

Publications

1. *Markovian statistics on evolving systems* (with G. Gierz), *Evolving systems* (2017), DOI: 10.1007/s12530-017-9186-8.
2. *Greedy oriented flows* (with W. Kern and B. Peis), *Algorithmica* (2017), DOI: 10.1007/s00453-017-0306-4.
3. *Weighted graphs as dynamical interaction systems*, *Electronic Notes in Discrete Mathematics*, 55C (2016), 185-189, DOI: 10.1016/J.endom.2016.10.046.
4. *Games on concept lattices: Shapley value and core* (with M. Grabisch, A. Jiménez Losada and M. Ordóñez), *Discrete Applied Mathematics* (2016), 29-47, DOI: 10.1016/j.dam.2015.08.004.
5. *Bases and linear transforms of TU-Games and cooperation systems* (with M. Grabisch), *Int. J. Game Theory* 45 (2016), 875-892.
6. *A concise axiomatization of a Shapley-type value for stochastic coalition processes* (with M. Grabisch), *Economic Theory Bulletin* (2013), 189-199.
7. *A note on values for Markovian coalition processes* (with M. Grabisch), *Economic Theory Bulletin* (2013), 111-122.
8. *Max-flow on regular spaces* (with W. Kern and B. Peis), arXiv:1206.5167v1[math.CO]
9. *A Markovian model of joint observations, Bell's inequality and hidden states* (with A. Schoenhuth), arXiv:1011.1295v2[cs.LG]
10. *Values for Markovian coalition processes* (with M. Grabisch), *Economic Theory* 51 (2012), 505-538.
11. *A ranking model for the greedy algorithm and discrete convexity* (with W. Kern and B. Peis), *Mathematical Programming* 132 (2012), 393-407.
12. *On greedy and submodular matrices* (with W. Kern and B. Peis), TAPAS 2011, A. Marchetti-Spaccamela and M. Segal (eds.) LNCS 6595, 116-126, Springer-Verlag Berlin Heidelberg 2011.
13. *Coalition formation in societies* (with M. Heyne, Th. Kleefisch and J. Voss), *Scientific Research Journal of South-West University* 2 (2009), 13-18.
14. *Efficient tests for equivalence of hidden Markov processes and quantum random walks* (with A. Schoenhuth), *IEEE Transactions on Information Theory* 57 (2011), 1746-1753.
15. *A discrete Choquet integral for ordered systems* (with M. Grabisch), *Fuzzy Sets and Systems* 168 (2011), 3-17, doi:10.1016/j.fss.2010.10.003
16. *A system-theoretic model for cooperation, interaction and allocation* (with J. Voss), *Discrete Applied Mathematics* 159 (2011), 1736-1750.

