almost optimal algorithm for rational reconstruction. In *ISSAC 2004*, pages 243–249. ACM, New York, 2004.
- [10] Jörn Müller-Quade and Rainer Steinwandt. Basic algorithms for rational function fields. *J. Symbolic Comput.*, 27(2):143–170, 1999.
- [11] Jörn Müller-Quade and Rainer Steinwandt. Gröbner bases applied to finitely generated field extensions. *J. Symbolic Comput.*, 30(4):469–490, 2000.
- [12] Leonard Soicher and John McKay. Computing Galois groups over the rationals. *J. Number Theory*, 20(3):273–281, 1985.
- [13] Allan Steel. A new scheme for computing with algebraically closed fields. In *Algorithmic Number Theory (Sydney, 2002)*, volume 2369 of *Lecture Notes in Comput. Sci.*, pages 491–505. Springer, Berlin, 2002.
- [14] Rainer Steinwandt. On computing a separating transcendence basis. *SIGSAM Bulletin*, 34(4), 2000.