

# Curriculum Vitae

## Personal Information:

Name Dr. Henning Fernau  
Date of birth January 28th, 1965  
Place of birth Nienburg (Lower Saxony)  
Citizenship German  
Marital status married, two children



## Education and Academic Career:

2018 Visiting professor at Univ. Orléans  
2014/15 and 2017/18 Visiting professor at Univ. Dauphine in Paris  
July 2006– Full professorship in Theoretical Computer Science in Trier  
Nov. 2005 Habilitation at Tübingen (Germany)  
Oct. 2005–June 2006 Substituting a full professorship in Trier (Germany)  
May 2005–Jan. 2006 Principal Lecturer at the University of Hertfordshire (UK)  
2/2002–1/2004 Senior Lecturer at the  
University of Newcastle (Australia)  
(February 2004– Conjoint Lecturer in Newcastle)  
May 1995– Researcher at the chair “Theoretical Computer Science”  
with Prof. Dr. Lange in Tübingen (Germany)  
1989–1995 wissenschaftlicher Mitarbeiter (PhD student, research associate) at the  
chair “Computer Science for Engineers and Natural Scientists”  
with Prof. Dr.-Ing. Vollmar in Karlsruhe (Germany)  
February 1993 Dr.rer.nat. (PhD degree) in computer science; I presented  
“Varianten iterierter Funktionensysteme und  
Methoden der formalen Sprachen”  
(Variants of iterated function systems and  
methods of formal languages)  
which is printed by BI-Verlag under a different title [B1]  
I completed the degree with ‘sehr gut’ (best grade)  
1989 Diplom (M.S. degree) in computer science  
I completed the degree with ‘sehr gut’ (1.1) (nearly best grade)  
1989 diploma thesis entitled  
“Verallgemeinerungen  $k$ -limitierter Lindenmayer-Systeme”  
(Generalizations of  $k$ -limited Lindenmayer Systems);  
its most important results are published in [J1]  
1984–1989 Studies of computer science and mathematics in Braunschweig (Germany)  
1987 Vordiplom (< B.S. degree) in mathematics  
1986 Vordiplom (< B.S. degree) in computer science

In 1987–1989, I received a scholarship of the “Studienstiftung des Deutschen Volkes.” I attended two Studienstiftung summer academies organized by in Völs (Italy).

**Further Professional Qualifications:**

since 1994	Referee of several international conferences, journals and national science foundations
since 1995	Referee of the “AMS Mathematical Reviews”
1997 till 1998	I taught “Formal Languages” at Fachhochschule (FH) Worms, Germany
2000	I taught a course at the Technical University (TU) of Vienna, Austria
2001–2006	Member of the Editorial Board of the journal <i>Grammars</i>
since 2008	Member of the Editorial Board of the journal <i>Algorithms</i>
2002-05	I taught (four times) a course at the University of Tarragona, Spain
2002	Co-Chair of “International Coll./Conf. on Grammatical Inference ICGI”
2004	PC member of ICGI
2006	PC member of SOFSEM, IWPEC, ICGI, ALT
2007	PC member of STACS
2008	PC member of LATA, ICGI
2009	PC member of LATA, IWPEC
2010	Co-Chair of LATA, organized in Trier, PC member of ALT, ICGI
2011	Special Issue Co-Editor of <i>Journal of Computer and System Sciences</i> and of <i>Algorithms</i>
2012	PC member of ICGI, IPEC
since 2012	Member of the Editorial Board of <i>Electronic Journal of Graph Theory and Applications</i>
2013	PC member of IC3
since 2013	Member of the Editorial Board of <i>International Journal of Computer Mathematics</i>
2014	PC member of FAW, ICGI
since 2014	Editor-in-Chief of <i>Algorithms</i>
2015	PC member of ACALCI, TAMC, FAW, MCU
2016	PC member of STACS, TAMC, FAW, Highlights, ICGI
since 2016	Member of the Editorial Board of <i>Discrete Mathematics and Theoretical Computer Science</i>
since 2016	Member of the Editorial Board of <i>Journal of Automata, Languages and Combinatorics</i>
since 2016	Member of the Editorial Board of <i>Acta Informatica</i>
2017	PC member of TAMC, FAW, DCFS, DLT, AFL, IPEC
2018	PC member of MCU, DCFS, ICGI
2019	PC member of CiE, CIAC, MFCS, NCMA, ARDA

**Organisational Skills:**

since 1988	representative of students and of research assistants within several university bodies
2000-12	Member of the international steering committee of the Grammar Induction Community
2005	organization of the German “theory days” on Formal Languages
2005	organization of the International Workshop TAGI (see Bull. EATCS 90, pp. 232–236, 2006)
2010	organization of LATA
2011	organization of the German “theory days” on Complexity and Algorithms
2015	organization of the German “theory days” combining the Complexity and Algorithms and the Formal Language SI groups
2015	Speaker of the SI group Automata and Formal Languages of the GI
2015	Member of the international steering committee of IPEC (Parameterized and Exact Computation)
since 1993	Leader of several christian holidays with over 100 participants

**Language Skills:**

fluently:	German, English, Spanish
basic knowledge:	Russian, French
I can read:	further Germanic, Romanic and Slavonic languages

**Hobbies:**

since 1981	I played organ / piano in church services
1982	D-examination as an organist
since 1975	member of several choirs and orchestras
	interest in learning languages, old and new

**Memberships:**

Gesellschaft für Informatik, EATCS

# Scientific Work

I have published works on the following topics (alphabetical order):

- complexity theory, mostly parameterized complexity,
- fixed parameter algorithms,
- formal languages and algorithms related to formal languages,
- fractal geometry and formal language methods for picture processing,
- graph theory and graph algorithms,
- learning algorithms (grammar induction / grammatical inference), and pattern recognition.

The results were partially obtained as joint works with researchers from Austria, Australia, Canada, Czech Republic, China, Cuba, France, Germany, Hungary, India, Italy, Lebanon, Luxembourg, The Netherlands, Mexico, Norway, Poland, Romania, Russia, Singapore, Spain, Sweden, The United Kingdom, and The United States of America.

Of course, I also supervised numerous diploma, master and PhD theses and other student projects. The results of some of the works (Nolle, Hüffner, Starkie, Bai, Binkele-Raible, Gulan, Kasprzik, Casel, Gobbert, Paramasivan, Gras, Bruchertseifer, Vu, Hoffmann, Wolf, in chronological order) were also presented at international conferences.

In the following, my list of publications is presented, organized according to type of publication, each ordered chronologically.

## Journal Publications

- J1** H. Fernau. On function-limited Lindenmayer systems. *J. Inf. Process. Cybern. EIK*, vol. 27 (1991), pp. 21–53.
- J2** H. Fernau. Adult languages of propagating systems with restricted parallelism. *J. Inf. Process. Cybern. EIK*, vol. 29 (1993), pp. 249–267.
- J3** H. Bordihn and H. Fernau. Accepting grammars with regulation. *International Journal of Computer Mathematics*, vol. 53 (1994), pp. 1–18.
- J4** H. Fernau. Infinite iterated function systems. *Mathematische Nachrichten*, vol. 169 (1994), pp. 79–91.
- J5** H. Fernau. Membership for 1-limited ET0L languages is not decidable. *J. Inf. Process. Cybern. EIK*, vol. 30 (1994), pp. 191–211.
- J6** H. Fernau. Valuations of languages, with applications to fractal geometry. *Theoretical Computer Science*, vol. 137 (1995), pp. 177–217.
- J7** H. Fernau. A note on uniformly limited ET0L systems with unique interpretation. *Information Processing Letters*, vol. 54 (1995), pp. 199–204.
- J8** H. Fernau. A predicate for separating language classes. *EATCS Bulletin*, vol. 56 (1995), pp. 96–97.

- J9** H. Fernau and H. Bordihn. Remarks on accepting parallel systems. *International Journal of Computer Mathematics*, vol. 56 (1995), pp. 51–67.
- J10** H. Bordihn and H. Fernau. Accepting grammars and systems via context condition grammars. *Journal of Automata, Languages and Combinatorics*, vol. 1 (1996), pp. 97–112.
- J11** H. Fernau. On grammar and language families. *Fundamenta Informaticae*, 25(1):17–34, 1996.
- J12** H. Fernau. Valuations, regular expressions, and fractal geometry. *Applicable Algebra in Engineering, Communication and Computing*, vol. 7 (1996), pp. 59–75.
- J13** H. Fernau. Closure properties of ordered languages. *EATCS Bulletin*, vol. 58 (1996), pp. 159–162.
- J14** H. Fernau. Scattered context grammars with regulation. *Ann. Univ. Bucharest, Math.-Informatics Series*, vol. 45 (1996), pp. 41–50.
- J15** H. Fernau. Remarks on propagating partition-limited ETOL systems. *Journal of Universal Computer Science*, vol. 2 (1996), pp. 745–755.
- J16** H. Fernau, M. Holzer and H. Bordihn. Accepting multi-agent systems: the case of cooperating distributed grammar systems. *Computers and Artificial Intelligence*, vol. 15 (1996), pp. 123–139.
- J17** H. Fernau. Membership for  $k$ -limited ETOL languages is not decidable. *Journal of Automata, Languages and Combinatorics*, vol. 1 (1996), pp. 243–245.
- J18** H. Fernau and M. Holzer. Accepting multi-agent systems II. (Presented at *Workshop on Grammar Systems: Recent Results and Perspectives*. Budapest, Hungary, 26.-27. Juli 1996.) *Acta Cybernetica*, vol. 12 (1996), pp. 361–379.
- J19** H. Fernau. Unconditional transfer in regulated rewriting. *Acta Informatica*, vol. 34 (1997), pp. 837–857.
- J20** H. Fernau. Graph-controlled grammars as language acceptors. *Journal of Automata, Languages and Combinatorics*, vol. 2 (1997), pp. 79–91.
- J21** H. Fernau and D. Wätjen. Remarks on regulated limited ETOL systems and regulated context-free grammars. *Theoretical Computer Science*, vol. 194 (1998), pp. 35–55.
- J22** H. Fernau and M. Holzer. Bidirectional cooperating distributed grammar systems. *Publicationes Mathematicae, Debrecen*, vol. 54 Supplement (1999), pp. 787–806.
- J23** H. Fernau and F. Stephan. Characterizations of recursively enumerable languages by programmed grammars with unconditional transfer. *Journal of Automata, Languages and Combinatorics*, vol. 4 (1999), pp. 117–142.
- J24** J. Dassow, H. Fernau and Gh. Păun. On the leftmost derivation in matrix grammars. *International Journal of Foundations of Computer Science*, vol. 10 (1999), pp. 61–80.
- J25** H. Bordihn, H. Fernau and M. Holzer. On accepting pure Lindenmayer systems. *Fundamenta Informaticae*, vol. 38 (1999), pp. 365–375.
- J26** H. Fernau. On regulated grammars under leftmost derivation. *Grammars*, vol. 3 (2000), pp. 37–62.
- J27** H. Fernau and R. Niedermeier. An efficient exact algorithm for constraint bipartite vertex cover. *Journal of Algorithms*, vol. 38 (2001), pp. 374–410.