17. *Choquet integration on set systems* (with M. Grabisch and M. Heyne), in: *Computational Intelligence for Knowledge-Based Systems* (E. Hüllermeier *et al.* eds.), Lecture Notes in Computer Science 6178, Springer-Verlag, 2010, 512-520.
18. *Monge extensions of cooperation and communication structures* (with M. Grabisch and M. Heyne), *European J. Operational Research* 206 (2010), 104-110.
19. *A general model for matroids and the greedy algorithm* (with S. Fujishige), *Math. Programming A* 119 (2009), 353-369.
20. *Modelling and simulation of nitrogen regulation in Corynebacterium glutamicum* (with J. Gebert, N. Radde, J. Strösser and A. Burkovski), *Discrete Applied Mathematics* 157 (2009), 2232-2243, doi:10.1016/j.dam.2008.06.055 .
21. *Two-phase greedy algorithms for some classes of combinatorial linear programs* (with B. Peis), *Proceedings Symposium on Discrete Algorithms 2008*, San Francisco CA, 161-166.
22. *A hierarchical model for cooperative games* (with B. Peis), in: *Algorithmic Game Theory*, Proceedings SAGT 2008 Paderborn, Springer LNCS 4997/2008, 230-241.
23. *Sensory gating revisited: Relation between brain oscillations and auditory evoked potentials in schizophrenia* (with A. Brockhaus-Dumke, R. Müller and J. Klosterkötter), *Schizophrenia Research* 99 (2008), 238-249.
24. *EEG-Oszillationen: Ein wichtiger Schlüssel zum Verständnis von Störungen in der frühen Informationsverarbeitung* (with R. Müller, A. Brockhaus-Dumke, S. Popovych, T. Küpper and J. Klosterkötter), to appear: Sonderband der Nordrhein-Westfälischen Akademie der Wissenschaften – Neuro-Visionen 4.
25. *Note on pseudolattices, lattices and submodular linear programs* (with B. Peis), *Discrete Optimization* 5 (2008), 489-500
26. *Modeling feedback loops in the H-NS-mediated regulation of the Escherichia coli bgl operon* (with J. Gebert, N. Radde, R. Schrader and K. Schnetz), *J. Theor. Biology* 250 (2008), 298-306.
27. *Identifying genes of gene regulatory networks using formal concept analysis* (with J. Gebert, S. Motameny, N. Radde, C.V. Forst and R. Schrader), *J. of Computational Biology* 15 (2008), 185-194.
28. *Asymptotic mean stationarity of sources with finite evolution dimension* (with A. Schoenhuth), *IEEE Transactions on Information Theory* 53 (2007), 2342-2348.
29. *Note on maximal split-stable subgraphs* (with B. Fuchs and B. Peis), *Discrete Applied Mathematics* 155 (2007), 2031-2038.
30. *Quantum predictor models* (with A. Schoenhuth), *Electronic Notes in Discr. Math.* 25 (2006), 149-155.
31. *Computing an element in the lexicographic kernel of a game* (with W. Kern and J. Kuipers), *Mathematical Methods of Operations Research* 63 (2006).

32. *CASPAR: A hierarchical Bayesian approach to predict survival times in cancer from gene expression data* (with L. Kaderali, Th. Zander, J. Wolf, J.L. Schultze, R. Schrader), *Bioinformatics* 22 (2006), 1495-1502.
33. *A combinatorial algorithm for weighted stable sets in bipartite graphs* (with G. Frahling), *Discrete Applied Mathematics* 154 (2006), 1380-1391.
34. *Note on negative probabilities and observable processes* (with A. Schönhuth), *Dagstuhl Seminar Proceedings 05031* (<http://drops.dagstuhl.de/volltexte/2005/108>).
35. *Note on the game chromatic index of trees* (with P.L. Erdős, W. Hochstättler and W. Kern), *Theoretical Computer Science* 313 (2004), 371-376.
36. *Protein fold class prediction using neural networks reconsidered* (with J. Gebert, C. Igel, D. Schomburg, G.-W. Weber and T. Wiebringhaus), in: *Currents in Computational Molecular Biology*, 7th Annual Int. Conference on Research in Computational Molecular Biology (RECOMB 2003), 225-226.
37. *Mathematik und wissenschaftliche Erkenntnis*, *UNIVERSITAS* 57 (2002), Nr. 674, 820-828.
38. *A Lagrangian relaxation approach to the edge-weighted clique problem* (with M. Hunting and W. Kern) *European Journal of Operational Research* 131 (2001), 119-131.
39. *On the computation of the nucleolus of a cooperative game* (with W. Kern and J. Kuipers), *Int. J. Game Theory* 30 (2001), 79-98.
40. *On the core of ordered submodular cost games* (with W. Kern), *Mathematical Programming* 87 (2000), 483-499.
41. *Note on the computational complexity of least core concepts for min-cost spanning tree games* (with W. Kern and D. Paulusma), *Math. Methods of Operations Research* 52 (2000), 23-38.
42. *An order-theoretic framework for the greedy algorithm with applications to the core and Weber set of cooperative games* (with W. Kern), *Order* 17 (2000), 353-375.
43. *A greedy on-line algorithm for the k-track assignment problem* (with W. Kern and W.M. Nawijn) *Journal of Algorithms* 31 (1999), 196-210
44. *On approximately fair cost allocation in Euclidean TSP games*, (with S.P. Fekete, W. Hochstättler, and W. Kern), *OR Spektrum* 20 (1998), 29-37.
45. *The nucleon of cooperative games and an algorithm for matching games* (with S.P. Fekete, W. Hochstättler, and W. Kern), *Mathematical Programming* 83 (1998), 195-211.
46. *Approximate core allocation for binpacking games* (with W. Kern) *SIAM Journal on Discrete Mathematics* 11 (1998), 387-399.
47. *Computing the nucleolus of min-cost spanning trees is NP-hard* (with W. Kern and J. Kuipers) *International Journal of Game Theory* 27 (1998), 443-450.

