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List of Publications

Monograph:

1. *Knapsack Problems*,
(with H. Kellerer, D. Pisinger), 546 pages, Springer Verlag, 2004.
Second edition under preparation.

Publications in international, refereed journals:

2. Linear programs with an additional rank two reverse convex constraint,
(with H. Tuy),
Journal of Global Optimization **4**, 441–454, 1994.
3. Some geometric clustering problems,
(with R. Rudolf, G. J. Woeginger),
Nordic Journal of Computing **1**, 246–263, 1994.
4. Partitioning graphs into two trees,
(with G.J. Woeginger, E.-Y. Yao),
Acta Cybernetica **11**, 233–240, 1994.
5. Monge matrices make maximization manageable,
(with R. Rudolf, G.J. Woeginger),
Operations Research Letters **16**, 245–254, 1994.
6. The inverse-parametric knapsack problem,
(with R.E. Burkard),
EJOR European Journal of Operational Research **83**, 376–393, 1995.
7. The random linear bottleneck assignment problem,
RAIRO Operations Research **30**, 127–142, 1996.
8. The fractional greedy algorithm for data compression,
(with J. Békési, G. Galambos, G.J. Woeginger),
Computing **56**, 29–46, 1996.
9. Greedy algorithms for on-line data compression,
(with J. Békési, G. Galambos, G.J. Woeginger),
Journal of Algorithms **25**, 274–289, 1997.

10. Solution methods and computational investigations for the linear bottleneck assignment problem,
Computing **59**, 237–258, 1997.
11. Simple but efficient approaches for the collapsing knapsack problem,
(with D. Pisinger, G.J. Woeginger),
Discrete Applied Mathematics **77**, 271–280, 1997.
12. On-line waste management in a galvanization plant,
(with R.E. Burkard, R. Rudolf),
Yugoslav Journal of Operations Research **7**, 1–13, 1997.
13. Cardinality constrained bin-packing problems,
(with H. Kellerer), *Annals of Operations Research* **92** 335–348, 1999.
14. Stochastic analysis of greedy algorithms for the subset sum problem,
CEJOR Central European Journal of Operations Research **7**, 53–70, 1999.
15. A new fully polynomial approximation scheme for the knapsack problem,
(with H. Kellerer), *Journal of Combinatorial Optimization* **3**, 59–71, 1999.
16. Dynamic programming revisited: Improving knapsack algorithms,
Computing **63**, 419–430, 1999.
17. Approximation algorithms for knapsack problems with cardinality constraints,
(with A. Caprara, H. Kellerer, D. Pisinger),
EJOR European Journal of Operational Research **123**, 333–345, 2000.
18. The multiple subset sum problem,
(with A. Caprara, H. Kellerer),
SIAM Journal on Optimization **11**, 308–319, 2000.
19. A PTAS for the multiple subset sum problem with different knapsack capacities, (with A. Caprara, H. Kellerer),
Information Processing Letters **73**, 111–118, 2000.
20. Approximating multi-objective knapsack problems,
(with T. Erlebach, H. Kellerer),
Management Science **48**, 1603–1612, 2002.
21. Approximation schemes for correlated vector packing problems,
(with A. Caprara, H. Kellerer),
Naval Research Logistics **50**, 58–69, 2003.
22. An efficient fully polynomial approximation scheme for the subset-sum problem, (with H. Kellerer, R. Mansini, M. G. Speranza),
Journal of Computer and System Sciences **66**, 349–370, 2003.
23. A $3/4$ -Approximation Algorithm for Multiple Subset Sum,
(with A. Caprara, H. Kellerer),
Journal of Heuristics **9**, 99–111, 2003.

