

Marek Karpinski



Academic career

- 1970 M.A. in Mathematics, Poznan University, Poland
 - 1971 M.E.E. in Computer Science, Technical University Poznan, Poland
 - 1973 PhD in Computer Science and Mathematics, Polish Academy of Sciences, Warsaw, Poland
 - 1976 Habilitation in Computer Science and Mathematics, Polish Academy of Sciences, Warsaw, Poland
 - Since 1989 Director, Department of Computer Science, University of Bonn
 - Since 1989 Professor (C4), Department of Computer Science, University of Bonn
- He has been doing research and teaching at various universities and research institutes among others in Warsaw, Pittsburgh, Berkeley, Princeton, MIT, Yale, Oxford, Cambridge, Lund, and Paris.

Honours

- 1974 Prize of the Polish Mathematical Society
- 1975 Venia Legendi Annual Research Prize
- 1976 Award of the Polish Academy of Sciences
- 1980 Special IBM T.J. Watson Research Grant
- 1982 Humboldt Research Award
- 1988 Senior Visiting Research Fellow, Merton College, Oxford University, England, UK
- 1995 Max Planck Research Award
- 2004 IHES European Fellowship
- 2013 Member of the Academia Europaea

Research Projects and Activities

- ESPRIT BR Working Group – 7097 and 21726 on “Randomized Algorithms, RAND and RAND2”
Bonn, Edinburgh, Leeds, Lund, Oxford, Paris, Weizmann Institute, Rehovot
Principal Investigator, 1992 - 1995 and 1996 - 1999
- Volkswagen-Stiftung Project (I/68055) on “Computational Complexity and Efficient Algorithms”
Principal Investigator, 1993 – 1998
- NSF/ESPRIT BR Project EC-US 030 on “Randomness and Efficient Computation, RAND-REC”
(with M. Luby, Berkeley)
- Research Sites: Bonn, Berkeley, Edinburgh, Leeds, Lund, Oxford, and Paris
Principal Investigator, 1993 - 1997
- IST BR Project 14036 (RAND-APX) on “Randomness and Approximate Computation”
Bonn, Edinburgh, Leeds, Lund, Oxford, and Paris
Principal Investigator, 1998 - 2004
- Chair, Steering Committee on International Series of Conferences “Fundamentals of Computation Theory” (FCT)
Principal Investigator, since 1999
- Project PROCOPE 333587 on “Design and Analysis of Randomized Approximation Algorithms for NP-Hard Optimization Problems”
Bonn, Paris
Principal Investigator, 2004 - 2007

FP6 Marie Curie Research Training Network in Model Theory (512234), MODNET

Principal Investigator, since 2004

B-IT Research School, University of Bonn and RWTH Aachen, Research Area “Algorithm Design and Formal Foundations”

Principal Investigator and Project leader, since 2008

Research profile

Main research interests are in computational complexity and design of efficient algorithms, especially randomized and approximate algorithms. Further topics in recent research include: Combinatorial and Geometric Optimization, VC Dimension and O-Minimality, Parallel and Distributed Systems, Internet Algorithms, Algorithmic Game Theory, Computational Molecular Biology.

Editorships

- Electronic Colloquium on Computational Complexity (since 1983)
- Fundamenta Informaticae (1994 - 2010)
- Journal of Combinatorial Optimization (since 1995)
- Compendium of NP Optimization Problems (since 1999)
- Chair, International Steering Committee of the Series of FCT-conferences (since 2011)
- SN Computer Science, Springer (since 2019)
- Journal of Networking and Telecommunications (since 2019)
- Journal Algorithms (since 2020)

Selected publications

- [1] Bhaskar Das Gupta, Marek Karpinski, Nasim Mobasheri, and Farzane Yahyanejad. Effect of gromov-hyperbolicity parameter on cuts and expansions in graphs and some algorithmic implications. *Algorithmica*, 80(2):772–800, 2018.
- [2] Piotr Berman, Marek Karpinski, and Alexander Zelikovsky. A $3/2$ -approximation algorithm for generalized steiner trees in complete graphs with edge lengths 1 and 2. In *Algorithms and computation. Part I*, volume 6506 of *Lecture Notes in Comput. Sci.*, pages 15–24. Springer, Berlin, 2010.
- [3] Leslie Ann Goldberg, Mark Jerrum, and Marek Karpinski. The mixing time of glauber dynamics for coloring regular trees. *Random Structures Algorithms*, 36(4):464–476, 2010.
- [4] G'abor Ivanyos, Marek Karpinski, and Nitin Saxena. Deterministic polynomial time algorithms for matrix completion problems. *SIAM J. Comput.*, 39(8):3736–3751, 2010.
- [5] M. Karpinski and W. Schudy. Linear time approximation schemes for the gale-berlekamp game and related minimization problems. In *Proceedings of the 41st ACM Symposium on Theory of Computing (STOC)*, pages 626–636, 2009.
- [6] Lars Engebretsen and Marek Karpinski. Tsp with bounded metrics. *J. Comput. System Sci.*, 72(4):509–546, 2006.
- [7] Noga Alon, W. Fernandez de la Vega, Ravi Kannan, and Marek Karpinski. Random sampling and approximation of max-csps. volume 67, pages 212–243. 2003. Special issue on STOC2002 (Montreal, QC).
- [8] M. Karpinski. Polynomial time approximation schemes for some dense instances of np-hard optimization problems. volume 30, pages 386–397. 2001. Approximation algorithms for combinatorial optimization problems.
- [9] Sanjeev Arora, David Karger, and Marek Karpinski. Polynomial time approximation schemes for dense instances of np-hard problems. *J. Comput. System Sci.*, 58(1):193–210, 1999.
- [10] Marek Karpinski and Angus Macintyre. Polynomial bounds for vc dimension of sigmoidal and general pfafrican neural networks. volume 54, pages 169–176. 1997. 1st Annual Dagstuhl Seminar on Neural Computing (1994).
- [11] Marek Karpinski and Alexander Zelikovsky. New approximation algorithms for the steiner tree problems. *J. Comb. Optim.*, 1(1):47–65, 1997.