48. *Simplices by point-sliding and the Yamnitsky-Levin algorithm*, (with M. Hunting, W. Kern, R. Prakash, and K.J. Supowit) *Mathematical Models of Operations Research* 46 (1997), 131-142.
49. *On the complexity of testing membership in the core of min-cost spanning tree games* (with S.P. Fekete, W. Hochstättler and W. Kern), *International Journal of Game Theory* 26 (1997), 361-366.
50. *Packing a bin online to maximize the total number of items* (with W. Kern), in: *Operations Research Proceedings 1996*, U. Zimmermann *et al.* eds., Springer-Verlag, Berlin, 1997, 61-65
51. *A characterization of non-negative greedy matrices* (with A.J. Hoffman and W. Kern), *SIAM J. on Discrete Mathematics* 9 (1996), 1-6
52. *On the communication complexity of t -intersection problems in generalized Boolean algebras* (with W. Kern and B. Spieker), *Mathematical Methods of Operations Research* 43 (1996), 239-254
53. *Note on the computational complexity of j -radii of polytopes in \mathbb{R}^n* (with W. Kern and M. Streng), *Mathematical Programming* 73 (1996), 1-5
54. *Randomized online algorithms for maximizing busy time interval scheduling* (with R. Garbe and W. Kern), *Computing* 56 (1996), 95-104
55. *Submodular linear programs on forests* (with W. Kern), *Mathematical Programming* 72 (1996), 195-206
56. *On a variant of the ellipsoid method: Using simplices instead of ellipsoids* (extended abstract) (with M. Hunting and W. Kern), in: *Operations Research Proceedings 1995*, P. Kleinschmidt *et al.* eds., Springer-Verlag, Berlin, 1996, 1-6
57. *Note on scheduling intervals on-line* (with W.M. Nawijn), *Discrete Applied Mathematics* 58 (1995), 13-17
58. *A random polynomial time algorithm for well-rounding convex bodies* (with N. Gademann and W. Kern), *Discrete Applied Mathematics* 58 (1995), 117-144
59. *On the average rank of LYM-sets* (with P.L. Erdős and W. Kern), *Discrete Mathematics* 144 (1995), 11-22
60. *Some recent results in the analysis of greedy algorithms for assignment problems*, *OR Spektrum* 15 (1994), 181-188
61. *Approximating the core of euclidean TSP games* (with S. Fekete, W. Hochstättler, and W. Kern), in: *Operations Research '93*, A. Bachem *et al.* (eds.), Physica-Verlag, Heidelberg, 1994, 153-156
62. *LP-relaxations for the edge-weighted subclique problem* (with R. Garbe, K. Heerink, and B. Spieker), in: *Operations Research '93*, A. Bachem *et al.* (eds.), Physica-Verlag, Heidelberg, 1994, 157-160