24. Improved dynamic programming in connection with an FPTAS for the knapsack problem, (with H. Kellerer),
Journal of Combinatorial Optimization **8**, 5–12, 2004.
25. Worst-case analysis of the subset sum algorithm for bin packing, (with A. Caprara), *Operations Research Letters* **32**, 159–166, 2004.
26. Securitization of financial assets: Approximation in theory and practice, (with R. Mansini),
Computational Optimization and Applications **29**, 147–171, 2004.
27. Material flow simulation to support site planning of a sawmill with an installed computer tomograph - A case study, (with A. Petutschnigg, P. Schwarzbauer),
Paper and Timber (Paperi ja Puu) **87**, 47–52, 2005.
28. Modified subset sum heuristics for bin packing, (with A. Caprara), *Information Processing Letters* **96**, 18–23, 2005.
29. An algorithmic framework for the exact solution of the prize-collecting Steiner tree problem, (with M. Fischetti, G. Klau, I. Ljubic, P. Mutzel, R. Weiskircher),
Mathematical Programming **105**, 427–449, 2006.
30. Influence of production costs on cutting optimization in window frame production - a graph-theoretical model, (with A. Petutschnigg),
Computers and Electronics in Agriculture **58**, 133–143, 2007.
31. The traveling group problem, (with C. Klamler), *Social Choice and Welfare* **29**, 429–452, 2007.
32. Maximizing the minimum voter satisfaction on spanning trees, (with A. Darmann, C. Klamler),
Mathematical Social Science **58**, 238–250, 2009.
33. A Two-Period Portfolio Selection Model for Asset-backed Securitization, (with R. Mansini), *Algorithmic Operations Research* **4**, 155–170, 2009.
34. Algorithms to define limits for wood property categorization, (with G. Kain, H. Katz, A. Petutschnigg, A. Teischinger),
Forest Products Journal **59**, 75–83, 2009.
35. The knapsack problem with conflict graphs, (with J. Schauer),
Journal of Graph Algorithms and Applications **13**, 233–249, 2009.
36. Inverse 1-center location problems with edge length augmentation on trees, (with B. Alizadeh, R.E. Burkard),
Computing **86**, 331–343, 2009.

37. The multidimensional knapsack problem: Structure and algorithms,
(with J. Puchinger, G. Raidl),
INFORMS Journal on Computing **22**, 250–265, 2010.
38. A note on maximizing the minimum voter satisfaction on spanning trees,
(with A. Darmann, C. Klamler),
Mathematical Social Science **60**, 82–85, 2010.
39. Resource allocation with time intervals,
(with A. Darmann, J. Schauer),
Theoretical Computer Science **411**, 4217–4234, 2010.
40. Finding socially best spanning trees,
(with A. Darmann, C. Klamler),
Theory and Decision **70**, 511–527, 2011.
41. Paths, trees and matchings under disjunctive constraints,
(with A. Darmann, J. Schauer, G.J. Woeginger), available in: Optimization
Online 2009-10-2422.
to appear in: *Discrete Applied Mathematics*, 2011.
42. Competitive subset selection with two agents,
(with G. Nicosia, A. Pacifici), available in: Optimization Online 2009-12-2479.
to appear in: *Discrete Applied Mathematics*, 2011.
43. Committee selection under weight constraints,
(with C. Klamler, S. Ruzika), 2009, submitted. available in:
Social Science Research Network <http://ssrn.com/abstract=1361770>
44. Strategies in competing subset selection,
(with C. Marini, G. Nicosia, A. Pacifici), 2010, submitted.
available as: Technical Report RT-DIA-179-2010,
Dipartimento di Informatica e Automazione, Università “Roma Tre”,
and in: Optimization Online 2010-11-2807.
45. The maximum flow problem with disjunctive constraints,
(with J. Schauer), 2011, submitted.
available in: Optimization Online 2010-01-2526.
46. On the robust knapsack problem,
(with M. Monaci), 2011, submitted.
available in: Optimization Online 2011-04-3019.