- J28** H. Fernau. Parallel communicating grammar systems with terminal transmission. *Acta Informatica*, vol. 37 (2001), pp. 511–540.
- J29** H. Fernau and R. Stiebe. Valences in Lindenmayer systems. *Fundamenta Informaticae*, vol. 45 (2001), pp. 329–358.
- J30** H. Fernau, R. Freund and M. Holzer. Hybrid modes in cooperating distributed grammar systems: internal versus external hybridization. *Theoretical Computer Science*, vol. 259 (2001), pp. 405–426.
- J31** H. Fernau and L. Staiger. IFS and control languages. *Information and Computation*, vol. 168 (2001), pp. 125–143.
- J32** H. Fernau and R. Stiebe. Sequential grammars and automata with valences. *Theoretical Computer Science*, vol. 276 (2002), pp. 377–405.
- J33** H. Bordihn, H. Fernau and M. Holzer. Accepting pure grammars. *Publicationes Mathematicae, Debrecen*, vol. 60 Supplement (2002), pp. 483–510.
- J34** J. Alber, H.L. Bodlaender, H. Fernau, T. Kloks and R. Niedermeier. Fixed parameter algorithms for DOMINATING SET and related problems on planar graphs. *Algorithmica*, vol. 33 (2002), pp. 461–493.
- J35** H. Fernau. Even linear simple matrix languages: formal language properties and grammatical inference. *Theoretical Computer Science*, vol. 289 (2002), pp. 425–456.
- J36** H. Fernau and M. Holzer. Graph controlled cooperating distributed grammar systems with singleton components. *Journal of Automata, Languages, and Combinatorics*, vol. 7 (2002), pp. 487–503.
- J37** H. Fernau. Identification of function distinguishable languages. *Theoretical Computer Science*, vol. 290 (2003), pp. 1679–1711.
- J38** H. Fernau and A. Meduna. On the degree of scattered context-sensitivity. *Theoretical Computer Science*, vol. 290 (2003), pp. 2121–2124.
- J39** H. Fernau. Nonterminal complexity of programmed grammars. *Theoretical Computer Science*, vol. 296 (2003), pp. 225–251.
- J40** H. Fernau, R. Freund and M. Holzer. Hybrid modes in cooperating distributed grammar systems: combining the  $t$ -mode with the modes  $\leq k$  and  $= k$ . *Theoretical Computer Science*, vol. 299 (2003), pp. 633–662.
- J41** H. Fernau and A. Meduna. A simultaneous reduction of several measures of descriptional complexity in scattered context grammars. *Information Processing Letters*, vol. 86 (2003), pp. 235–240.
- J42** H. Fernau. Parallel grammars: a phenomenology. *GRAMMARS*, vol. 6 (2003), pp. 25–87.
- J43** H. Fernau. Education(al) matters: teaching  $P$  versus  $NP$ . *EATCS Bulletin*, vol. 80 (2003), pp. 237–246.
- J44** J. Alber, H. Fernau and R. Niedermeier. Graph separators: a parameterized view. *Journal of Computer and System Sciences*, vol. 67 (2003), pp. 808–832.
- J45** H. Fernau. Identifying terminal distinguishable languages. *Annals of Mathematics and Artificial Intelligence*, vol. 40 (2004), pp. 263–281.
- J46** H. Fernau. Complexity of a  $\{0, 1\}$ -matrix problem. *The Australasian Journal of Combinatorics*, vol. 29 (2004), pp. 273–300.
- J47** J. Alber, H. Fernau and R. Niedermeier. Parameterized complexity: exponential speedup for planar graph problems. *Journal of Algorithms*, vol. 52 (2004), pp. 26–56.

- J48** H. Fernau and C. de la Higuera. Grammar induction: an invitation for formal language theorists. *GRAMMARS*, vol. 7 (2004), pp. 45–55.
- J49** H. Fernau, R. Freund and M. Holzer. Representations of recursively enumerable array languages by contextual array grammars. *Fundamenta Informaticae*, vol. 64 (2005), pp. 159–170.
- J50** J. Alber, H. Fan, M. R. Fellows, H. Fernau, R. Niedermeier, F. Rosamond and U. Stege. A refined search tree techniques for DOMINATING SET on planar graphs. *Journal of Computer and System Sciences*, vol. 71 (2005), pp. 385–405.
- J51** H. Fernau. Two-layer planarization: improving on parameterized algorithmics. *Journal of Graph Algorithms and Applications*, vol. 9 (2005), pp. 205–238.
- J52** H. Bordihn, H. Fernau, M. Holzer, V. Manca and C. Martín-Vide. Iterated Sequential Transducers as language generating devices. *Theoretical Computer Science*, vol. 369 (2006), pp. 67–81.
- J53** H. Fernau, K. Reinhardt and L. Staiger. Decidability of Code Properties. *RAIRO-Informatique théorique et Applications*, vol. 41 (2007), pp. 243–259.
- J54** H. Fernau. Programmed grammars with rule queues. *International Journal of Foundations of Computer Science*, vol. 18 (2007), pp. 1209–1213.
- J55** J. Chen, H. Fernau, I.A. Kanj und G. Xia. Parametric duality and kernelization: lower bounds and upper bounds on kernel size. *SIAM Journal on Computing*, vol. 37 (2007), pp. 1077–1108.
- J56** H. Fernau. Learning tree languages from text. *RAIRO-Informatique théorique et Applications*, vol. 41 (2007), pp. 351–374.
- J57** H. Bordihn and H. Fernau. The degree of parallelism. *Journal of Automata, Languages, and Combinatorics*, vol. 12 (2007), pp. 25–47.
- J58** H. Fernau, R. Freund, M. Oswald and K. Reinhardt. Refining the nonterminal complexity of graph-controlled, programmed, and matrix grammars. *Journal of Automata, Languages, and Combinatorics*, vol. 12 (2007), pp. 117–138.
- J59** H. Fernau, J. Ryan and K. A. Sugeng. A sum labelling for the flower  $f_{q,p}$ . *Discrete Mathematics*, vol. 308 (2008), pp. 734–740.
- J60** H. Fernau. ROMAN DOMINATION: a parameterized perspective. *International Journal of Computer Mathematics*, vol. 85 (2008), pp. 25–38.
- J61** H. Fernau and R. Stiebe. Blind counter automata on  $\omega$ -words. *Fundamenta Informaticae*, vol. 83 (2008), pp. 51–64.
- J62** V. Dujmović, H. Fernau and M. Kaufmann. Fixed parameter algorithms for one-sided crossing minimization revisited. *Journal of Discrete Algorithms*, vol. 6 (2008), pp. 313–323.
- J63** J. Dassow and H. Fernau. Comparison of some descriptive complexities of 0L systems obtained by a unifying approach. *Information and Computation*, vol. 206 (2008), pp. 1095–1103.
- J64** F. N. Abu-Khzam, H. Fernau and M. A. Langston. A bounded search tree algorithm for parameterized FACE COVER. *Journal of Discrete Algorithms*, vol. 6 (2008), pp. 541–552.
- J65** H. Fernau. Parameterized algorithmics for linear arrangement problems. *Discrete Applied Mathematics*, vol. 156 (2008), pp. 3166–3177.
- J66** H. Fernau, J. A. Rodríguez and J. M. Sgarreta. Offensive  $k$ -alliances in graphs. *Discrete Applied Mathematics*, vol. 157 (2009), pp. 177–182.

- J67** H. Fernau. Algorithms for learning regular expressions from positive data. *Information and Computation*, vol. 207 (2009), pp. 521–541.
- J68** J. M. Sigarreta, S. Bermudo and H. Fernau. On the complement graph and defensive  $k$ -alliances. *Discrete Applied Mathematics*, vol. 157 (2009), pp. 1687–1695.
- J69** H. Fernau and D. F. Manlove. Vertex and edge covers with clustering properties: complexity and algorithms. *Journal of Discrete Algorithms*, vol. 7 (2009), pp. 149–167.
- J70** H. Fernau and D. Raible. A parameterized perspective on packing paths of length two. *Journal of Combinatorial Optimization*, vol. 18 (2009), pp. 319–341.
- J71** H. Fernau. A top-down approach to search-trees: improved algorithmics for 3-HITTING SET. *Algorithmica*, vol. 57 (2010), pp. 97–118.
- J72** H. Fernau. Minimum Queens Dominating Set: a trivial programming exercise? *Discrete Applied Mathematics*, vol. 158 (2010), pp. 308–318.
- J73** H. Fernau. Parameterized Algorithms for HITTING SET: the Weighted Case. *Theoretical Computer Science*, vol. 411 (2010), pp. 1698–1713.
- J74** H. Fernau, M. Kaufmann, and M. Poths. Comparing trees via crossing minimization. *Journal of Computer and System Sciences*, vol. 76 (2010), pp. 593–608.
- J75** D. Raible and H. Fernau. A New Upper Bound for Max-2-SAT: A Graph-Theoretic Approach. *Journal of Discrete Algorithms*, vol. 8 (2010), pp. 388–401.
- J76** H. Fernau. Parameterized Algorithmics for  $d$ -Hitting Set. *International Journal of Computer Mathematics*, vol. 87 (2010), pp. 3157–3174.
- J77** D. Binkele-Raible, H. Fernau, S. Gaspers, and M. Liedloff. Exact exponential-time algorithms for finding bicliques. *Information Processing Letters*, vol. 111 (2010), pp. 64–67.
- J78** F. N. Abu-Khzam, H. Fernau, M. A. Langston, S. Lee-Cultura, and U. Stege. Charge and Reduce: A Fixed-Parameter Algorithm for String-to-String Correction. *Discrete Optimization*, vol. 8 (2011), pp. 41–49..
- J79** H. Fernau and M. F. Fellows. Facility Location Problems: A Parameterized View. *Discrete Applied Mathematics*, vol. 159 (2011), pp. 1118–1130.
- J80** D. Binkele-Raible, L. Brankovic, M. Cygan, H. Fernau, J. Kneis, D. Kratsch, A. Langer, M. Liedloff, M. Pilipczuk, P. Rossmanith, and J. O. Wojtaszczyk. Breaking the  $2^n$ -barrier for IRREDUNDANCE: two lines of attack. *Journal of Discrete Algorithms*, vol. 9 (2011), pp. 214–230.
- J81** H. Fernau, J. Kneis, D. Kratsch, A. Langer, M. Liedloff, D. Raible and P. Rossmanith. An exact algorithm for the Maximum Leaf Spanning Tree problem. *Theoretical Computer Science*, vol. 412 (2011), pp. 6290–6302.
- J82** D. Binkele-Raible and H. Fernau. An Exact Exponential Time Algorithm for POWER DOMINATING SET. *Algorithmica*, vol. 63 (2012), pp. 323–346.
- J83** G. Bai and H. Fernau. Constraint bipartite vertex cover: simpler exact algorithms and implementations. *Journal of Combinatorial Optimization*, vol. 23 (2012), pp. 331–355.
- J84** D. Binkele-Raible and H. Fernau. Parameterized Measure & Conquer for Problems with no Small Kernels. *Algorithmica*, vol. 64 (2012), pp. 189–212.
- J85** D. Binkele-Raible and H. Fernau. An Exact Exponential-Time Algorithm for the Directed Maximum Leaf Spanning Tree Problem. *Journal of Discrete Algorithms*, vol. 15 (2012), pp. 43–55.