63. *Computational complexity of some maximum average weight problems with precedence constraints* (with W. Kern), Operations Research 42 (1994), 688-693
64. *On the game chromatic number of some classes of graphs* (with W. Kern, H. Kierstead, and W.T. Trotter), Ars Combinatoria 35 (1993), 143-150
65. *On some approximately balanced combinatorial cooperative games* (with W. Kern), ZOR - Methods and Models of Operations Research 38 (1993), 141-152
66. *A cutting-plane approach to the edge-weighted maximal clique problem* (with G. Dijkstra), European J. Operational Research 69 (1993), 121-130
67. *The communication complexity of interval orders* (with R. Schrader and Gy. Turán), Discrete Applied Mathematics 40 (1992), 19-28
68. *Some convergence results for probabilistic tabu search* (with W. Kern), ORSA Journal on Computing 4 (1992), 32-37
69. *A greedy reduction algorithm for setup optimization* (with R. Schrader), Discr. Applied Mathematics 35 (1992), 73-79
70. *The Shapley value for cooperative games under precedence constraints* (with W. Kern), Int. J. Game Theory 21 (1992), 249-266
71. *A group-theoretic setting for some intersecting Sperner families* (with P.L. Erdős and W. Kern), Combinatorics, Probability and Computing 1 (1992), 323-334
72. *Church-Rosser decomposition in combinatorial structures* (with O. Goecke and R. Schrader), Report No. 84349-OR, Universität Bonn (appeared as Chapter X in: B. Korte, L. Lovász, and R. Schrader: Greedoids, Springer-Verlag, Heidelberg, 1991)
73. *Note on the convergence of simulated annealing algorithms* (with W. Kern), SIAM J. CONTROL AND OPTIMIZATION 29 (1991), 153-159
74. *Some order dimension bounds for communication complexity problems* (with W. Kern), ACTA INFORMATICA 28 (1991), 593-601
75. *The permutahedron of series-parallel posets* (with A. v. Arnim and R. Schrader), Discrete Applied Mathematics 28 (1990), 3-9
76. *An algorithmic characterization of antimatroids* (with E. A. Boyd), Discrete Applied Mathematics 28 (1990), 197-206
77. *Static on-line decomposition of series-parallel and interval orders* (with Gy. Turán), Methods of Operations Research 60 (1990), 197-203
78. *Orders and graphs* (with R. Schrader), Computing Suppl. 7 (1990), 109-124
79. *Communication complexity* (with Gy. Turán) Computing Suppl. 7 (1990), 141-153
80. *Dilworth's Completion, Submodular Functions, and Combinatorial Optimization*, in: The Dilworth Theorems (K. Bogart et al. eds.), Birkhaeuser, Basel, 1990, 287-294

81. *On weak reversibility and steady state distributions in simulated annealing* (with W. Kern), extended abstract, *Methods of Operations Research* 62 (1990), 205-209
82. *Cores of games with restricted cooperation*, *Zeitschrift für Operations Research* 33 (1989), 405-422
83. *On the performance of on-line algorithms for partition problems* (with W. Kern and Gy. Turán), *Acta Cybernetica* 9 (1989), 107-119
84. *Sorting and recognition problems for ordered sets* (with Gy. Turán), *SIAM Journ. on Computing* 17 (1988), 100-113
85. *On the convergence of stationary distributions in simulated annealing algorithms* (with R. Schrader), *Information Processing Letters* 27 (1988), 189-194
86. *Simulated Annealing - Eine Fallstudie* (with R. Schrader), *Angewandte Informatik* 6 (1988), 259-263
87. *Konvergenzverhalten gewisser Markov-Prozesse*, *Actes 19e Sem. Loth. Comb., Publ. I.R.M.A., Strasbourg, 1988*, 32-29
88. *On the complexity of interval orders and semiorders* (with Gy. Turán), *Discrete Math.* 63 (1987), 131-141
89. *Interval orders without odd crowns are defect optimal* (with R. Schrader), *COMPUTING* 38 (1987), 59-69
90. *Setup optimization problems with matroid structure* (with R. Schrader), *ORDER* 4 (1987), 43-54
91. *The bandwidth of planar distributive lattices* (with G. Gierz), in: *Lecture Notes in Computer Science* 246, Springer-Verlag, Heidelberg, 1987, 94-105
92. *A cutting-plane algorithm for optimal graph partitioning* (with R. Schrader and R. Suletzki), *Methods of Operations Research* 57 (1987), 109-116
93. *A combinatorial bijection between linear extensions of of equivalent orders* (with R. Schrader), *Discrete Math.* 58 (1986), 295-301
94. *Exchange properties of combinatorial closure spaces*, *Discrete Applied Math.* 15 (1986), 249-260
95. *On the computational complexity of the order polynomial* (with R. Schrader), *Discrete Applied Math.* 15 (1986), 261-269
96. *Greene-Kleitman extensions of ordered sets* (with R. Schrader), *Methods of Operations Research* 53 (1986), 251-255
97. *A size-width inequality for distributive lattices* (with B. Sands), *COMBINATORICA* 6 (1986), 29-33
98. *Searching in trees, series-parallel and interval orders* (with L. Lovász, R. Schrader and Gy. Turán), *SIAM Journ. on Computing* 15 (1986), 1075-1084

