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List of Publications

Monograph:

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

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. Competitive subset selection with two agents,
(with G. Nicosia, A. Pacifici),
Discrete Applied Mathematics **159**, 1865–1877, 2011.

41. Finding socially best spanning trees,
(with A. Darmann, C. Klamler),
Theory and Decision **70**, 511–527, 2011.

42. Paths, trees and matchings under disjunctive constraints,
(with A. Darmann, J. Schauer, G.J. Woeginger),
Discrete Applied Mathematics **159**, 1726–1735, 2011.

43. Committee selection under weight constraints,
(with C. Klamler, S. Ruzika),
Mathematical Social Sciences **64**, 48-56, 2012.

44. Strategies in competing subset selection,
(with C. Marini, G. Nicosia, A. Pacifici),
Annals of Operations Research **207**, 181–200, 2013.

45. The maximum flow problem with disjunctive constraints,
(with J. Schauer)
Journal of Combinatorial Optimization **26**, 109–119, 2013.

46. The role of morphology in combination with ploidy analysis in characterizing early gestational abortion,
(with I. Grinschgl, B. Guertl, G. Hoefler, M. Holzapfel-Bauer, S. Mannweiler),
International Journal of Pathology: Virchows Archiv **462**, 175–182, 2013.

47. Exact solution of the robust knapsack problem,
(with M. Monaci, P. Serafini),
Computers & Operations Research **40**, 2625–2631, 2013.

48. On the robust knapsack problem,
(with M. Monaci),
SIAM Journal of Optimization **23**, 1956–1982, 2013.

49. The subset sum game,
(with A. Darmann, G. Nicosia, J. Schauer),
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50. Sharing the cost of a path,
(with A. Darmann, C. Klamler),
Studies in Microeconomics **3**, 1–12, 2015.

51. Scheduling two agent task chains with a central selection mechanism,
(with A. Agnetis, G. Nicosia, A. Pacifici),
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52. Two agent scheduling with a central selection mechanism,
(with G. Nicosia, A. Pacifici),
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53. Approximation of the quadratic knapsack problem,
(with J. Schauer),
INFORMS Journal on Computing **28**, 308–318, 2016.

54. Maximin fairness-profit tradeoff in project budget allocation,
(with M. Naldi, G. Nicosia, A. Pacifici),
Procedia Computer Science **100**, 313–320, 2016.

55. Does the graphical abstract bring more visibility to your paper?
(with E.-M. Pferschy-Wenzig, D. Wang, A. Mocan, A.G. Atanasov),
Molecules **21**, 1247, 2016.

56. Linear models and computational experiments for the quadratic TSP,
(with A. Fischer, J.F. Meier, R. Stanek),
Electronic Notes in Discrete Mathematics **55**, 97–100, 2016.

57. Maximin fairness in project budget allocation,
(with M. Naldi, G. Nicosia, A. Pacifici),
Electronic Notes in Discrete Mathematics **55**, 65–68, 2016.

58. Price of fairness for allocating a bounded resource,
(with G. Nicosia, A. Pacifici),
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59. On the shortest path game,
(with A. Darmann, J. Schauer),
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60. Generating subtour elimination constraints for the TSP from pure integer solutions, (with R. Stanek),
Central European Journal of Operations Research **25**, 231–260, 2017.
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61. Approximation of knapsack problems with conflict and forcing graphs,
(with J. Schauer),
Journal of Combinatorial Optimization **33**, 1300–1323, 2017.

62. Minimization and maximization versions of the quadratic traveling salesman problem,
(with O. Aichholzer, A. Fischer, F. Fischer, J.F. Meier, A. Pilz, R. Stanek),
Optimization **66**, 521–546, 2017

63. The shortest connection game,
(with A. Darmann, J. Schauer),
Discrete Applied Mathematics **231**, 139–154, 2017.
extended version available as: arXiv 1511.07847.

64. Improved dynamic programming and approximation results for the knapsack problem with setups, (with R. Scatamacchia),
International Transactions in Operational Research **25**, 667–682, 2018.
available as: Optimization Online 2016-07-5539.

65. Competitive multi-agent scheduling with an iterative selection rule,
(with G. Nicosia, A. Pacifici),
4OR, A Quarterly Journal of Operations Research **16**, 15–29, 2018.

66. New exact approaches and approximation results for the penalized knapsack problem, (with F. Della Croce, R. Scatamacchia),
to appear in *Discrete Applied Mathematics*, 2017.
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arXiv:1702.04211 and Optimization Online 2017-03-5880.

Papers submitted to international, refereed journals:

67. Production sequencing of multi-level mixed-model assembly lines,
(with T. Kreiter), 2017, submitted.

68. Profit-fairness trade-off in project selection,
(with M. Naldi, G. Nicosia, A. Pacifici),
2017, submitted.

69. Optimized scheduling in human-robot collaboration - A use case in the assembly of Printed Circuit Boards, (with K. Bogner, R. Unterberger, H. Zeiner),
2017, submitted.

70. Integer Optimization with Penalized Fractional Values: The Knapsack Case,
(with E. Malaguti, M. Monaci, P. Paronuzzi),
2017, submitted. available as: Optimization Online 2017-08-6159.

