Kurt Mehlhorn
Books, Systems, Publications

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Most publications are available online at
`https://people.mpi-inf.mpg.de/~mehlhorn/publications.html`.

Books

[1] Peter Sanders, Kurt Mehlhorn, Martin Dietzfelbinger, and Roman Dementiev. *Sequential and Parallel Algorithms and Data Structures – The Basic Toolbox*. Springer, 2019. 509 pages.

[2] Martin Dietzfelbinger, Kurt Mehlhorn, and Peter Sanders. *Algorithmen und Datenstrukturen - die Grundwerkzeuge*. Springer, 2014. German translation of Mehlhorn/Sanders.

[3] K. Mehlhorn and P. Sanders. *Algorithms and Data Structures: The Basic Toolbox*. Springer, 2008. Translations into German, Greek, Japanese, and Chinese.

[4] K. Mehlhorn and S. Näher. *The LEDA Platform for Combinatorial and Geometric Computing*. Cambridge University Press, 1999.

[5] J. Loeckx, K. Mehlhorn, and R. Wilhelm. *Foundations of Programming Languages*. Wiley, 1989. 426 pages.

[6] J. Loeckx, K. Mehlhorn, and R. Wilhelm. *Grundlagen der Programmiersprachen*. Teubner, 1986. 440 pages.

[7] K. Mehlhorn. *Datenstrukturen und Effiziente Algorithmen: Sortieren und Suchen*. Teubner, 1986. 314 pages.

[8] K. Mehlhorn. *Data Structures and Efficient Algorithms, Volume 1: Sorting and Searching*. Springer, 1984. 336 pages.

[9] K. Mehlhorn. *Data Structures and Efficient Algorithms, Volume 2: Graph Algorithms and NP-Completeness*. Springer, 1984. 260 pages.

[10] K. Mehlhorn. *Data Structures and Efficient Algorithms, Volume 3: Multi-dimensional Searching and Computational Geometry*. Springer, 1984. 284 pages.

[11] K. Mehlhorn. *Effiziente Algorithmen*. Studienbücher Informatik. Teubner, 1977. 233 pages.

Systems

[1] LEDA (Library of Efficient Data Types and Algorithms). www.algorithmic-solutions.com, the system is in use at several thousand academic and industrial sites.

[2] CGAL (Computational Geometry Algorithms Library). www.cgal.org, the system is developed by a European consortium; it is in use at several hundred sites world-wide.

[3] EXACUS (EXAct computation with CUrves and Surfaces). www.mpi-sb.mpg.de/projects/EXACUS, a testbed for algorithms in non-linear computational geometry.

[4] SCIL (Symbolic Constraints for Integer Linear programming). www.mpi-sb.mpg.de/SCIL/.

[5] A. Crauser and K. Mehlhorn. LEDA-SM, extending LEDA to Secondary Memory. In *WAE 99*, Lecture Notes in Computer Science, pages 228–242, 1999.

[6] T. Lengauer and K. Mehlhorn. The HILL System: A Design Environment for the Hierarchical Spezification, Compaction, and Simulation of Integrated Circuit Layouts. In Paul Penfield Ir., editor, *Proceedings of the MIT VLSI Conference*, pages 139–149. Artech House, Inc., 1984.

Journals and Conferences

Conference publications are only listed for papers that have not appeared in polished form in journals. All papers are available at the author's home page.

[278] Hannaneh Akrami, Masoud Seddighin, Kurt Mehlhorn, and Golnoosh Shahkarami. Randomized and Deterministic Maximin-share Approximations for Fractionally Subadditive Valuations, 2023.

[277] Jugal Garg, Martin Hoefer, and Kurt Mehlhorn. Satiation in Fisher Markets and Approximation of Nash Social Welfare. *Mathematics in Operations Research*, 2023. to appear.

[276] Hannaneh Akrami, Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, and Ruta Mehta. Fair and efficient allocation of indivisible chores with surplus. to appear in IJCAI 2023, 2023.