- J86** C. Costa Florêncio and H. Fernau. On Families of Categorical Grammars of Bounded Value, Their Learnability and Related Complexity Questions. *Theoretical Computer Science*, vol. 452 (2012), pp. 21–38.
- J87** S. Bermudo and H. Fernau. Lower bounds on the differential of a graph. *Discrete Mathematics*, vol. 312 (2012), pp. 3236–3250.
- J88** D. Binkele-Raible, H. Fernau, F. V. Fomin, D. Lokshtanov, and S. Saurabh. Kernel(s) for problems with no kernel: on out-trees with many leaves. *ACM Transactions on Algorithms*, vol. 8 (2012), paper no. 38.
- J89** D. Binkele-Raible, H. Fernau, S. Gaspers, and M. Liedloff. Exact and Parameterized Algorithms for MAX INTERNAL SPANNING TREE. *Algorithmica*, vol. 65 (2013), pp. 95–128.
- J90** H. Fernau and D. Raible. Packing Paths: Recycling Saves Time. *Discrete Applied Mathematics*, vol. 161 (2013), pp. 1686–1698.
- J91** L. Brankovic and H. Fernau. A novel parameterised approximation algorithm for MINIMUM VERTEX COVER. *Theoretical Computer Science*, vol. 511 (2013), pp. 85–108.
- J92** D. Binkele-Raible, G. Erdélyi, H. Fernau, J. Goldsmith, N. Mattei, and J. Rothe. The Complexity of Probabilistic Lobbying. *Discrete Optimization*, vol. 11 (2014), pp. 1–21.
- J93** S. Bermudo and H. Fernau. Computing the differential of a graph: hardness, approximability and exact algorithms. *Discrete Applied Mathematics*, vol. 165 (2014), pp. 69–82.
- J94** H. Fernau and D. Meister, Digraphs of bounded elimination width. *Discrete Applied Mathematics*, vol. 168 (2014), pp. 78–87.
- J95** D. Binkele-Raible and H. Fernau. A Parameterized Measure & Conquer Analysis for Finding a  $k$ -Leaf Spanning Tree in an Undirected Graph. *Discrete Mathematics and Theoretical Computer Science*, vol. 16 (2014), pp. 179–200.
- J96** S. Bermudo, H. Fernau and J. M. Sigarreta. The differential and the Roman domination number of a graph. *Applicable Analysis and Discrete Mathematics*, vol. 8 (2014), pp. 155–171.
- J97** H. Fernau and J. A. Rodríguez-Velázquez. Alliances and related parameters in graphs. *Electronic Journal of Graph Theory and Applications*, vol. 2 (2014), pp. 70–86.
- J98** H. Fernau, F. V. Fomin, D. Lokshtanov, M. Mnich, G. Philip, and S. Saurabh. Social choice meets graph drawing: How to get subexponential time algorithms for ranking and drawing problems. *Tsinghua Science and Technology*, vol. 19, No. 4 (2014), pp. 374–386.
- J99** H. Fernau, J. A. Rodríguez-Velázquez, and I. G. Yero. On the partition dimension of unicyclic graphs. *Bull. Math. Soc. Sci. Math. Roumanie*, vol. 57 (105), No. 4 (2014), pp. 381–391.
- J100** S. Bermudo and H. Fernau. Combinatorics for Smaller Kernels: The Differential of a Graph. *Theoretical Computer Science*, vol. 562 (2015), pp. 330–345.
- J101** H. Fernau, F. V. Fomin, G. Philip and S. Saurabh. On the Parameterized Complexity of Vertex Cover and Edge Cover with Connectivity Constraints. *Theoretical Computer Science*, vol. 565 (2015), pp. 1–15.
- J102** H. Fernau, P. Heggernes and Y. Villanger. A multi-parameter analysis of hard problems on Deterministic Finite Automata. *Journal of Computer and System Sciences*, vol. 81 (2015), pp. 747–765.



- J103** H. Fernau, P. Heggernes, P. van 't Hof, D. Meister and R. Saei. Computing the metric dimension for chain graphs. *Information Processing Letters*, vol. 115 (2015), pp. 671–676.
- J104** H. Fernau and M. L. Schmid. Pattern matching with variables: a multivariate complexity analysis. *Information and Computation*, vol. 242 (2015), pp. 287–305.
- J105** H. Fernau, A. López-Ortiz and J. Romero. Using parametric transformations toward polynomial kernels for packing problems allowing overlaps. *ACM Transactions on Computation Theory*, vol. 7 (2015), Article 13.
- J106** H. Fernau, R. Freund, M. L. Schmid, K. G. Subramanian, and P. Wiederhold. Contextual Array Grammars and Array P Systems. *Annals of Mathematics and Artificial Intelligence*, vol. 75 (2015), pp. 5–26.
- J107** J. A. Rodríguez, H. Fernau and J. M. Sigarreta. Powerful  $r$ -alliances and total  $k$ -domination in graphs. *Utilitas Mathematica*, vol. 98 (2015), pp. 127–147.
- J108** H. Fernau, R. Freund, R. Siromoney and K. G. Subramanian. Regulated Contextual Array Grammars. *Annals of the University of Bucharest (Seria Informatica)*, vol. LXII (2015), pp. 63–78.
- J109** H. Fernau, R. Freund and M. Holzer. The finite index restriction meets hybrid modes in cooperating distributed grammar systems. *International Journal of Foundations of Computer Science*, vol. 28 (2015), pp. 1167–1188.
- J110** F. N. Abu-Khzam, C. Bazgan, M. Chopin, and H. Fernau. Data Reductions and Combinatorial Bounds for Improved Approximation Algorithms. *Journal of Computer and System Sciences*, vol. 82 (2016), pp. 503–520.
- J111** K. Casel, A. Estrada-Moreno, H. Fernau and J. A. Rodríguez-Velázquez. Weak total resolvability in graphs. *Discussiones Mathematicae Graph Theory*. vol. 6 (2016), pp. 185–210.
- J112** J. Björklund, H. Fernau and A. Kasprzik. Polynomial inference of universal automata from membership and equivalence queries. *Information and Computation*, vol. 246 (2016), pp. 3–19.
- J113** H. Fernau, M. L. Schmid and Y. Villanger. On the Parameterised Complexity of String Morphism Problems. *Theory of Computing Systems*, vol. 59 (2016), pp. 24–51.
- J114** H. Fernau. An Essay on General Grammars. *Journal of Automata, Languages and Combinatorics*, vol. 21 (2016), pp. 69–92.
- J115** H. Fernau and A. Krebs. Problems on Finite Automata and the Exponential Time Hypothesis. *Algorithms*, vol. 10 (2017), Art. No. 24.
- J116** H. Fernau, M. Paramasivan, M. Schmid and V. Vorel. Characterization and Complexity Results on Jumping Finite Automata. *Theoretical Computer Science*, vol. 679 (2017), pp. 31–52.
- J117** A. Alhazov, H. Fernau, R. Freund, S. Ivanov, R. Siromoney and K. G. Subramanian. Contextual Array Grammars with Matrix Control, Regular Control Languages, and Tissue P Systems Control. *Theoretical Computer Science*, vol. 682 (2017), pp. 5–21.
- J118** H. Fernau, L. Kuppusamy and I. Raman. On the Computational Completeness of Graph-Controlled Insertion-Deletion Systems with Binary Sizes. *Theoretical Computer Science*, vol. 682 (2017), pp. 100–121.
- J119** H. Fernau, R. Freund, R. Siromoney and K. G. Subramanian. Non-Isometric Contextual Array Grammars and the Role of Regular Control and Local Selectors. *Fundamenta Informaticae*, vol. 155 (2017), pp. 209–232.

- J120** H. Fernau, L. Kuppusamy and I. Raman. On the Generative Power of Graph-Controlled Insertion-Deletion Systems with Small Sizes. *Journal of Automata, Languages and Combinatorics*, vol. 22 (2017), pp. 61–92.
- J121** H. Fernau and J. A. Rodríguez-Velázquez. On the (adjacency) metric dimension of corona and strong product graphs and their local variants: combinatorial and computational results. *Discrete Applied Mathematics*, vol. 236 (2018), 183–202.
- J122** C. Bazgan, L. Brankovic, K. Casel, H. Fernau, K. Jansen, K.-M. Klein, M. Lampis, M. Liedloff, J. Monnot and V. Th. Paschos. The Many Facets of Upper Domination. *Theoretical Computer Science*, vol. 717 (2018), pp. 2–25.
- J123** H. Fernau, L. Kuppusamy and I. Raman. Investigations on the Power of Matrix Insertion-Deletion Systems with Small Sizes. *Natural Computing*, vol. 17 (2018), pp. 249–269.
- J124** H. Fernau, M. Paramasivan, M. L. Schmid and D. G. Thomas. Simple picture processing based on finite automata and regular grammars. *Journal of Computer and System Sciences*, vol. 95 (2018), pp. 232–258.
- J125** F. N. Abu-Khzam, C. Bazgan, K. Casel and H. Fernau. Clustering with Lower-Bounded Sizes; A General Graph-Theoretic Framework. *Algorithmica*, vol. 80 (2018), pp. 2517–2550.
- J126** H. Fernau, F. Manea, R. Mercas and M. L. Schmid. Revisiting Shinohara’s Algorithm for Computing Descriptive Patterns. *Theoretical Computer Science*, vol. 733 (2018), pp. 44–54.
- J127** H. Fernau, L. Kuppusamy and I. Raman. On Describing the Regular Closure of the Linear Languages with Graph-Controlled Insertion-Deletion Systems. *RAIRO Informatique théorique et Applications*, vol. 52 (2018), pp. 1–21.
- J128** H. Fernau, L. Kuppusamy and I. Raman. Properties of language classes between linear and context-free. *Journal of Automata, Languages and Combinatorics*, vol. 23 (2018), 329–360.
- J129** H. Fernau, M. Paramasivan and D. G. Thomas. Picture Scanning Automata and Group Actions on Pictures. *Romanian Journal of Information Science and Technology*, vol. 21 (2018), 238–248.
- J130** H. Fernau, L. Kuppusamy and I. Raman. On Path-Controlled Insertion-Deletion Systems. *Acta Informatica*, vol. 56 (2019), 35–59.
- J131** C. Bazgan, H. Fernau and Zs. Tuza. Aspects of Upper Defensive Alliances. *Discrete Applied Mathematics*, vol. 266 (2019), 111–120.
- J132** J. Chen, H. Fernau, P. Shaw, J. Wang and Z. Yang. Kernels for packing and covering problems. *Theoretical Computer Science*, vol. 790 (2019), 152–166.
- J133** H. Fernau and S. Hoffmann. Extensions to minimal synchronizing words. To appear in *Journal of Automata, Languages and Combinatorics*, vol. 24 (2019), 287–307.
- K. Casel, J. Dreier, H. Fernau, M. Gobbert, P. Kuinke, F. Sánchez Villaamil, M. L. Schmid and E. J. van Leeuwen. Complexity of Independency and Cliques Trees. To appear in *Discrete Applied Mathematics*.
  - H. Fernau, L. Kuppusamy and I. Raman. Computational Completeness of Simple Semi-Conditional Insertion-Deletion Systems of Degree  $(2, 1)$ . To appear in *Natural Computing*.
  - H. Fernau, T. Fluschnik, D. Hermelin, A. Krebs, H. Molter and R. Niedermeier. Diminishable parameterized problems and strict polynomial kernelization. To appear in *Computability*.