Publications in strictly refereed conference proceedings:

47. The random linear bottleneck assignment problem,
Proceedings of the fourth IPCO Conference 1995, Integer Programming and
Combinatorial Optimization,
Springer Lecture Notes in Computer Science **920**, 145–156, 1995.
48. An efficient approximation scheme for the subset-sum problem,
(with H. Kellerer, M. G. Speranza),
Proceedings of the 8th ISAAC Symposium, Singapore 1997,
Springer Lecture Notes in Computer Science **1350**, 394–403, 1997.
49. A new fully polynomial approximation scheme for the knapsack problem,
(with H. Kellerer), Proceedings of the APPROX 98 Workshop, Aalborg 1998,
Springer Lecture Notes in Computer Science **1444**, 123–134, 1998.
50. Approximation schemes for ordered vector packing problems,
(with A. Caprara, H. Kellerer),
Proceedings of the APPROX 01 Workshop, Berkeley, CA, 2001,
Springer Lecture Notes in Computer Science **2129**, 63–74, 2001.
51. Approximating multi-objective knapsack problems,
(with T. Erlebach, H. Kellerer),
Proceedings of the WADS 01 Workshop, Providence, RI, 2001,
Springer Lecture Notes in Computer Science **2125**, 210–221, 2001.
52. The fractional prize-collecting Steiner tree problem on trees,
(with G. Klau, I. Ljubic, P. Mutzel, R. Weiskircher), Proceedings of the 11th
ESA European Symposium on Algorithms, Budapest, 2003,
Springer Lecture Notes in Computer Science **2832**, 691–702, 2003.
53. Combining a memetic algorithm with integer programming to solve the prize-
collecting Steiner tree problem, (with G. Klau, I. Ljubic, A. Moser, P. Mutzel,
P. Neuner, G. Raidl, R. Weiskircher), Proceedings of the GECCO Genetic and
Evolutionary Computation Conference, Seattle, 2004,
Springer Lecture Notes in Computer Science **3102**, 1304–1315, 2004.
54. Solving the prize-collecting Steiner tree problem to optimality,
(with M. Fischetti, G. Klau, I. Ljubic, P. Mutzel, R. Weiskircher),
Proceedings of the Seventh Workshop on Algorithm Engineering and Experi-
ments (ALENEX 05), eds.: C. Demetrescu, R. Tamassia, R. Sedgewick, SIAM,
68–76, 2005.
55. The core concept for the multidimensional knapsack problem,
(with J. Puchinger, G. Raidl), Proceedings of the 6th European Conference
on Evolutionary Computation in Combinatorial Optimization (EvoCOP 06),
Springer Lecture Notes in Computer Science **3906**, 195–208, 2006.

56. A directed cut model for the design of the last mile in real-world fiber optic networks, (with P. Bachhiesl, P. Mutzel, G. Raidl, D. Wagner), Proceedings of the International Network Optimization Conference (INOC) 2007, ed.: B. Fortz, 103/1-6, Spa, Belgium, 2007.
57. Computing spanning trees in a social choice context, (with A. Darmann, C. Klamler), Proceedings of the 2nd International Workshop on Computational Social Choice (COMSOC-2008), 193–204, 2008.
58. Accelerating column generation for a survivable network design problem, (with M. Leitner, G. Raidl), Proceedings of the International Network Optimization Conference (INOC) 2009, ed.: M.G. Scutella, Pisa, Italien, 2009.
59. Committee selection with a weight constraint based on lexicographic rankings of individuals, (with C. Klamler, S. Ruzika), Proceedings of the International Conference on Algorithmic Decision Theory (ADT 2009), *Springer Lecture Notes in Computer Science* **5783**, 50–61, 2009.
60. Subset weight maximization with two competing agents, (with G. Nicosia, A. Pacifici), Proceedings of the International Conference on Algorithmic Decision Theory (ADT 2009), *Springer Lecture Notes in Computer Science* **5783**, 74–85, 2009.
61. Determining a minimum spanning tree with disjunctive constraints, (with A. Darmann, J. Schauer), Proceedings of the International Conference on Algorithmic Decision Theory (ADT 2009), *Springer Lecture Notes in Computer Science* **5783**, 414–423, 2009.
62. A maximin approach to finding fair spanning trees, (with A. Darmann, C. Klamler), Proceedings of the 3rd International Workshop on Computational Social Choice (COMSOC-2010), 115–126, 2010.
63. The maximum flow problem with conflict and forcing conditions, (with J. Schauer), Proceedings of the International Network Optimization Conference (INOC 2011), *Springer Lecture Notes in Computer Science* **6701**, 289–294, 2011.