71. Approximating the incremental knapsack problem,
(with F. Della Croce, R. Scatamacchia),
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72. Approximating the 3-period incremental knapsack problem,
(with F. Della Croce, R. Scatamacchia),
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73. Geometric and LP-based heuristics for the quadratic travelling salesman problem, (with R. Stanek, P. Greistorfer, K. Ladner),
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74. The random linear bottleneck assignment problem,
Proceedings of the fourth IPCO Conference 1995, Integer Programming and Combinatorial Optimization,
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75. 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,
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76. An efficient approximation scheme for the subset-sum problem,
(with H. Kellerer, M. G. Speranza),
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77. A new fully polynomial approximation scheme for the knapsack problem,
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78. Approximation schemes for ordered vector packing problems,
(with A. Caprara, H. Kellerer),
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79. Approximating multi-objective knapsack problems,
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80. The fractional prize-collecting Steiner tree problem on trees,
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ESA European Symposium on Algorithms, Budapest, 2003,
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81. 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.

82. 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 Experiments (ALENEX 05), eds.: C. Demetrescu et al. SIAM, 68–76, 2005.

83. 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.

84. 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.

85. 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.

86. 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.

87. 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.

88. Subset weight maximization with two competing agents,
(with G. Nicosia, A. Pacifici), Proceedings of the International Conference on Algorithmic Decision Theory (ADT 2009),
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89. 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.

90. 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.

91. 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.

92. Two agents competing for a shared machine,
(with A. Agnetis, G. Nicosia, A. Pacifici), Proceedings of the 3rd International Conference on Algorithmic Decision Theory (ADT 2013),
Springer Lecture Notes in Computer Science **8176**, 1–14, 2013.

93. Approximating the quadratic knapsack problem on special graph classes,
(with J. Schauer), Proceedings of the 11th International Workshop on Approximation and Online Algorithms (WAOA 2013),
Springer Lecture Notes in Computer Science **8447**, 61–72, 2014.

94. The shortest path game: Complexity and Algorithms,
(with A. Darmann, J. Schauer),
Proceedings of Theoretical Computer Science (TCS 2014), Rome,
Springer Lecture Notes in Computer Science **8705**, 39–53, 2014.

95. A quadratic knapsack model for optimizing the media mix of a promotional campaign, (with J. Schauer, G. Maier), Selected papers from the Third International Conference ICORES 2014,
Springer Communications in Computer and Information Science **509**, 251–264, 2015.

96. Brief announcement: On the fair subset sum problem,
(with G. Nicosia, A. Pacifici), Proceedings of the 8th International Symposium on Algorithmic Game Theory (SAGT 2015),
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97. Approximation results for the incremental knapsack problem,
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Springer Lecture Notes in Computer Science , 1–12, 2017. to appear.

Publications in partially refereed conference proceedings:

98. Algorithms for on–line data compression,
(with J. Békési, G. Galambos, G.J. Woeginger),
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99. Waste treatment in a metal-processing plant,
(with R.E. Burkard, R. Rudolf),
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100. Waste–water minimization in metal industry,
(with R.E. Burkard, R. Rudolf), *Proceedings of the* 4^{th} *International Symposium on Operational Research* 1997, Slovenia, 77–82, 1997.

101. 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.

102. Window frame production: Optimization of cutting plans,
(with A. Petutschnigg, L. Sattler), *Proceedings of the 17th International Wood Machining Seminar* (IWMS 17), 191–200, 2005.

103. Collective decisions for tours, (with C. Klamler),
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104. 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.

105. ILP Models for a nurse scheduling problem,
(with B. Klinz, J. Schauer),
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106. 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.

107. 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.

108. 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.

109. 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.

110. 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.

111. Mathematical models and solutions for network design problems,
Proceedings of the 11th International Symposium on Operational Research SOR '11, Slovenia, 23–28, 2011.

112. Applying social choice rules for the solution of the multi-dimensional knapsack problem *Computation and Incentives in Social Choice (Dagstuhl Seminar 12101) Dagstuhl Reports* **2 (3)**, 16–17, 2012.

113. Using pure integer solutions to solve the traveling salesman problem, (with R. Stanek), *MATCOS-13 Middle-European Conference on Applied Theoretical Computer Science, Proceedings of the 16th International Multi-conference (Information Society - IS 2013)*, Ljubljana, Slovenia, 565–568, 2013.

114. Media mix optimization - Applying a quadratic knapsack model, (with J. Schauer, G. Maier), *Proceedings of the 3rd International Conference on Operations Research and Enterprise Systems* (ICORES 2014), *Scitepress*, 363–370, 2014.

115. Personnel planning with multi-tasking and structured qualifications, (with T. Kreiter), *Operations Research Proceedings 2015*, Springer, 597–603, 2017.

116. A simulation study of fairness-profit trade-off in project selection based on HHI and knapsack models, (with M. Naldi, G. Nicosia, A. Pacifici, B. Leder), *Proceedings of the 10th European Modelling Symposium on Computer Modelling and Simulation 2016 (UKSim-AMSS)*, *IEEE*, 85–90, 2017.

117. Meta- and matheuristic approaches for the symmetric quadratic traveling salesman problem, (with R. Stanek, P. Greistorfer, K. Ladner), *Proceedings of the 12th Metaheuristics International Conference* (MIC 2017), Universitat Pompeu Fabra Barcelona, 817–819, 2017.

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118. 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),

119. 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,

120. Knapsack Problems: Approximation and Applications, *Habilitation Treatise* at the Faculty of Business, Economics and Social Sciences, University of Graz, 2001.