- C. Bazgan, L. Brankovic, K. Casel and H. Fernau. Domination Chain: Characterisation, Classical Complexity, Parameterised Complexity and Approximability. To appear in *Discrete Applied Mathematics*.

### Submitted Journal Papers (being refereed)

- H. Fernau and L. Kuppusamy. Parikh Images of Matrix Insertion-deletion Systems with Contexts of Binary Size Length. Submitted to *Information and Computation*.
- H. Fernau, F. Manea, R. Mercas and M. L. Schmid. Pattern Matching with Variables: Efficient Algorithms and Complexity Results. Submitted to *ACM TOCT*.
- K. Casel, H. Fernau, A. Grigoriev, M. L. Schmid and S. Whitesides. Combinatorial Properties and Recognition of Unit Square Visibility Graphs. Submitted to *Discrete & Computational Geometry*.
- H. Fernau, M. Kutrib and M. Wendlandt. Self-Verifying Pushdown and Queue Automata. Submitted to *Fundamenta Informaticae*.
- H. Fernau, L. Kuppusamy, R. Oladele and I. Raman. Improved Descriptive Complexity Results for Simple Semi-Conditional Grammars. Submitted to *Fundamenta Informaticae*.
- H. Fernau and U. Stege. Profit and Revenue in Combinatorial Problems. Submitted to *Journal of Combinatorial Optimization*.

### Books and Book Chapters (mostly refereed), including editorial work

- B1** H. Fernau. *Iterierte Funktionen, Sprachen und Fraktale*. (English translation of the title: Iterated Functions, Languages and Fractals.) Mannheim: BI-Verlag, 1994.
- B2** H. Fernau and M. Holzer. *Conditional context-free languages of finite index*. In Gh. Păun and A. Salomaa (editors): *New Trends in Formal Languages* (LNCS 1218), pp. 10–26. Springer, 1997.
- B3** H. Fernau and R. Freund. *Accepting array grammars with control mechanisms*. In Gh. Păun and A. Salomaa (editors): *New Trends in Formal Languages* (LNCS 1218), pp. 95–118. Springer, 1997.
- B4** H. Fernau, R. Freund and M. Holzer. *Regulated array grammars of finite index*. In Gh. Păun and A. Salomaa (editors): *Grammatical Models of Multi-Agent Systems*, pp. 157–181 (Part I) and 284–296 (Part II). Gordon and Breach, 1999.
- B5** H. Fernau and M. Holzer. *External contextual and conditional languages*. In C. Martín-Vide and Gh. Păun (editors): *Recent Topics in Mathematical and Computational Linguistics*, pp. 104–120. The Publishing House of the Romanian Academy, 2000.
- B6** H. Fernau and W. Kuich. *Regularly controlled formal power series*. Chapter 23 in C. Martín-Vide and V. Mitrana (editors): *Where Mathematics, Computer Science, Linguistics and Biology Meet*, pp. 253–265. Kluwer, 2000.
- B7** H. Bordihn, H. Fernau and M. Holzer. *On iterated sequential transducers*. In C. Martín-Vide and V. Mitrana (editors): *Grammars and Automata for String Processing: from Mathematics and Computer Science to Biology, and Back*. pp. 121–130. Taylor and Francis, 2003.

- B8** H. Fernau and R. Stiebe. *Valence grammars with target sets*. In M. Ito, Gh. Păun and S. Yu (editors): *Words, Semigroups, and Transductions*, pp. 129–140. World Scientific, 2001.
- B9** P. Adriaans, H. Fernau, and M. van Zaanen, editors. *Grammatical Inference: Algorithms and Applications; 6th International Colloquium, ICGI*, vol. 2484 of *LNCS/LNAI*. Springer, 2002.
- B10** H. Fernau. *Parallel grammars: a short phenomenology*. In C. Martín-Vide, V. Mitrana and Gh. Păun (editors): *Formal Languages and Applications*. pp. 175–182. Springer-Verlag, 2004. Vol. 148 in the Studies in Fuzziness and Soft Computing series.
- B11** H. Fernau. *Parameterized Algorithms for Drawing Graphs*. In M.-Y. Kao (editor): *Encyclopedia of Algorithms*, pp. 631–635. Springer, 2008. Also contained in the new edition from 2016 on pages 1520–1525.
- B12** C. Martín-Vide, F. Otto, and H. Fernau, editors. *Languages and Automata Theory and Applications LATA*, vol. 5196 of *LNCS*. Springer, 2008.
- B13** A.-H. Dediu, C. Martín-Vide, and H. Fernau, editors. *Languages and Automata Theory and Applications LATA*, vol. 6031 of *LNCS*. Springer, 2010.
- B14** H. Fernau and R. Stiebe. On the expressive power of valences in cooperating distributed grammar systems. In J. Kelemen and A. Kelemenová (editors): *Computation, Cooperation, and Life*, vol. 6610 of *LNCS*, pp. 90–106. Springer, 2011.
- B15** H. Fernau. Approximative learning vs. inductive learning. In: N. M. Seel (editor): *Encyclopedia of the Sciences of Learning*, vol. 1, pp. 293–295. Springer, 2012.
- B16** H. Fernau. Cooperating Distributed Tree Automata. In: H. Bordihn, M. Kutrib and B. Truthe (editors): *Dassow Festschrift*, vol. 7300 of *LNCS*, pp. 75–85. Springer, 2012.
- B17** H. Fernau. *Kernelization, Turing Kernels*. In M.-Y. Kao (editor): *Encyclopedia of Algorithms*, pp. 1043–1045. Springer, 2016.
- B18** J. Björklund and H. Fernau. Learning Tree Languages. In: J. Heinz and J.-M. Sempere (editors): *Topics in Grammatical Inference*, pp. 173–213. Springer, 2016.
- B19** H. Fernau. Extremal Kernelization: A Commemorative Paper. Invited contribution to IWOCA 2017. In: L. Brankovic, J. Ryan and W. F. Smyth (editors): *Combinatorial Algorithms*, vol. 10765 of *LNCS*, pp. 24–36. Springer, 2018.
- B20** F. N. Abu-Khzam, H. Fernau and R. Uehara. Special Issue on Reconfiguration Problems. *Algorithms*, vol. 11. (2018), Art. No. 187.
- B21** H. Fernau. Modern Aspects of Complexity Within Formal Languages. Invited contribution to LATA 2019. In: C. Martín-Vide, A. Okhotin und D. Shapira (editors): *Language and Automata Theory and Applications - 13th International Conference, LATA*, vol. 11417 of *LNCS*, pp. 3–30. Springer, 2019.

## Contributions to International Conferences / Workshops with refereed proceedings

- C1** H. Fernau. IIFS and codes. In J. Dassow and A. Kelemenová (editors): *Developments in Theoretical Computer Science*. (IMYCS Smolenice 1992), pp. 141–152. Basel: Gordon and Breach Science Publishers, 1994.

- C2** H. Fernau. Remarks on adult languages of propagating systems with restricted parallelism. In G. Rozenberg and A. Salomaa (editors): *Developments in Language Theory (DLT Turku 1993)*, pp. 90–101. Singapore: World Scientific, 1994.
- C3** H. Fernau and L. Staiger. Valuations and unambiguity of languages, with applications to fractal geometry. In S. Abiteboul and E. Shamir (editors): *Automata, Languages and Programming, 21st International Colloquium, ICALP '94*, vol. 820 of *LNCS*, pp. 11–22. Springer-Verlag, 1994.
- C4** H. Fernau and M. Holzer. Bidirectional cooperating distributed grammar systems. Technischer Bericht WSI-96-1, Universität Tübingen (1996). Presented at the *Conference on Automata and Formal Languages, AFL'96* in Salgótarján, Hungary. Also see **J22**.
- C5** H. Fernau. On unconditional transfer. In W. Penczek and A. Szalas (editors): *Mathematical Foundations of Computer Science MFCS'96*, vol. 1113 of *LNCS*, pp. 348–359. Springer-Verlag, 1996.
- C6** H. Fernau and R. Freund. Bounded parallelism in array grammars used for character recognition. In P. Perner, P. Wang and A. Rosenfeld (editors): *Advances in Structural and Syntactical Pattern Recognition (Proceedings of the SSPR'96)*, vol. 1121 of *LNCS*, pp. 40–49. Springer-Verlag, 1996.
- C7** H. Bordihn and H. Fernau. Accepting grammars and systems: an overview. In J. Dassow, G. Rozenberg and A. Salomaa (editors): *Developments in Language Theory II (DLT Magdeburg 1995)*, pp. 199–208. Singapore: World Scientific, 1996.
- C8** H. Fernau, K.-J. Lange and K. Reinhardt. Advocating ownership. In V. Chandru (editor): *Proceedings of the 16th Conference on Foundations of Software Technology and Theoretical Computer Science FSTTCS'96*, vol. 1180 of *LNCS*, pp. 286–297. Springer-Verlag, 1996.
- C9** H. Fernau, R. Freund and M. Holzer. Bounding resources in cooperating distributed grammar systems. In S. Bozapalidis (editor): *Developments in Language Theory III (DLT Thessaloniki 1997)*, pp. 261–272.
- C10** H. Fernau and F. Stephan. How Powerful is Unconditional Transfer? —When UT meets AC.— In S. Bozapalidis (editor): *Developments in Language Theory III (DLT Thessaloniki 1997)*, pp. 249–260.
- C11** H. Fernau and R. Stiebe. Regulation by valences. In B. Rován (editor): *Mathematical Foundations of Computer Science MFCS'97*, vol. 1295 of *LNCS*, pp. 239–248. Springer-Verlag, 1997.
- C12** H. Fernau, R. Freund and M. Holzer. Generative power of  $d$ -dimensional  $\#$ -context-free array grammars. In M. Margenstern (editor): *Universal Machines and Computation MCU '98*, vol. 2, pp. 43–56, 1998.
- C13** H. Fernau, R. Freund and M. Holzer. Character recognition with  $k$ -head finite array automata. In A. Amin *et al.* (editors): *Proceedings of SSPR'98*, vol. 1451 of *LNCS*, pp. 282–291. Springer-Verlag, 1998.
- C14** H. Fernau and L. Staiger. IFS and control languages. In L. Brim, J. Gruska and J. Zlatuška (editors): *Mathematical Foundations of Computer Science MFCS'98*, vol. 1450 of *LNCS*, pp. 740–750. Springer-Verlag, 1998.
- C15** H. Fernau. Regulated grammars with leftmost derivation. In B. Rován (editor): *Software Seminar SOFSEM'98*, vol. 1521 of *LNCS*, pp. 322–331. Springer-Verlag, 1998.
- C16** H. Bordihn, H. Fernau and M. Holzer. Accepting pure grammars and systems. Technischer Bericht 1, Fakultät für Informatik, Universität Magdeburg (1999). Presented at *Conference on Automata and Formal Languages, AFL'99* in Szombathely, Hungary.