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64. Algorithms for on–line data compression, (with J. Békési, G. Galambos, G.J. Woeginger), *Operations Research Proceedings 1994*, Springer, 76–80, 1995.
65. Worst–case analysis for on–line data compression, (with J. Békési, G. Galambos, G.J. Woeginger),

- Proceedings of CCS '95: Combinatorics and Computer Science, Brest, 1995, *Springer Lecture Notes in Computer Science* **1120**, 288–300, 1996.
66. Waste treatment in a metal-processing plant, (with R.E. Burkard, R. Rudolf), *Operations Research Proceedings 1996*, Springer, 392–398, 1997.
 67. Waste–water minimization in metal industry, (with R.E. Burkard, R. Rudolf), Proceedings of the 4th International Symposium on Operational Research 1997, Slovenia, 77–82, 1997.
 68. Nurse scheduling with overlapping and interrupted working shifts, (with E. Schiefer), Proceedings of the Seventh Workshop on Models and Algorithms for Planning and Scheduling Problems (MAPSP 05), 222–224, 2005.
 69. Window frame production: Optimization of cutting plans, (with A. Petutschnigg, L. Sattler), Proceeding of the 17th International Wood Machining Seminar (IWMS 17), 191–200, 2005.
 70. Collective decisions for tours, (with C. Klamler), *Combinatorial Optimization*, Oberwolfach Report No. 50/2005, 68–70, 2005.
 71. A multi-commodity flow approach for the design of the last mile in real-world fiber optic networks, (with P. Bachhiesl, P. Mutzel, G. Raidl, D. Wagner), *Operations Research Proceedings 2006*, Springer, 197–202, 2007.
 72. ILP Models for a nurse scheduling problem, (with B. Klinz, J. Schauer), *Operations Research Proceedings 2006*, Springer, 319–324, 2007.
 73. The core concept and collaborative approaches for the multidimensional knapsack problem, (with J. Puchinger, G. Raidl), *Algorithm Engineering*, Oberwolfach Report No. 25/2007, 23–25, 2007.
 74. Optimal algorithms for inverse center location problems with edge length augmentation on trees, (with B. Alizadeh, R.E. Burkard), *Proceedings of the 14th Belgian-French-German Conference on Optimization*, Leuven, p. 216, 2009.
 75. Algorithms to define boundaries of categories for wood property categorization, (with G. Kain, H. Katz, A. Petutschnigg, A. Teischinger), *Proceedings of the Cost Action E53 Conference*, Lisbon, 10 pages, 2009.
 76. Combinatorial optimization problems with conflict graphs, (with A. Darmann, J. Schauer, G.J. Woeginger), *Proceedings of the 8th Cologne-Twente Workshop on Graphs and Combinatorial Optimization CTW09*, 293–296, eds. L. Liberti et al., Paris, 2009.
 77. On the robust knapsack problem, (with M. Monaci), *Proceedings of the 10th Cologne-Twente Workshop on Graphs and Combinatorial Optimization CTW2011*, 207–210, Rome, 2011.

Academic publications:

78. Mathematical programs with a two-dimensional reverse convex constraint,
Diploma thesis, 1991, Department of Mathematics, TU Graz,
supervisors: Prof. Rainer E. Burkard (Graz) and Prof. Hoang Tuy (Hanoi),
79. On Three Topics in Combinatorial Optimization,
PhD thesis, 1995, supervisors: Prof. Rainer E. Burkard and Prof. Franz Rendl.
available as: Report No. 300, Department of Mathematics, TU Graz,
80. Knapsack Problems: Approximation and Applications,
Habilitation at the Faculty of Economics, University of Graz, 2001.