ALL SCHOLARLY PUBLICATIONS

Books


Refereed Articles (Published or to Appear only)


(21) (with S. Onn) “All rational polytopes are transportation polytopes and all polytopal integer sets are contingency tables” in proceedings *Tenth International Conference in Integer Programming and Combinatorial Optimization, New York NY, June 2004* Lecture Notes in Computer Science, Vol 3064, 338–351.


(41) (with J. Lee, P. Malkin and S. Margulies) “Hilbert’s Nullstellensatz and an Algorithm for Proving Combinatorial Infeasibility” Proceedings of the twenty-first international symposium on Symbolic and algebraic computation, ISSAC 08, 2008, 197–206, Linz/Hagenberg, Austria, Published by ACM, New York, NY, USA.


(43) (with V. Baldoni, N. Berline, M. Köppe, M. Vergne), How to integrate a polynomial over a simplex, Mathematics of Computation, vol. 80, 273, 297–325, 2011.


(80) (with S. Borgwardt and E. Finhold), *The Hirsch conjecture holds true for all network-flow polytopes* Mathematical Programming (2017). online https://doi.org/10.1007/s10107-017-1176-x


(92) (with G. Averkov, A. Aliev, T. Oertel) *Optimizing Sparsity over Lattices and Semigroups*, In: Bienstock, D., Zambelli, G. (eds) Proceedings of Integer Programming and


(103) (with Y. Wu) Geometric Policy Iteration for Markov Decision Processes to appear in the Proceedings of ACM SIGKDD 2022 Conference on Knowledge Discovery and Data Mining

Finished work submitted for publication (preprints available on math ArXiv)


(105) (with A. E. Black, S. Kafer, L. Sanità) On the Simplex method for 0/1 polytopes submitted to Mathematics of Operations Research

SOFTWARE

The original \textit{LattE} was first developed in 2001 as C++ software to study lattice points of convex polytopes, primarily counting them and computation of Ehrhart functions (see paper (23)). The algorithms used combinations of geometric and symbolic computation. The key data structures are rational generating functions and cone decompositions. It was the first ever implementation of Barvinok’s algorithm. The latest \textit{Latte Integrale 1.7.2} incorporates the ability to integrate a polynomial over a polytope.