- C17** H. Fernau. Efficient learning of some linear matrix languages. In T. Asano *et al.* (editors): *COCOON'99*, vol. 1627 of *LNCS*, pp. 221–230. Springer-Verlag, 1999.
- C18** H. Fernau and R. Niedermeier. An efficient exact algorithm for constraint bipartite vertex cover. In M. Kutylowski, L. Pacholski and T. Wierzbicki (editors): *Mathematical Foundations of Computer Science MFCS'99*, vol. 1672 of *LNCS*, pp. 387–397. Springer-Verlag, 1999.
- C19** H. Fernau, K. Reinhardt and L. Staiger. Decidability of Code Properties. In G. Rozenberg, W. Thomas (editors): *Developments in Language Theory IV (DLT Aachen 1999)*, pp. 153–163. World Scientific, 2000.
- C20** H. Fernau. Learning of terminal distinguishable languages. Presented at “Sixth International Symposium on Artificial Intelligence and Mathematics”, Fort Lauderdale, Florida, January, 5.-7., 2000. Available as Technical Report WSI-99-23, Universität Tübingen (1999).
- C21** J. Alber, H.L. Bodlaender, H. Fernau and R. Niedermeier. Fixed parameter algorithms for planar dominating set and related problems. In M. M. Halldórsson (editor): *Scandinavian Workshop on Algorithms SWAT 2000*, vol. 1851 of *LNCS*, pp. 97–110. Springer-Verlag, 2000.
- C22** H. Fernau.  $k$ -gram extensions of terminal distinguishable languages. In: *Proceedings International Conference on Pattern Recognition ICPR 2000*, Vol. 2, pp. 125–128. IEEE Press, 2000.
- C23** H. Fernau. PC grammar systems with terminal transmission. In R. Freund and A. Kelemenová (editors): *Proceedings of the International Workshop Grammar Systems 2000*, pp. 229–252.
- C24** H. Fernau, R. Freund and M. Holzer. Cooperating distributed grammar systems with exhausting resources. In R. Freund and A. Kelemenová (editors): *Proceedings of the International Workshop Grammar Systems 2000*, pp. 113–125.
- C25** H. Fernau and J. M. Sempere. Permutations and control sets for learning non-regular language families. In A.L. Oliveira (editor): *Proceedings of the International Colloquium on Grammatical Inference ICGI 2000*, vol. 1891 of *LNCS/LNAI*, pp. 75–88. Springer-Verlag, 2000.
- C26** H. Fernau. Identification of function distinguishable languages. In H. Arimura, S. Jain and A. Sharma (editors): *Proceedings of the 11th International Conference Algorithmic Learning Theory ALT 2000*, vol. 1968 of *LNCS/LNAI*, pp. 116–130. Berlin: Springer-Verlag, 2000.
- C27** H. Fernau. Nonterminal complexity of programmed grammars. In M. Margenstern and Y. Rogozhin (editors): *Machines, Computations, and Universality, 3rd MCU 2001*, vol. 2055 of *LNCS*, pp. 202–213. Springer-Verlag, 2001.
- C28** H. Fernau. Even linear simple matrix languages: formal language aspects. In C.S. Calude, M.J. Dinneen and S. Surlan (editors): *Discrete Mathematics and Theoretical Computer Science DMTCS 2001*, pp. 81–96. Springer-Verlag, 2001.
- C29** J. Alber, H. Fernau and R. Niedermeier. Parameterized complexity: exponential speedup for planar graph problems. In F. Orejas, P. Spirakis and J. van Leeuwen (editors): *Proceedings ICALP 2001*, vol. 2076 of *LNCS*, pp. 261–272. Springer-Verlag, 2001.
- C30** H. Fernau and R. Stiebe. Valuated and valence grammars: an algebraic view. In W. Kuich und G. Rozenberg (editors): *Proceedings Developments in Language Theory V (DLT Wien 2001)*, vol. 2295 of *LNCS*, pp. 281–292. Springer-Verlag, 2002.

- C31** H. Fernau. Learning XML grammars. In P. Perner (editor): *Proceedings International Workshop on Machine Learning and Data Mining in Pattern Recognition (MLDM 2001)*, vol. 2123 of *LNCS/LNAI*, pp. 73–87. Springer-Verlag, 2001.
- C32** J. Alber, H. Fernau and R. Niedermeier. Graph separators: a parameterized view. In J. Wang (editor): *Computing and Combinatorics, Proceedings COCOON 2001*, vol. 2108 of *LNCS*, pp. 318–327. Springer-Verlag, 2001.
- C33** J. Alber, H. Fan, M. R. Fellows, H. Fernau, R. Niedermeier, F. Rosamond, and U. Stege. Refined search tree techniques for the PLANAR DOMINATING SET problem. In J. Sgall, A. Pultr and P. Kolman (editors): *Mathematical Foundations of Computer Science (MFCS 2001)*, vol. 2136 of *LNCS*, pp. 111–122. Springer-Verlag, 2001.
- C34** F. Hüffner, S. Edelkamp, H. Fernau and R. Niedermeier. Finding optimal solutions to Atomix. In F. Baader, G. Brewka and T. Eiter (editors): *KI 2001: Advances in Artificial Intelligence*, vol. 2174 of *LNCS/LNAI*, pp. 229–243. Springer-Verlag, 2001.
- C35** H. Fernau. Approximative Learning of Regular Languages. In L. Pacholski and P. Ružička (editors): *SOFSEM 2001: Theory and Practice of Informatics*, vol. 2234 of *LNCS*, pp. 223–232. Springer-Verlag, 2001.
- C36** H. Fernau. Learning tree languages from text. In J. Kivinen and R. H. Sloan (editors): *Computational Learning Theory COLT 2002*, vol. 2375 of *LNCS/LNAI*, pp. 153–168. Springer-Verlag, 2002.
- C37** H. Fernau and A. Radl. Algorithms for learning function distinguishable regular languages. In T. Caelli, A. Amin, R. P. W. Duin, M. Kamel and D. de Ridder (editors): *Structural, Syntactic, and Statistical Pattern Recognition SSPR and SPR 2002*, vol. 2396 of *LNCS*, pp. 64–72. Springer-Verlag, 2002.
- C38** H. Fernau. On parameterized enumeration. In O. H. Ibarra and L. Zhang (editors): *Computing and Combinatorics, Proceedings COCOON 2002*, vol. 2383 of *LNCS*, pp. 564–573. Springer-Verlag, 2002.
- C39** H. Fernau. Fragmentation: enhancing identifiability. In P. Adriaans, H. Fernau and M. van Zaanen (editors): *Grammatical Inference: Algorithms and Applications; 6th International Colloquium: ICGI 2002*, vol. 2484 of *LNCS/LNAI*, pp. 92–105. Springer-Verlag, 2002.
- C40** H. Fernau. Graph separator algorithms: a refined analysis. In L. Kučera (editor): *Graph-Theoretic Concepts in Computer Science WG 2002*. vol. 2573 of *LNCS*, pp. 186–197. Springer-Verlag, 2002.
- C41** H. Fernau, T. Hagerup, N. Nishimura, P. Ragde, and K. Reinhardt. On the parameterized complexity of a generalized Rush Hour puzzle. In: *Canadian Conference on Computational Geometry CCCG'03*, pp. 6–9. The results were also presented at the Dagstuhl workshop on Parameterized Complexity in 2003.
- C42** V. Dujmović, H. Fernau and M. Kaufmann. Fixed parameter algorithms for one-sided crossing minimization revisited. In G. Liotta (editor): *Graph Drawing GD 2003*. vol. 2912 of *LNCS*, pp. 332–344. Springer-Verlag, 2004.
- C43** H. Fernau and D. Juedes. A geometric approach to parameterized algorithms for domination problems on planar graphs. In J. Fiala et al. (editors): *Mathematical Foundations of Computer Science MFCS 2004*, vol. 3153 of *LNCS*, pp. 488–499. Springer-Verlag, 2004.
- C44** H. Fernau. Extracting minimum length Document Type Definitions is NP-hard (Abstract) In G. Paliouras and Y. Sakakibara (editors): *International Colloquium on Grammatical Inference ICGI 2004*, vol. 3264 of *LNCS/LNAI*, pp. 277–278. Springer-Verlag, 2004.

- C45** B. Starkie and H. Fernau. The Boisdale Algorithm - an induction method for a subclass of unification grammar from positive data. In G. Paliouras and Y. Sakakibara (editors): *International Colloquium on Grammatical Inference ICGI 2004*, vol. 3264 of *LNCS/LNAI*, pp. 235–247. Springer-Verlag, 2004.
- C46** H. Fernau. Two-layer planarization: improving on parameterized algorithmics. In P. Vojtáš et. al. (editors): *SOFSEM 2005: Theory and Practice of Computer Science*, vol. 3381 of *LNCS*, pp. 137–146. Springer, 2005.
- C47** J. Chen, H. Fernau, I.A. Kanj and G. Xia. Parametric duality and kernelization: lower bounds and upper bounds on kernel size. In V. Diekert and B. Durand (editors): *Symposium on Theoretical Aspects of Computer Science STACS 2005*, vol. 3404 of *LNCS*, pp. 269–280. Berlin: Springer, 2005.
- C48** F. N. Abu-Khzam, H. Fernau and M. A. Langston. Asymptotically faster algorithms for the parameterized FACE COVER problem. In H. Broersma, M. Johnson and S. Szeider (editors): *Algorithms and Complexity in Durham ACiD 2005*, vol. 4 of *Texts in Algorithmics*, pp. 43–58. King’s College Publications, 2005.
- C49** H. Bordihn and H. Fernau. The degree of parallelism. In C. Mereghetti, B. Palano, G. Pighizzini and D. Wotschke (editors): *Descriptive Complexity of Formal Systems 7th Workshop DCFS 2005*, Università di Milano, Dipartimento di Informatica e Comunicazione, Rapporto Tecnico 06-05, pp. 51–62, 2005.
- C50** H. Fernau, R. Freund, M. Oswald and K. Reinhardt. Refining the nonterminal complexity of graph-controlled grammars. In C. Mereghetti, B. Palano, G. Pighizzini and D. Wotschke (editors): *Descriptive Complexity of Formal Systems 7th Workshop DCFS 2005*, Università di Milano, Dipartimento di Informatica e Comunicazione, Rapporto Tecnico 06-05, pp. 110–121, 2005.
- C51** L. Branković and H. Fernau. Approximability of a  $\{0, 1\}$ -matrix problem. In J. Ryan, P. Manyem, M. Miller and K. A. Sugeng (editors): *16th Australasian Workshop on Combinatorial Algorithms AWOCA 2005*, pp. 39–45. University of Ballarat, Australia, 2005.
- C52** H. Fernau. Algorithms for learning regular expressions. In S. Jain, H.-U. Simon and E. Tomita (editors): *Algorithmic Learning Theory ALT 2005*, vol. 3734 of *LNCS/LNAI*, pp. 297–311. Springer, 2005.
- C53** H. Fernau, M. Kaufmann and M. Poths. Comparing trees via crossing minimization. In R. Ramanujam and Sandeep Sen (editors): *Foundations of Software Technology and Theoretical Computer Science FSTTCS 2005*, vol. 3821 of *LNCS*, pp. 457–469. Springer, 2005.
- C54** H. Fernau. ROMAN DOMINATION: a parameterized perspective. In J. Štuller, J. Wiedermann, G. Tel, J. Pokorný and M. Bielikova (editors): *Software Seminar SOFSEM 2006*, vol. 3831 of *LNCS*, pp. 262–271. Springer, 2006.
- C55** F. Dehne, M. Fellows, H. Fernau, E. Prieto, and F. Rosamond. NONBLOCKER: parameterized algorithmics for MINIMUM DOMINATING SET. In J. Štuller, J. Wiedermann, G. Tel, J. Pokorný and M. Bielikova (editors): *Software Seminar SOFSEM 2006*, vol. 3831 of *LNCS*, pp. 237–245. Springer, 2006.
- C56** H. Fernau. Parameterized Algorithms for HITTING SET: the Weighted Case. In T. Calamoneri, I. Finocchi, and G. F. Italiano (editors): *Conference on Algorithms and Complexity CIAC*, vol. 3998 of *LNCS*, pp. 332–343. Springer, 2006.
- C57** H. Fernau. Edge dominating set: efficient enumeration-based exact algorithms. In H. L. Bodlaender and M. Langston (editors): *International Workshop on Parameterized and Exact Computation IWPEC*, vol. 4169 of *LNCS*, pp. 142–153. Springer, 2006.



