

Avi Wigderson

Resumé

July 22, 2011

Born: September 9, 1956

Marital Status: Married, three children

Current Address : Institute for Advanced Study, Einstein Drive, Princeton, NJ 08540, USA.

Research Interests: Computational Complexity Theory, Algorithms, Parallel and Distributed Computation, Combinatorics and Graph Theory, Cryptography, Randomness and Pseudorandomness

Education

- 1983 — Ph.D. in Computer Science, Princeton University,
Department of Electrical Engineering and Computer Science.
Thesis: *Studies in Combinatorial Complexity*
Advisor: Prof. R. J. Lipton
- 1982 — M.A in Computer Science, Princeton University.
- 1981 — M.S.E in Computer Science, Princeton University.
- 1980 — B.Sc *Summa cum laude* in Computer Science, Technion - Israel Institute of Technology.

Honors

- 2011 Member, American Academy of Arts and Sciences
- 2011 Rothschild Visiting Fellow, Isaac Newton Institute
- 2010 Fields Institute Distinguished Lecture Series
- 2009 Gödel Prize, European Association for Theoretical Computer Science and Association for Computing Machinery Special Interest Group on Algorithms and Computation Theory
- 2008 Conant Prize, American Mathematical Society
- 2008 Gibbs Lecture, American Mathematical Society

- 2006 *International Congress of Mathematicians Plenary Lecture*, Madrid, Spain
- 1994 *The Yoram Ben-Porat Presidential Prize for Outstanding Researcher*
- 1994 *Nevanlinna Prize* International Mathematical Union
- 1994 Invited speaker at the *International Congress of Mathematicians*, Zurich, Switzerland
- 1990 Invited speaker at the *International Congress of Mathematicians*, Kyoto, Japan
- 1989 *Bergman Fellowship*
- 1986-89 *Alon Fellowship*

Employment

- July, 1999–present *Professor*, School of Mathematics, Institute for Advanced Study, Princeton, NJ.
- 1991–July, 2003 *Professor*, Computer Science Institute, Hebrew University, Jerusalem.
- 1995–1996 *Visiting Professor*, Institute for Advanced Study, Princeton, and Department of Computer Science, Princeton University.
- 1993–95 *Chairman*, Computer Science Institute, Hebrew University, Jerusalem.
- 1990–92 *Visiting Associate Professor*, Department of Computer Science, Princeton University.
- 1987–92 *Associate Professor* (with tenure), Department of Computer Science, Hebrew University, Jerusalem.
- 1986–87 *Senior Lecturer*, Department of Computer Science, Hebrew University, Jerusalem.
- 1985–86 *Fellow*, Mathematical Sciences Research Institute, Berkeley, California.
- 1984–85 *Visiting Scientist*, IBM Research, San Jose, California.
- 1983–84 *Visiting Assistant Professor*, Department of Computer Science, U.C. Berkeley, California.

Teaching

- Combinatorics and Graph Theory, Lower Bound Techniques, Data Structures, Algorithms, Probabilistic Algorithms, Circuit Complexity, Introduction to Complexity Theory, Randomness in Computation, The Probabilistic Method, Proof Techniques in Complexity Theory.

Thesis Supervision

- Ph.D

- Prabhakar Ragde, U. C. Berkeley, co-advisor with R. Karp, 1983–1986.
Ph.D Thesis: *Lower bounds for parallel computation*
- Mauricio Karchmer, Hebrew University, 1986–1988.
Ph.D Thesis: *Complexity of computation and restricted machines*,
Winner of the ACM Best Doctoral Thesis in Computer Science Award.
- Moti Reif, Ben-Gurion University, co-advisor with M. Rubin, 1987–1988.
Ph.D Thesis: *Parallel algorithms for convex sets in R^2 and R^3* .
- Joseph Gil, Hebrew University, 1986–1990.
Ph.D. Thesis: *Lower bounds and algorithms for hashing and parallel processing*.
- Aviad Cohen, Hebrew University, 1986–1991.
Ph.D. Thesis: *Disperser graphs, deterministic amplification and imperfect random sources*.
- Ilan Newman, Hebrew University, 1987–1991.
Ph.D. Thesis: *On the formula complexity of simple boolean functions*.
- Rafi Heyman, Weizmann Institute, co-advisor with D. Harel, 1987–1991.
Ph.D. Thesis: *Randomized decision tree complexity of read-once Boolean functions*.
- Ran Raz, Hebrew University, co-advisor with M. Ben-Or, 1988–1992.
Ph.D. Thesis: *Communication complexity and circuit lower bounds*.
- Yuri Rabinovich, Hebrew University, co-advisor with N. Linial, 1988–1992.
Ph.D. Thesis: *Monlinear Mixing and evolution of Combinatorial Systems*.
- Roy Armoni, Hebrew University, co-advisor with M. Ben-Or, 1994–1998.
Ph.D. Thesis: *On the Random Resources Needed by Space-Bounded Computational Models*.
- Dorit Aharonov, Hebrew University, co-advisor with M. Ben-Or, 1994–1998.
Ph.D. Thesis: *Noisy Quantum Computation*.
- Ronen Shaltiel, Hebrew University, 1997–2001.
Ph.D. Thesis: *Explicit Constructions of Pseudo-Random Generators and Extractors*.
- Amir Shpilka, Hebrew University, 1997–2001.
Ph.D. Thesis: *Lower Bounds for Small Depth Arithmetic and Boolean Circuits*.

