

List of publications—PD Dr. Raymond Hemmecke

Scientific publications

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. 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. De Loera, 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. De Loera, 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. De Loera, J. Tauzer, and R. Yoshida. Effective Lattice Point Counting in Rational Convex Polytopes. *Journal of Symbolic Computation* **38** (2004), 1273–1302.

10. J. De Loera, 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. De Loera, 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. De Loera, R. Hemmecke, M. Köppe, and R. Weismantel. Integer Polynomial Optimization in Fixed Dimension. *Mathematics of Operations Research* **31** (2006), 147–153.
14. J. De Loera, 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.

2007-2008

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. De Loera, R. Hemmecke, M. Köppe, and R. Weismantel. FPTAS for optimizing polynomials over the mixed-integer points of polytopes in fixed dimension. To appear in *Mathematical Programming*.
19. J. De Loera, R. Hemmecke, S. Onn, and R. Weismantel. N-fold integer programming. To appear in *Discrete Optimization*.

20. J. De Loera, R. Hemmecke, M. Köppe. Pareto Optima of Multicriteria Integer Linear Programs. To appear in *INFORMS Journal on Computing*.
21. R. Hemmecke and K. A. Nairn. On the Gröbner complexity of matrices. To appear in *Journal of Pure and Applied Algebra*.
22. J. De Loera, R. Hemmecke, S. Onn, U. G. Rothblum, and R. Weismantel. Convex integer maximization via Graver bases. To appear in *Journal of Pure and Applied Algebra*.

Theses

1. R. Hemmecke. Untersuchung verschiedener Dekompositionsverfahren für polynomiale Gleichungssysteme. Diploma thesis, University Leipzig, 1997.
2. R. Hemmecke. On the Decomposition of Test Sets: Building Blocks, Connection Sets, and Algorithms. Dissertation thesis, University Duisburg, 2001.
3. R. Hemmecke. Representations of lattice point sets: Theory, Algorithms, Applications. Habilitation thesis, University Magdeburg, 2006.

Submitted manuscripts

1. R. Hemmecke. Exploiting symmetries in the computation of Graver bases.
2. R. Hemmecke and P. Malkin. Computing generating sets of lattice ideals.
3. R. Hemmecke, A. Takemura, and R. Yoshida. Computing holes in semi-groups.
4. E. Eisenschmidt, R. Hemmecke, and M. Köppe. Computation of atomic fibers of \mathbb{Z} -linear maps.
5. R. Hemmecke, S. Onn, and R. Weismantel. An oracle polynomial time augmentation algorithm for convex integer minimization problems.