- C58** F. Abu-Khzam and H. Fernau. Kernels: annotated, proper and induced. In H. L. Bodlaender and M. Langston (editors): *International Workshop on Parameterized and Exact Computation IWPEC*, vol. 4169 of *LNCS*, pp. 264–275. Springer, 2006.
- C59** H. Fernau and D. F. Manlove. Vertex and edge covers with clustering properties: complexity and algorithms. In H. Broersma, S. S. Dantchev, M. Johnson, and S. Szeider (editors): *Algorithms and Complexity in Durham ACiD 2006*, pp. 69–84. King’s College Publications, 2006.
- C60** H. Fernau and D. Raible. Alliances in graphs: a complexity-theoretic study. In J. van Leeuwen, G. F. Italiano, W. van der Hoek, C. Meinel, H. Sack, F. Plášil and M. Bieliková (editors): *Software Seminar SOFSEM 2007, Proceedings Vol. II*, pp. 61–70. Institute of Computer Science ASCR, Prag, 2007.
- C61** J. Dassow and H. Fernau. Comparison of some descriptonal complexities of OL systems obtained by a unifying approach. *International Conference on Language and Automata Theory and Applications LATA 2007*. Technical Report 35, Research Group on Mathematical Linguistics, Universitat Rovira i Virgili, Tarragona, pp. 249–260.
- C62** S. Gulan and H. Fernau. Local Elimination-Strategies in Finite Automata for Shorter Regular Expressions. In V. Geffert, J. Karhumäki, A. Bertoni, B. Preneel, P. Návrat and M. Bieliková (editors): *Software Seminar SOFSEM 2008, Proceedings Vol. II*, pp. 46–57. P.J. Šafárik University, Košice, Slovakia, 2008.
- C63** D. Raible and H. Fernau. Exact Algorithms for Maximum Acyclic Subgraph on a Superclass of Cubic Graphs. In S. I. Nakano and M. S. Rahman (editors): *Workshop on Algorithms and Complexity WALCOM 2008*. vol. 4921 of *LNCS*, pp. 144–156. Berlin: Springer, 2008.
- C64** H. Fernau, J. A. Rodríguez-Velázquez and J. M. Sigarreta. Global  $r$ -alliances and total domination. In: *Proceedings of the 7th Cologne-Twente Workshop on Graphs and Combinatorial Optimization*, pp. 98–101. Università degli Studi di Milano, 2008.
- C65** M. R. Fellows and H. Fernau. Facility location problems: A parameterized view. In R. Fleischer and J. Xu (editors): *Algorithmic Aspects in Information and Management AAIM 2008*, vol. 5034 of *LNCS*, pp. 188–199. Springer, 2008.
- C66** G. Bai and H. Fernau. Constraint bipartite vertex cover: Simpler exact algorithms and implementations. In F. P. Preparata, X. Wu, and J. Yin (editors): *Frontiers in Algorithmics FAW*, vol. 5059 of *LNCS*, pp. 67–78. Springer, 2008.
- C67** H. Fernau and D. Raible. A parameterized perspective on packing paths of length two. In B. Yang, D.-Z. Du, and C. An Wang (editor): *Combinatorial Optimization and Applications COCOA*, vol. 5165 of *LNCS*, pp. 54–63. Springer, 2008.
- C68** D. Raible and H. Fernau. A new upper bound for MAX-2-SAT: A graph-theoretic approach. In E. Ochmanski and J. Tyszkiewicz (editors): *Mathematical Foundations of Computer Science MFCS*, vol. 5162 of *LNCS*, pp. 551–562. Springer, 2008.
- C69** S. Gulan and H. Fernau. An optimal construction of finite automata from regular expressions. In R. Hariharan, M. Mukund, and V. Vinay (editors): *IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2008)*, pages 211–222. Dagstuhl, Germany, 2008. Schloss Dagstuhl — Leibniz-Zentrum für Informatik, Germany.
- C70** D. Raible and H. Fernau. Power domination in  $O^*(1.7548^n)$  using reference search trees. In S.-H. Hong, H. Nagamochi, and T. Fukunaga (editors): *Algorithms and Computation, 19th International Symposium, ISAAC 2008*, vol. 5369 of *LNCS*, pp. 136–147. Springer, 2008.

- C71** H. Fernau, F. V. Fomin, D. Lokshtanov, D. Raible, S. Saurabh and Y. Villanger. Kernel(s) for problems with no kernel: on out-trees with many leaves. In S. Albers and J.-Y. Marion (editors): *Symposium on Theoretical Aspects of Computer Science STACS*, pp. 421–432. Schloss Dagstuhl — Leibniz-Zentrum für Informatik, Germany, 2009.
- C72** H. Fernau and D. Raible. Searching trees: an essay. In J. Chen and S. B. Cooper (editors): *Theory and Applications of Models of Computation TAMC*, vol. 5532 of *LNCS*, pp. 59–70. Springer, 2009.
- C73** H. Fernau, S. Gaspers, D. Kratsch, M. Liedloff, and D. Raible. Exact exponential-time algorithms for finding bicliques in a graph. In S. Cafieri, A. Mucherino, G. Nannicini, F. Tarissan, and L. Liberti (editors): *Cologne-Twente Workshop on Graphs and Combinatorial Optimization CTW*, pp. 205–209, 2009.
- C74** H. Fernau and D. Raible. Packing paths: Recycling saves time. In S. Cafieri, A. Mucherino, G. Nannicini, F. Tarissan, and L. Liberti (editors): *Cologne-Twente Workshop on Graphs and Combinatorial Optimization CTW*, pp. 79–83, 2009.
- C75** G. Erdélyi, H. Fernau, J. Goldsmith, N. Mattei, D. Raible, and J. Rothe. The Complexity of Probabilistic Lobbying. In F. Rossi und A. Tsoukiàs (editors): *International Conference on Algorithmic Decision Theory ADT*, vol. 5783 of *LNCS*, pp. 86–97. Springer, 2009.
- C76** H. Fernau, S. Gaspers and D. Raible. Exact and parameterized algorithms for Max Internal Spanning Tree. In C. Paul and M. Habib (editors): *Workshop on Graph-Theoretic Concepts in Computer Science WG*, vol. 5911 of *LNCS*, pp. 100–111. Springer, 2009.
- C77** H. Fernau, J. Kneis, D. Kratsch, A. Langer, M. Liedloff, D. Raible, and P. Rossmanith. An exact algorithm for the Maximum Leaf Spanning Tree problem. In J. Chen and F. V. Fomin (editors): *International Workshop on Parameterized and Exact Computations IWPEC*, vol. 5917 of *LNCS*, pp. 161–172. Springer, 2009.
- C78** D. Raible and H. Fernau. An Amortized Search Tree Analysis for  $k$ -Leaf Spanning Tree. In J. van Leeuwen, A. Muscholl, D. Peleg, J. Pokorný and B. Rumpe (editors): *SOFSEM 2010: Theory and Practice of Computer Science*, vol. 5901 of *LNCS*, pp. 672–684. Springer, 2010.
- C79** F. N. Abu-Khzam, H. Fernau, M. A. Langston, S. Lee-Cultura, and U. Stege. A fixed-parameter algorithm for string-to-string correction. In: *Proceedings of the 16th Computing: the Australasian Theory Symposium CATS*, vol. 109 of *Conferences in Research and Practices in Information Technology CRPIT*, pp. 31–37. Australian Computer Society ACS, 2010.
- C80** C. Costa Florêncio and H. Fernau. Finding consistent categorial grammars of bounded value: a parameterized approach. In A.-H. Dediu, H. Fernau, and C. Martín-Vide (editors): *Language and Automata Theory and Applications LATA*, vol. 6031 of *LNCS*, pp. 202–213. Springer, 2010.
- C81** D. Binkele-Raible and H. Fernau. A faster exact algorithm for the directed maximum leaf spanning tree problem. In F. Ablayev and E. W. Mayr (editors): *Computer Science in Russia CSR*, vol. 6072 of *LNCS*, pp. 328–339. Springer, 2010.
- C82** D. Binkele-Raible, L. Brankovic, H. Fernau, J. Kneis, D. Kratsch, A. Langer, M. Liedloff, and P. Rossmanith. A parameterized route to exact puzzles: Breaking the  $2^n$ -barrier for irredundance. In T. Calamoneri and J. Díaz (editors): *Algorithms and Complexity CIAC*, vol. 6078 of *LNCS*, pp. 311–322. Springer, 2010.