[275] Hannaneh Akrami, Noga Alon, Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, and Ruta Mehta. EFX Allocations: Simplifications and Improvements, 2022. accepted to EC 2023.

[274] Andreas Karrenbauer, Leonie Krull, Kurt Mehlhorn, Pranabendu Misra, Paolo Luigi Rinaldi, and Anna Twelsiek. Improving Order with Queues, 2022.

[273] Hannaneh Akrami, Bhaskar Ray Chaudhury, Martin Hoefer, Kurt Mehlhorn, Marco Schmalhofer, Golnoosh Shahkarami, Giovanna Varricchio, Quentin Vermande, and Ernest van Wijland. Maximizing Nash Social Welfare in 2-Value Instances: The Half-Integer Case, 2022.

[272] Frederic Folz, Kurt Mehlhorn, and Giovanna Morigi. Noise-induced network topologies. *PRL (Physical Review Letters)*, 130(26), 2023.

[271] Bhaskar Ray Chaudhury, Yun Kuen Cheung, Jugal Garg, Naveen Garg, Martin Hoefer, and Kurt Mehlhorn. Fair Division of Indivisible Goods for a Class of Concave Valuations. *Journal of Artificial Intelligence Research*, 73:821 –, 2022. a preliminary version appeared in FSTTCS 2018.

[270] Hannaneh Akrami, Bhaskar Ray Chaudhury, Martin Hoefer, Kurt Mehlhorn, Marco Schmalhofer, Golnoosh Shahkarami, Giovanna Varricchio, Quentin Vermande, and Ernest van Wijland. Maximizing Nash Social Welfare in 2-Value Instances, 2021. to appear in AAAI 2022.

[269] Frederic Folz, Kurt Mehlhorn, and Giovanna Morigi. Interplay of periodic dynamics and noise: insights from a simple adaptive system. *Phys. Rev. E*, 104, 2021.

[268] Hannaneh Akrami, Bhaskar Ray Chaudhury, Kurt Mehlhorn, Golnoosh Shahkarami, and Quentin Vermande. Nash Social Welfare for 2-value Instances, 2021. superseeded by `http://arxiv.org/abs/2107.08965`.

[267] Bhaskar Ray Chaudhury, Jugal Garg, Kurt Mehlhorn, Ruta Mehta, and Pranabendu Misra. Improving EFX Guarantees through Rainbow Cycle Number. In *EC '21*, pages 310–311. ACM, 2021. full paper to appear in Mathematics of Operations Research.

[266] Vincenzo Bonifaci, Enrico Facca, Frederic Folz, Andreas Karrenbauer, Pavel Kolev, Kurt Mehlhorn, Giovanna Morigi, Golnoosh Shahkarami, and Quentin Vermande. Physarum-Inspired Multi-Commodity Flow Dynamics. *Theoretical Computer Science*, 920:1–20, 2022.

[265] Dan Halperin, Sariel Har-Peled, Kurt Mehlhorn, Eunjin Oh, and Micha Sharir. The Maximum-Level Vertex in an Arrangement of Lines. *Discrete and Computational Geometry*, 67(2):439–461, 2022.

[264] Bhaskar Ray Chaudhury, Jugal Garg, and Kurt Mehlhorn. EFX Exists for Three Agents. In *EC '20*, pages 1–19. ACM, 2020.

[263] Bhaskar Ray Chaudhury, Tellikepalli Kavitha, Kurt Mehlhorn, and Alkmini Sgouritsa. A Little Charity Guarantees Almost Envy-Freeness. *SIAM J. Comput.*, 50(4):1336–1358, 2021.

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[258] Ruben Becker, Vincenzo Bonifaci, Andreas Karrenbauer, Pavel Kolev, and Kurt Mehlhorn. Two Results on Slime Mold Computations. *Theoretical Computer Science*, 773:79–106, 2019.

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