99. *Sorting and recognition problems for ordered sets* (with Gy. Turán), Lecture Notes in Computer Science 182 (1985), 109-118
100. *Search problems in ordered sets* (with R. Schrader and Gy. Turán), in: Operations Research Proceedings 1984 (H. Ohse et al. eds.), Springer-Verlag, Heidelberg, 1985, 411-415
101. *Orthogonal sets, matroids, and theorems of the alternative*, Boll. Unione Matem. Ital. 4 (1985), 139-153
102. *Setup minimization techniques for comparability graphs*, (with R. Schrader), in: Graph-theoretic Concepts in Computer Science - WG '85 (H. Noltemeier, ed.), Trauner Verlag, Linz, 1985, 101-117
103. *Algorithmic approaches to setup minimization* (with G. Gierz and R. Schrader), SIAM Journ. on Computing 4 (1985), 954-965
104. *A setup heuristic for interval orders* (with R. Schrader), Operations Research Letters 4 (1985), 185-188
105. *On ordered languages and the optimization of linear functions by greedy algorithms*, Journ. Assoc. Comp. Machinery 32 (1985), 861-870
106. *A construction for strongly greedy ordered sets* (with G. Gierz), Springer Lect. Notes in Econ. and Math. Systems 226 (1984), Springer-Verlag, Heidelberg, 307-314
107. *Matroids on ordered sets and the greedy algorithm*, Ann. Discrete Math. 19 (1984), 115-128
108. *Zur Maschinenbelegungsplanung unter TNI-geordneten Restriktionen* (with R. Schrader), in: Operations Research Proceedings 1983, H. Steckhan et al. eds., Springer Verlag, Berlin-Heidelberg- New York-Tokyo, 1984, 279-281
109. *Minimizing completion time for a class of scheduling problems* (with R. Schrader), Information Processing Letters 19 (1984), 27-29
110. *A vector exchange property of submodular systems*, Discrete Applied Math. 9 (1984), 209-211
111. *Comparability graphs and order invariants* (with R. Schrader), in: Graphtheoretic Concepts in Computer Science - WG '84 (U. Pape ed.), Trauner-Verlag, Linz, 1984, 136-145
112. *Geometric exchange properties in lattices of finite length* (with G. Richter and M. Stern), Algebra Univ. 19 (1984), 355-365
113. *Linear growth: a unifying approach to linear systems of difference and differential equations*, Int. J. Math. Educ. Sci. Technol. 14 (1983), 137-143
114. *Optimal matchings in posets*, Europ. Journ. Combinatorics 4 (1983), 295-303
115. *The greedy algorithm as a combinatorial principle*, in: Proceedings of the Seminaire Lotharingien de Combinatoire (D. Foata, ed.), Strasbourg, 1982

116. *An incidence-geometric approach to finite abelian groups*, Ann. Discrete Math. 15 (1982), 161-170
117. *A characterization of finite distributive lattices*, Rev. Roum. Math. Pures et Appl. 26 (1981), 211-212
118. *Frink's theorem for modular lattices*, Archiv Math. 36 (1981), 179-182
119. *Projective geometry on partially ordered sets* (with Chr. Herrmann), Trans. Amer. Math. Soc. 266 (1981), 319-332
120. *Geometries on partially ordered sets*, Journ. Comb. Th. B 28 (1980), 26-51
121. *Extensions and duality of finite geometric closure operators*, Journ. Geom. 14 (1980), 24-34
122. *Über Morphismen halbmodularer Verbände*, Aequat. Math. 21 (1980), 53-67
123. *The greedy algorithm for partially ordered sets*, Discrete Math. 28 (1979), 153-159
124. *The greedy algorithm for partially ordered sets*, Discrete Math. 28 (1979), 153-159
125. *Is there a 'correct' solution to Bertrand's paradox?*, Int. J. Math. Educ. Sci. Technol. 10 (1979), 121-124
126. *On supermatroids with submodular rank function*, Alg. Meth. Graph. Th., Szeged (1978), 149-158, (Colloquia Mathematica Societatis János Bolyai, 25)