- C83** H. Fernau, F. V. Fomin, G. Philip, and S. Saurabh. The curse of connectivity:  $t$ -total vertex (edge) cover. In M. T. Thai and S. Sahni (editors): *Computing and Combinatorics Conference COCOON*, vol. 6196 of *LNCS*, pp. 34–43. Springer, 2010.
- C84** C. Costa Florêncio and H. Fernau. Hölder norms and a hierarchy theorem for parameterized classes of CCG. In P. García and J. M. Sempere (editors): *International Colloquium on Grammatical Inference ICGI*, vol. 6339 of *LNCS/LNAI*, pp. 280–283. Springer, 2010.
- C85** L. Brankovic and H. Fernau. Combining two worlds: Parameterised approximation for vertex cover. In O. Cheong, K.-Y. Chwa, and K. Park (editors): *Algorithms and Computation — 21st International Symposium, ISAAC 2010, Part I*, vol. 6506 of *LNCS*, pp. 390–402. Springer, 2010.
- C86** D. Binkele-Raible and H. Fernau. Enumerate and measure, improving parameter budget management. In V. Raman and S. Saurabh (editors): *Parameterized and Exact Computation IPEC*, vol. 6478 of *LNCS*, pp. 38–49. Springer, 2010.
- C87** H. Fernau, F. V. Fomin, D. Lokshtanov, M. Mnich, G. Philip, and S. Saurabh. Ranking and drawing in subexponential time. In C. S. Iliopoulos and W. F. Smyth (editors): *Combinatorial Algorithms — 21st International Workshop, IWOCA 2010*, vol. 6460 of *LNCS*, pp. 337–348. Springer, 2011.
- C88** S. Bermudo and H. Fernau. Computing the differential of a graph (abstract). In L. Adacher, M. Flamini, G. Leo, G. Nicosia, A. Pacifici, and V. Piccialli (editors): *Cologne-Twente Workshop on Graphs and Combinatorial Optimization, CTW 2011*, pp. 68–71, 2011.
- C89** L. Brankovic and H. Fernau. Parameterized approximation algorithms for HITTING SET. In R. Solis-Oba and G. Persiano (editors): *Approximation and Online Algorithms: 9th International Workshop, WAOA 2011*, vol. 7164 of *LNCS*, pp. 63–76. Springer, 2012.
- C90** J. Chen, H. Fernau, P. Shaw, J. Wang, and Z. Yang. Kernels for packing and covering problems (extended abstract). In J. Snoeyink, P. Lu, K. Su, and L. Wang (editors): *Sixth International Frontiers of Algorithmics Workshop FAW and Eighth International Conference on Algorithmic Aspects of Information and Management AAIM*, vol. 7285 of *LNCS*, pp. 199–211. Springer, 2012.
- C91** H. Fernau. Saving on Phases: Parameterized Approximation for TOTAL VERTEX COVER. In S. Arumugam and B. Smyth (editors): *International Workshop on Combinatorial Algorithms IWOCA*, vol. 7643 of *LNCS*, pp. 20–31. Springer, 2012.
- C92** J. Björklund, H. Fernau, and A. Kasprzik. MAT learning of universal automata. In A.-H. Dediu, C. Martín-Vide, and B. Truthe (editors): *Language and Automata Theory and Applications, LATA*, vol. 7810 of *LNCS*, pp. 141–152. Springer, 2013.
- C93** H. Fernau, P. Heggernes, and Y. Villanger. A multivariate analysis of some DFA problems. In A.-H. Dediu, C. Martín-Vide, and B. Truthe (editors): *Language and Automata Theory and Applications, LATA*, vol. 7810 of *LNCS*, pp. 275–286. Springer, 2013.
- C94** H. Fernau and M. L. Schmid. Pattern matching with variables: A multivariate complexity analysis (extended abstract). In J. Fischer and P. Sanders (editors): *Combinatorial Pattern Matching, CPM*, vol. 7922 of *LNCS*, pp. 83–94. Springer, 2013.
- C95** H. Fernau, R. Freund, S. Ivanov, M. L. Schmid, and K. G. Subramanian. Array insertion and deletion P systems. In G. Mauri, A. Dennunzio, L. Manzoni,

- and A. E. Porreca (editors): *Unconventional Computation and Natural Computation — 12th International Conference, UCNC*, vol. 7956 of *LNCS*, pp. 67–78. Springer, 2013.
- C96** H. Fernau, M. L. Schmid, and K. G. Subramanian. Two-dimensional pattern languages. In S. Bensch, F. Drewes, R. Freund, and F. Otto (editors): *Fifth Workshop on Non-Classical Models for Automata and Applications, NCMA*, vol. 294 of *books@ocg.at*, pp. 117–132. Österreichische Computer Gesellschaft, 2013.
- C97** H. Fernau and M. Paramasivan. Formal language questions for Eulerian trails. In T. Neary and M. Cook (editors): *Machines, Computations and Universality, MCU*, vol. 128 of *Electronic Proceedings in Theoretical Computer Science EPTCS*, pp. 25–26. Open Publishing Association, 2013.
- C98** H. Fernau, M. L. Schmid, and Y. Villanger. On the parameterised complexity of string morphism problems. In A. Seth and N. K. Vishnoi (editors): *IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2013)*, vol. 24 of *LIPICs*, pp. 55–66. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, 2013.
- C99** H. Fernau and J. A. Rodríguez-Velázquez. Notions of metric dimension of corona products: combinatorial and computational results. In E. Hirsch et al. (editors): *Computer Science in Russia, CSR*, vol. 8476 of *LNCS*, pp. 153–166. Springer, 2014.
- C100** H. Fernau, R. Freund, and M. Holzer. Cooperating distributed grammar systems of finite index working in hybrid modes. In Z. Ésik and Z. Fülöp (editors): *Proceedings 14th International Conference on Automata and Formal Languages, AFL*, vol. 151 of *EPTCS*, pp. 246–260. Open Publishing Association, 2014.
- C101** M. Gobbert and H. Fernau. Latrunculi - on the complexity of Roman chess. In S. Bensch, R. Freund, and F. Otto (editors): *Sixth Workshop on Non-Classical Models for Automata and Applications, NCMA*, vol. 304 of *books@ocg.at*, pp. 115–130. Österreichische Computer Gesellschaft, 2014.
- C102** F. Abu-Khzam, C. Bazgan, M. Chopin, and H. Fernau. Approximation Algorithms Inspired by Kernelization Methods. In H.-K. Ahn and C.-S. Shin (editors): *Algorithms and Computation — 25th International Symposium, ISAAC 2014*, vol. 8889 of *LNCS*, pp. 479–490. Springer, 2014.
- C103** H. Fernau, F. Manea, R. Mercas, and M. L. Schmid. Pattern Matching with Variables: Fast Algorithms and New Hardness Results. In E. W. Mayr and N. Ollinger (editors): *32nd International Symposium on Theoretical Aspects of Computer Science, STACS*, vol. 30 of *LIPICs*, pp. 302–315. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, 2015.
- C104** H. Fernau, A. López-Ortiz, J. Romero. Kernelization Algorithms for Packing Problems Allowing Overlaps. In R. Jain, S. Jain and F. Stephan (editors): *Theory and Applications of Models of Computation - 12th Annual Conference, TAMC*, vol. 9076 of *LNCS*, pp. 415–427. Springer, 2015.
- C105** H. Fernau, M. Paramasivan and M. L. Schmid. Jumping Finite Automata: Characterizations and Complexity. In F. Drewes (editor): *Implementation and Application of Automata - 20th International Conference, CIAA*, vol. 9223 of *LNCS*, pp. 89–101. Springer, 2015.
- C106** H. Fernau, R. Freund, R. Siromoney and K. G. Subramanian. Non-isometric Contextual Array Grammars with Regular Control and Local Selectors. In J. Durand-Lose and B. Nagy (editors): *Machines, Computations, and Universality MCU*, vol. 9288 of *LNCS*, pp. 61–78. Springer, 2015.

- C107** H. Fernau, M. Paramasivan, M. L. Schmid, and D. G. Thomas. Scanning Pictures The Boustrophedon Way. In R. P. Barneva, B. B. Bhattacharya and V. E. Brimkov (editors): *International Workshop on Combinatorial Image Analysis, IWCIA*, vol. 9448 of *LNCS*, pp. 202–216. Springer, 2015.
- C108** C. Bazgan, L. Brankovic, K. Casel, and H. Fernau. On the Complexity Landscape of the Domination Chain. In S. Govindarajan and A. Maheshwari (editors): *Algorithms and Discrete Applied Mathematics - CALDAM*, vol. 9602 of *LNCS*, pp. 61–72. Springer, 2016.
- C109** H. Fernau, R. Freund, R. Siromoney and K. G. Subramanian. Contextual Array Grammars with Matrix and Regular Control. In C. Câmpeanu, F. Manea and J. O. Shallit (editors): *Descriptive Complexity of Formal Systems, 18th International Conference, DCFSS*, vol. 9777 of *LNCS*, pp. 98–110. Springer, 2016.
- C110** H. Fernau, L. Kuppusamy and I. Raman. Descriptive Complexity of Graph-Controlled Insertion-Deletion Systems. In C. Câmpeanu, F. Manea and J. O. Shallit (editors): *Descriptive Complexity of Formal Systems, 18th International Conference, DCFSS*, vol. 9777 of *LNCS*, pp. 111–125. Springer, 2016.
- C111** K. Casel, H. Fernau, S. Gaspers, B. Gras and M. L. Schmid. On the Complexity of Grammar-Based Compression over Fixed Alphabets. In I. Chatzigiannakis, M. Mitzenmacher, Y. Rabani and D. Sangiorgi (editors): *International Colloquium on Automata, Languages and Programming, ICALP*, vol. 55 of *LIPICs*. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, pp. 122:1–122:14, 2016.
- C112** C. Bazgan, L. Brankovic, K. Casel, H. Fernau, K. Jansen, K.-M. Klein, M. Lampis, M. Liedloff, J. Monnot and V. Th. Paschos. Algorithmic Aspects of Upper Domination: A Parameterised Perspective. In R. Dondi, G. Fertin and G. Mauri (editors): *Algorithmic Aspects in Information and Management - 11th International Conference, AAIM*, vol. 9778 of *LNCS*, pp. 113–124. Springer, 2016.
- C113** H. Fernau and A. Krebs. Problems on Finite Automata and the Exponential Time Hypothesis. In Y.-S. Han and K. Salomaa (editors): *21st International Conference on Implementation and Application of Automata, CIAA*, vol. 9705 of *LNCS*, pp. 89–100. Springer, 2016.
- C114** H. Fernau, L. Kuppusamy and I. Raman. Generative Power of Matrix Insertion-deletion Systems with Context-free Insertion or Deletion. In M. Amos and A. Condon (editors): *Unconventional Computation and Natural Computation — 15th International Conference, UCNC*, vol. 9726 of *LNCS*, pp. 35–48. Springer, 2016.
- C115** C. Bazgan, L. Brankovic, K. Casel, H. Fernau, K. Jansen, K.-M. Klein, M. Lampis, M. Liedloff, J. Monnot and V. Th. Paschos. Upper Domination: Complexity and Approximation. In V. Mäkinen, S. J. Puglisi and L. Salmela (editors): *Combinatorial Algorithms — 27th International Workshop, IWOCA 2016*, vol. 9843 of *LNCS*, pp. 241–252. Springer, 2016.
- C116** H. Fernau, M. Paramasivan and D. G. Thomas. Regular Array Grammars and Boustrophedon Finite Automata. H. Bordihn, R. Freund, B. Nagy and Gy. Vaszil (editors): *Eighth Workshop on Non-Classical Models of Automata and Applications (NCMA 2016); Short Papers*, pp. 55–63.
- C117** F. Abu-Khzam, C. Bazgan, K. Casel and H. Fernau. Building Clusters with Lower-bounded Sizes. In P. Eades and S.-H. Hong (editors): *International Symposium on Algorithms and Computation, ISAAC*, vol. 64 of *LIPICs*. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, pp. 4:1–4:13, 2016.
- C118** H. Fernau, M. Paramasivan and D. G. Thomas. Picture Scanning Automata. In R. P. Barneva, V. E. Brimkov and J. M. R. S. Tavares (editors): *International Symposium Computational Modeling of Objects Presented in Images, CompImage*, vol. 10149 of *LNCS*, pp. 132–147. Springer, 2017.

