Curriculum Vitae

Marek Karpinski

Dept. of Computer Science
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Academic career
1970 M.A. in Mathematics, Poznan University
1971 M.E.E. in Computer Science, Technical University Poznan
1973 PhD in Computer Science and Mathematics, Polish Academy of Sciences Warsaw
1976 Habilitation in Computer Science and Mathematics, Polish Academy of Sciences Warsaw
1989- Chair Professor and Director, Dept. of Computer Science, University of Bonn
2006- Member, Hausdorff Center for Mathematics

(Hold professorships or visiting positions at various universities and research institutes, among others, at Warsaw, Edinburgh, Pittsburgh, Berkeley, Dortmund, Princeton, MIT, Yale, Oxford, Cambridge, Lund and Paris.)

Awards
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
1995 Max Planck Research Prize
2004 IHES European Fellowship

Editorships
Journal of Combinatorial Optimization (1995-)
Fundamenta Informaticae (1994-2011)
Electronic Colloquium on Computational Complexity (1983-)
Compendium of NP Optimization Problems (1999-)

Research projects and activities
Principal Investigator in the following projects:
1. ESPRIT BR Working Group - 7097 and 21726 on “Randomized Algorithms, RAND and RAND2”, (Bonn, Edinburgh, Leeds, Lund, Oxford, Paris, Weizmann Institute, Rehovot), 1992–1995 and 1996–1999.
2. Volkswagen-Stiftung Project (I/68055) on “Computational Complexity and Efficient Algorithms”, 1993–1998.
3. 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, 1993–1997.
4. IST BR Project 14036 (RAND-APX) on “Randomness and Approximate Computation”, (Bonn, Edinburgh, Leeds, Lund, Oxford, and Paris), 1998–2004.
5. Project PROCOPE 333587 on “Design and Analysis of Randomized Approximation Algorithms for NP-Hard Optimization Problems”, (Bonn, Paris), 2004-.
6. FP6 Marie Curie Research Training Network in Model Theory (512234), MODNET, 2004-.
7. Excellence Cluster in Mathematics: Foundations, Models, Applications, EXC59-1, Founding Member and PI of the Research Area “Structural and Algorithmic Complexity”, since 2006
8. BIT Research School, PI of the Research Area “Algorithm Design and Formal Foundations”, 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, Network Design, Algorithmic Game Theory, Quantum Computation, Computational Molecular Biology.

Selected publications

[1] N. Alon, W. F. de la Vega, R. Kannan, and M. Karpinski, *Random Sampling and Approximation of MAX-CSP Problems*, J. Comput. and Syst. Sci. 67 (2003), 212–243.
[2] S. Arora, D. Karger, and M. Karpinski, *Polynomial Time Approximation Schemes for Dense Instances of NP-hard Problems*, J. Comput. and Syst. Sci. 58 (1999), 193–210.
[3] P. Berman and M. Karpinski, *8/7-Approximation Algorithm For (1, 2)-TSP*, Proc. 17th ACM-SIAM SODA (2006), 641–648.
[4] M. Bordewich, M. Dyer, and M. Karpinski, *Path Coupling Using Stopping Times and Counting Independent Sets and Colourings in Hypergraphs*, Random Struct. Algorithms 32 (2008), 375–399.
[5] L. Engebretsen and M. Karpinski, *TSP with Bounded Metrics*, J. Comput. System Sci. 72 (2006), 509–546.
[6] W. F. de la Vega, R. Kannan, M. Karpinski, and S. Vempala, *Tensor Decomposition and Approximation Schemes for Constraint Satisfaction Problems*, Proc. 37th ACM STOC (2005), 747–754.
[7] W. F. de la Vega, M. Karpinski, C. Kenyon, and Y. Rabani, *Approximation Schemes for Clustering Problems*, Proc. 35th ACM STOC (2003), 50–58.
[8] L.A. Goldberg, M. Jerrum, and M. Karpinski, *The Mixing Time of Glauber Dynamics for Coloring Regular Trees*, Random Struct. Algorithms 36 (2010), 464–476.
[9] G. Ivanyos, M. Karpinski, L. Ronyai and N. Saxena, Trading GRH for algebra: Algorithms for factoring polynomials and related structures, Math. Comput. 81(2012), 277
[10] G. Ivanyos, M. Karpinski, and N. Saxena, *Deterministic Polynomial Time Algorithms for Matrix Completion Problems*, SIAM J. Comput. 39 (2010), 3736-3751.
[11] M. Karpinski, *Polynomial Time Approximation Schemes for Some Dense Instances of NP-Hard Problems*, Algorithmica 30 (2001), 386–397.
[12] M. Karpinski and A. Macintyre, *Approximating the Volume of General Pfaffian Bodies*, Special Volume in Honor of A. Ehrenfeucht, LNCS 1261 (1997), 162–173.
[13] M. Karpinski and A. Macintyre, *Polynomial Bounds for VC Dimension of Sigmoidal and General Pfaffian Neural Networks*, J. Comput. Syst. Sci. 54 (1997), 169–176.
[14] M. Karpinski, A. Rucinski, and E. Szymanska, *Approximate Counting of Matchings in Sparse Uniform Hypergraphs,* Proc. 13th SIAM ANALCO (2013), pp. 71-78.
[15] M. Karpinsiki and R. Schmied, *Improved Inapproximability Results for the Shortest Superstring and Related Problems,* Proc. 19th CATS (2013), CRPIT 141, pp. 27-36.
[16] M. Karpinsiki and W. Schudy, *Linear Time Approximation Schemes for the Gale-Berlekamp Game and Related Minimization Problems,* Proc. 41st ACM STOC (2009), pp. 313-322.
[17] M. Karpinski and A. Zelikovsky, *New Approximation Algorithms for the Steiner Tree Problems*, J. of Comb. Optimization1 (1997), 47–65.

More extensive list of selected publications to be found under
http://theory.cs.uni-bonn.de/~marek/
or
http://www.hcm.uni-bonn.de/people/faculty/profile/marek-karpinski/