Books

- *Algorithmic Principles of Mathematical Programming* (with W. Kern and G. Still), Texts in the Mathematical Sciences vol. 24, Springer-Verlag, 2002.
- Chapter *Matroids in Combinatorial Optimization* in: "Theory of Combinatorial Geometries" (H. Crapo, G.-C. Rota and N.L. White, eds.), Encyclopedia of Mathematics and its Applications, Cambridge University Press, 1987, Cambridge, 1987
- Chapter *Lattices* in: "Theory of Matroids" (H. Crapo, G.-C. Rota and N.L. White, eds.), Encyclopedia of Mathematics and its Applications, Cambridge University Press, Cambridge, 1986
- *Submodular Combinatorial Structures*, Habilitationsschrift, WP 85392-OR, Universität Bonn, 1985

Editorial Work

- “Twente Workshop on Graphs and Combinatorial Optimization” (C. Hoede, co-editor), Memorandum 787, Faculty of Applied Mathematics, Universiteit Twente, 1989
- “2nd Twente Workshop on Graphs and Combinatorial Optimization” (C. Hoede, co-editor), Memorandum 964, Faculty of Applied Mathematics, Universiteit Twente, 1991
- Special issue *2nd Twente Workshop on Graphs and Combinatorial Optimization* (C. Hoede, co-editor), Discrete Applied Mathematics Volume 51, Numbers 1-2, 1994
- “3rd Twente Workshop on Graphs and Combinatorial Optimization” (C. Hoede, co-editor), Memorandum 1132, Faculty of Applied Mathematics, Universiteit Twente, 1993
- Special issue *4th Twente Workshop on Graphs and Combinatorial Optimization* (C. Hoede, co-editor), Discrete Applied Mathematics, Volume 79, Numbers 1-3, 1997
- Special issue *5th Twente Workshop on Graphs and Combinatorial Optimization* (C. Hoede, co-editor), Discrete Applied Mathematics, Volume 99, Number 1-3, 2000
- *6th Twente Workshop on Graphs and Combinatorial Optimization* (H.J. Broersma, C. Hoede, and J.L. Hurink co-editors), Electronic Notes in Discrete Mathematics, 1999 (<http://www.elsevier.nl>)
- Special issue *1th Cologne-Twente Workshop on Graphs and Combinatorial Optimization* (S. Pickl, H. Broersma, J. Hurink, co-editors), Discrete Applied Mathematics, Volume 136, Number 2-3, 2004.
- Special issue *2nd Cologne-Twente Workshop on Graphs and Combinatorial Optimization (CTW 2003)* (J. Hurink and S.W. Pickl co-editors), Discrete Applied Mathematics, Volume 154, Number 9, 2006.
- Special issue *Graphs and Combinatorial Optimization* (L. Liberti, F. Maffioli, S. Pickl, co-editors), Discrete Optimization, Volume 3, 2006.
- Special issue *3rd Cologne/Twente Workshop on Graphs and Combinatorial Optimization* (L. Liberti, F. Maffioli, S. Pickl, co-editors), Discrete Applied Mathematics, Volume 155, 2007.
- Special issue *6th Cologne/Twente Workshop on Graphs and Combinatorial Optimization (CTW 2007)* (U. Faigle, J.L. Hurink, editors), Discrete Applied Mathematics, Volume 158, 2010.
- Special issue *8th Cologne/Twente Workshop on Graphs and Combinatorial Optimization (CTW 2009)* (S. Cafieri, U. Faigle, L. Liberti, editors), Discrete Applied Mathematics, Volume 159, 2011.