- C119** S. J. Immanuel, D. G. Thomas, H. Fernau, A. Nagar and R. Thamburaj. Two-Dimensional Input-Revolving Automata. In R. P. Barneva, V. E. Brimkov and J. M. R. S. Tavares (editors): *International Symposium Computational Modeling of Objects Presented in Images, CompImage*, vol. 10149 of *LNCS*, pp. 148–164. Springer, 2017.
- C120** H. Fernau and L. Kuppusamy. Parikh Images of Matrix Ins-del Systems. In T. V. Gopal, G. Jäger and S. Steila (editors): *13th and 14th Annual Conference on Theory and Applications of Models of Computation, TAMC*, vol. 10185 of *LNCS*, pp. 201–215. Springer, 2017.
- C121** H. Fernau, L. Kuppusamy and S. Verlan. Universal Matrix Insertion Grammars with Small Size. In M.J. Patitz and M. Stannett (editors): *Unconventional Computation and Natural Computation — 16th International Conference, UCNC*, vol. 10240 of *LNCS*, pp. 182–193. Springer, 2017.
- C122** H. Fernau, L. Kuppusamy and I. Raman. Computational Completeness of Path-Structured Graph-Controlled Insertion-Deletion Systems. In A. Carayol and C. Nicaud (editors): *22nd International Conference on Implementation and Application of Automata, CIAA*, vol. 10329 of *LNCS*, pp. 182–193. Springer, 2017.
- C123** H. Fernau, L. Kuppusamy and I. Raman. Graph-Controlled Insertion-Deletion Systems Generating Language Classes Beyond Linearity. In G. Pighizzini and C. Câmpeanu (editors): *Descriptive Complexity of Formal Systems, 18th International Conference, DCFS*, vol. 10316 of *LNCS*, pp. 128–139. Springer, 2017.
- C124** H. Fernau, M. Kutrib and M. Wendlandt. Self-verifying pushdown automata. In R. Freund, F. Mráz, and D. Průša (editors): *Ninth Workshop on Non-Classical Models of Automata and Applications, NCMA*, vol. 329 of books@ocg.at, pp. 103–117. Österreichische Computer Gesellschaft, 2017.
- C125** H. Fernau, M. Paramasivan and D. G. Thomas. Regular grammars for array languages. In R. Freund, F. Mráz, and D. Průša (editors): *Ninth Workshop on Non-Classical Models of Automata and Applications, NCMA*, vol. 329 of books@ocg.at, pp. 119–134. Österreichische Computer Gesellschaft, 2017.
- C126** K. Casel, H. Fernau, A. Grigoriev, M. L. Schmid, and S. Whitesides. Combinatorial properties and recognition of unit square visibility graphs. In K. G. Larsen, H. L. Bodlaender, and J.-F. Raskin (editors): *42nd International Symposium on Mathematical Foundations of Computer Science (MFCS 2017)*, vol. 83 of *LIPICs*, pp. 30:1–30:15. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, 2017.
- C127** H. Fernau, L. Kuppusamy, and I. Raman. Computational completeness of simple semi-conditional insertion-deletion systems. In S. Stepney and S. Verlan (editors): *Unconventional Computation and Natural Computation, UCNC*, vol. 10867 of *LNCS*, pp. 86–100. Springer, 2018.
- C128** H. Fernau, L. Kuppusamy, R. O. Oladele, and I. Raman. Minimizing rules and nonterminals in semi-conditional grammars: Non-trivial for the simple case. In J. Durand-Lose and S. Verlan (editors): *Machines, Computations, and Universality, MCU*, vol. 10881 of *LNCS*, pp. 88–104. Springer, 2018.
- C129** H. Fernau, T. Fluschnik, D. Hermelin, A. Krebs, H. Molter, and R. Niedermeier. Diminishable parameterized problems and strict polynomial kernelization. In F. Manea, R. G. Miller, and D. Nowotka (editors): *Sailing Routes in the World of Computation, 14th Conference on Computability in Europe, CiE*, vol. 10936 of *LNCS*, pp. 161–171. Springer, 2018.
- C130** H. Fernau, L. Kuppusamy, and R. O. Oladele. New nonterminal complexity results for semi-conditional grammars. In F. Manea, R. G. Miller, and D. Nowotka (editors): *Sailing Routes in the World of Computation, 14th Conference on Computability in Europe, CiE*, vol. 10936 of *LNCS*, pp. 172–182. Springer, 2018.

- C131** H. Fernau, L. Kuppusamy, and I. Raman. On Matrix Ins-Del Systems of Small Sum-Norm. In B. Catania, R. Královíč, J. Nawrocki, and G. Pighizzini (editors): *SOFSEM: Theory and Practice of Computer Science*, volume 11376 of *LNCS*, pp. 192–205. Springer, 2019.
- C132** H. Fernau, L. Kuppusamy, R. O. Oladele and I. Raman. Improved Descriptive Complexity Results on Generalized Forbidding Grammars. In S. P. Pal and A. Vijayakumar (editors): *5th Annual International Conference on Algorithms and Discrete Applied Mathematics, CALDAM*, vol. 11394 of *LNCS*, pp. 174–188. Springer, 2019.
- C133** K. Casel, H. Fernau, M. Khosravian Ghadikolaei, J. Monnot, and F. Sikora. Extension of vertex cover and independent set in some classes of graphs In P. Heggernes (editor): *11th International Conference on Algorithms and Complexity, CIAC*, vol. 11485 of *LNCS*, pp. 124–136. Springer, 2019.
- C134** J. Bruchertseifer and H. Fernau. Synchronizing series-parallel automata with loops. In R. Freund, M. Holzer, and J. M. Sempere (editors): Eleventh Workshop on Non-Classical Models of Automata and Applications, NCMA, pp. 63–78. Österreichische Computer Gesellschaft, 2019.
- C135** H. Fernau, L. Kuppusamy and I. Raman. Descriptive Complexity of Matrix Simple Semi-Conditional Grammars. In M. Hospodár, G. Jirásková and S. Konstantinidis (editors): *Descriptive Complexity of Formal Systems, 18th International Conference, DCFS*, vol. 11612 of *LNCS*, pp. 111–123. Springer, 2019.
- C136** H. Fernau and M. Vu. Regulated Tree Automata. In M. Hospodár, G. Jirásková and S. Konstantinidis (editors): *Descriptive Complexity of Formal Systems, 18th International Conference, DCFS*, vol. 11612 of *LNCS*, pp. 124–136. Springer, 2019.
- C137** H. Fernau and U. Stege. Profit parameterizations of dominating set. In D.-Z. Du, L. Li, X. Sun, and J. Zhang (editors): *Algorithmic Aspects in Information and Management - 13th International Conference, AAIM*, vol. 11640 of *LNCS*, pp. 108–120. Springer, 2019.
- C138** K. Casel, H. Fernau, M. Khosravian Ghadikolaei, J. Monnot, and F. Sikora. Extension of some edge graph problems: Standard and parameterized complexity. In L. A. Gasieniec, J. Jansson, and C. Levkopoulos (editors): *Fundamentals of Computation Theory - 22nd International Symposium, FCT*, vol. 11651 of *LNCS*, pp. 185–200. Springer, 2019.
- C139** H. Fernau, V. V. Gusev, S. Hoffmann, M. Holzer, M. V. Volkov, and P. Wolf. Computational complexity of synchronization under regular constraints. In P. Rossmanith, P. Heggernes, and J.-P. Katoen (editors): *44th International Symposium on Mathematical Foundations of Computer Science, MFCS*, vol. 138 of *LIPICs*, pp. 63:1–63:14. Schloss Dagstuhl–Leibniz-Zentrum für Informatik, 2019.

Moreover, I had over hundred talks and papers at national and international workshops and colloquia. I am happy to provide details on request.

## Theses

- H. Fernau and D. Krafzig. *Spezielle Graphenabbildungen*. (Special Graph Mappings, in German) Studienarbeit, TU Braunschweig, 1988.
- H. Fernau. *Verallgemeinerungen  $k$ -limitierter Lindenmayer-Systeme*. (Generalization of  $k$ -limited Lindenmayer Systems, in German) Diplomarbeit (Master Thesis), TU Braunschweig, Braunschweig, July 1989.

- H. Fernau. *Variante Iterierter Funktionensysteme und Methoden der Formalen Sprachen*. (Variants of Iterated Function Systems and Formal Language Methods, in German) Dissertation (PhD Thesis), Universität Karlsruhe (TH), February 1993.
- H. Fernau. *Parameterized Algorithmics: A Graph-Theoretic Approach*. Habilitationsschrift, Universität Tübingen, November 2005.

Moreover, I am author or coauthor of more than one hundred Technical Reports.



# Teaching Experience

I have given over 50 different types of lectures, seminars etc., so I refrain from giving a complete list in what follows. I have taught at the Technological University of Karlsruhe, at the University of Tübingen, at the University of Applied Sciences at Worms, at the Technological University of Vienna, at the University of Newcastle, and at the University of Tarragona (Spain; PhD school project sponsored by the European Union), finally being appointed full professor at the University of Trier (Germany).

In Newcastle, I took over the supervision of one PhD student (B. Starkie) which is formally impossible with the positions I held in Germany. Due to the fact of being later conjoint Lecturer at Newcastle, I continued supervising Brad. In December 2004, he submitted his thesis, which got accepted in 2005. At the University of Trier, I led the following (PhD / postdoc) projects.

- Daniel (Binkele-)Raible defended his PhD thesis entitled *Amortized Analysis of Exponential Time- und Parameterized Algorithms: Measure & Conquer and Reference Search Trees* in May, 2010.
- Stefan Gulan defended his PhD thesis entitled *On the Relative Descriptive Complexity of Regular Expressions and Finite Automata* in September, 2011.
- Anna Kasprzik defended her PhD thesis entitled *Formal Tree Languages and Their Algorithmic Learnability* in February, 2012. Her work was mainly funded by Studienstiftung des Deutschen Volkes.
- Daniel Meister has successfully finished his habilitation project in December, 2013.
- Meenakshi Paramasivan defended her PhD thesis entitled *Operations on Graphs, Arrays and Automata* in September, 2017. Her work was mainly funded by Deutscher Akademischer Austauschdienst DAAD.
- Katrin Casel defended her PhD thesis entitled *Lower-Bounded Clustering - Models, Complexity and (Parameterised) Approximation* in March, 2018. Her work was mainly funded by Deutsche Forschungsgemeinschaft DFG.
- Markus L. Schmid finished working on his postdoc project in July 2019 and then moved to Berlin, with his own DFG grant money.
- Stefan Hoffmann started to work on his PhD project.
- Benjamin Gras started to work on his PhD project in a format called *co-tutelle*, together with the university of Orléans.
- Petra Wolf started to work on her PhD project. Her work is mainly funded by Deutsche Forschungsgemeinschaft DFG.

I was (or am) also involved as an examiner or opponent within over twenty PhD (and habilitation) projects in Austria, Australia, Canada, Finland, France, Germany, India, South Africa, Spain and Sweden.