

List of publications

Raymond Hemmecke

December 2010

2001-2003

1. R. Hemmecke and K. Schiele. Migration Effects at Driven Pendula. *ZAMM (Applied Mathematics and Mechanics)* **81** (2001), Potsdam, Germany, 291–303.
2. R. Hemmecke and R. Schultz. Decomposition Methods for two-stage Stochastic Integer Programs. In: *Online Optimization of Large Scale Systems*, M. Grötschel, S.O. Krumke, J. Rambau (eds.), Springer, 2001, 601–622.
3. R. Hemmecke. On the computation of Hilbert bases of cones. In: *Mathematical Software, ICMS 2002*, A. M. Cohen, X.-S. Gao, N. Takayama (eds.), World Scientific, 2002, 307–317.
4. R. Hemmecke and R. Schultz. Decomposition of Test Sets in Stochastic Integer Programming. *Mathematical Programming* **94** (2003), 323–341.
5. R. Hemmecke. On the Positive Sum Property and the Computation of Graver test sets. *Mathematical Programming* **96** (2003), 247–269.
6. R. Hemmecke, R. Schultz, and D. L. Woodruff. Interdicting Stochastic Networks. In: “Network Interdiction and Stochastic Integer Programming, D. L. Woodruff (ed.), Kluwer, 2003, 69–84.
7. M. Ahmed, J. A. DeLoera, and R. Hemmecke. Polyhedral Cones of Magic Cubes and Squares. In: “*Discrete and Computational Geometry - The Goodman-Pollack Festschrift*”, S. Basu et al. (eds.), Springer, Berlin, 2003.

2004-2006

8. J. A. DeLoera, D. Haws, R. Hemmecke, P. Huggins, B. Sturmfels, and R. Yoshida. Short Rational Functions for Toric Algebra and Applications. *Journal of Symbolic Computation* **38** (2004), 959–973.
9. J. A. DeLoera, R. Hemmecke, J. Tauzer, and R. Yoshida. Effective Lattice Point Counting in Rational Convex Polytopes. *Journal of Symbolic Computation* **38** (2004), 1273–1302.
10. J. A. DeLoera, D. Haws, R. Hemmecke, P. Huggins, and R. Yoshida. Three Kinds of Integer Programming Algorithms based on Barvinok’s Rational Functions. In: *Integer Programming and Combinatorial Optimization: 10th International IPCO Conference*, D. Bienstock and G. Nemhauser (eds.), Springer, 2004, 244–255.
11. H. Held, R. Hemmecke, and D. L. Woodruff. A Decomposition Algorithm Applied to Planning the Interdiction of Stochastic Networks. *Naval Research Logistics* **52** (2005), 321–328.
12. J. A. DeLoera, D. Haws, R. Hemmecke, P. Huggins, and R. Yoshida. A Computational Study of Integer Programming Algorithms based on Barvinok’s Rational Functions. *Journal of Discrete Optimization* **2** (2005), 135–144.
13. J. A. DeLoera, R. Hemmecke, M. Köppe, and R. Weismantel. Integer Polynomial Optimization in Fixed Dimension. *Mathematics of Operations Research* **31** (2006), 147–153.
14. J. A. DeLoera, R. Hemmecke, M. Köppe, and R. Weismantel. FPTAS for mixed-integer polynomial optimization with a fixed number of variables. In: *Proceedings of the 17th Annual ACM-SIAM Symposium on Discrete Algorithms*, Miami, FL, 743–748.

2007-2009

15. R. Hemmecke and R. Weismantel. Representation of sets of lattice points. *SIAM Journal on Optimization* **18** (2007), 133–137.
16. M. Aschenbrenner and R. Hemmecke. Finiteness theorems in stochastic integer programming. *Foundations of Computational Mathematics* **7** (2007), 183–227.
17. R. Hemmecke, J. Morton, A. Shiu, B. Sturmfels, and O. Wienand. Convex Rank Tests and Semi-graphoids: Three Counterexamples. *Combinatorics, Probability and Computing* **17** (2008), 239–257.

18. J. A. DeLoera, R. Hemmecke, M. Köppe, and R. Weismantel. FPTAS for optimizing polynomials over the mixed-integer points of polytopes in fixed dimension. *Mathematical Programming* **115** (2008), 273–290.
19. J. A. DeLoera, R. Hemmecke, S. Onn, and R. Weismantel. N-fold integer programming. *Discrete Optimization* **5** (2008), 231–241.
20. J. A. DeLoera, R. Hemmecke, M. Köppe. Pareto Optima of Multicriteria Integer Linear Programs. *INFORMS Journal on Computing* **21** (2009), 39–48.
21. R. Hemmecke and K. A. Nairn. On the Gröbner complexity of matrices. *Journal of Pure and Applied Algebra* **213** (2009), 1558–1563.
22. J. De Loera, R. Hemmecke, S. Onn, U. G. Rothblum, and R. Weismantel. Convex integer maximization via Graver bases. *Journal of Pure and Applied Algebra* **213** (2009), 1569–1577.
23. R. Hemmecke, A. Takemura, and R. Yoshida. Computing holes in semi-groups and its application to transportation problems. *Contributions to Discrete Mathematics* **4** (2009), 81–91.
24. R. Hemmecke and P. Malkin. Computing generating sets of lattice ideals and Markov bases of lattices. *Journal of Symbolic Computation* **44** (2009), 1463–1476.
25. R. Hemmecke, M. Köppe, J. Lee, and R. Weismantel. Nonlinear integer programming. Invited book chapter in: *50 Years of Integer Programming 1958–2008: The Early Years and State-of-the-Art Surveys*, M. Jünger, T. Liebling, D. Naddef, G. Nemhauser, W. Pulleyblank, G. Reinelt, G. Rinaldi, and L. Wolsey (eds.), Springer-Verlag, 2009, ISBN 3540682740.

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26. R. Hemmecke, M. Studený and J. Vornlel. A geometric view on learning Bayesian network structures. *International Journal of Approximate Reasoning* **51** (2010), 573–586.
27. R. Hemmecke, S. Onn, and R. Weismantel. A polynomial oracle-time algorithm for convex integer minimization problems. To appear in *Mathematical Programming*, DOI: 10.1007/s10107-009-0276-7

28. U.-U. Haus and R. Hemmecke. Unraveling the initial phase of the permanganate/oxalic acid reaction. *Journal of Mathematical Chemistry* **48** (2010), 305–312.
29. R. Hemmecke, M. Köppe, and R. Weismantel. A polynomial-time algorithm for optimizing over N-fold 4-block decomposable integer programs. In: *Integer Programming and Combinatorial Optimization*, Lecture Notes in Computer Science **6080** (2010), 219–229.
30. W. Bruns, R. Hemmecke, B. Ichim, M. Köppe, and Ch. Söger. Challenging computations of Hilbert bases of cones associated with algebraic statistics. To appear in *Experimental Mathematics*.
31. R. Hemmecke, S. Onn, and R. Weismantel. N-fold integer programming and nonlinear multi-transshipment. To appear in *Optimization Letters*, DOI: 10.1007/s11590-010-0231-9
32. R. Bouckaert, R. Hemmecke, S. Lindner, and M. Studený. Efficient algorithms for conditional independence inference. To appear in *Journal of Machine Learning Research*.
33. R. Hemmecke, S. Lindner, and M. Studený. Characteristic imset: a simple algebraic representative of a Bayesian network structure. In Proceedings of PGM 2010 (P. Myllymäki, T. Roos, T. Jaakkola eds.), HIIT Publications 2010, available online at www.helsinki.fi/pgm2010/proceedings.html