- *Eli Ben-Sasson*, Hebrew University, 1997–2001.
Ph.D. Thesis: *Expansion in Proof Complexity*.
- *David Xiao*, Princeton University, co-advisor with Boaz Barak, 2004–2009.
Ph.D. Thesis: *New Perspectives on the Complexity of Computational Learning, and Other Problems in Theoretical Computer Science*.

- **M.Sc Students**

- *Ron Ben-Nathan*, Hebrew University, 1987–1990.
MSc Thesis: *Transforming Probabilistic to Deterministic Algorithms*.
- *Shlomo Huri*, Hebrew University, 1987–1990.
MSc Thesis: *Universal sequences for expander graphs and contracting sequences on graphs*.
- *Michal Parnas*, Hebrew University, 1987–1990.
MSc Thesis: *Approximate Counting, Almost Uniform Generation and Random Walks*.
- *Roded Sharan*, Hebrew University, 1994–1995.
MSc Thesis: *Perfect Matching in Parallel Computation*.
- *Dana Pe'er*, Hebrew University, 1997–1999.
MSc Thesis: *On Minimum Spanning Trees*.
- *Ziv Bar-Yossef*, Hebrew University, 1997–1998.
MSc Thesis: *Deterministic Amplification of Space-Bounded Randomized Algorithms*.

Personal Grants

- Israeli National Science Foundation, *Algebraic and Combinatorial Computation: Models, Methods and Connections* (with M. Ben-Or and N. Nisan, Hebrew University), 1996–1999.
- US-Israel Binational Science Foundation, *Inherent Complexity of Computational Problems* (with A. Yao, Princeton University and M. Karchmer, MIT), 1993–1996.
- Wolfson Foundation *Randomness in Computation* (with N. Nisan, Hebrew University, 1993–1996)
- Wolfson Foundation *Randomness in Computation* (with N. Nisan, Hebrew University, 1990–1993).
- US-Israel Binational Science Foundation, *Inherent Complexity of Computational Problems* (with M. Sipser, MIT and M. Ben-Or, Hebrew University), 1988–1990.
- U.S. National Science Foundation, *Research on the Relative Power of Randomizing and Deterministic Algorithms* (with R.M. Karp, U.C. Berkeley), 1987–1988.

- Israeli National Academy of Sciences, *Implementing Probabilistic Algorithms* (with M. Ben-Or, Hebrew University), 1987–1988.
- Alon Fellowship, Hebrew University 1986–1989.

Invited Lectures *Invited addresses at international conferences include:*

- Conference on Foundations of Computer Science, Special session celebrating Richard Karp 60th birthday, Milwaukee, USA, 1995.
- International Congress of Mathematicians, Zurich, Switzerland, 1994.
- International Federation for Information Processing, Hamburg, Germany 1994.
- International Colloquium on Automata, Languages and Programming, Jerusalem, Israel, 1994.
- Symposium on the Theory of Computing, Montreal, Canada, 1994.
- Mathematical Foundations of Computer Science, Prague, Czechoslovakia, 1992.
- International Congress of Mathematicians, Kyoto, Japan 1990.
- Workshop on Circuit Complexity, Durham, England 1990.
- Workshop on Randomized Computation, Bielefeld, Germany, 1990.
- Complexity Theory, Oberwolfach, Germany, 1988.
- Combinatorics and Algorithms, Szeged, Hungary, 1987.
- Foundations of Computing, Bonn, Germany, 1987.

Editorship

- *SIAM Journal on Discrete Mathematics*, Editorial Board.
- *Information and Computation*, Editorial Board.
- *Complexity Theory*, Editorial Board.

Program Committees of International Conferences

- *Chairman*: STOC 1992.
- *Member*: STOC 2012, ISTCS 1994, ICALP 1990, STOC 1989, STRUCTURES 1989, STOC 1986.

Referee

- *Grant Proposals*: *Israel Academy of Sciences, U.S. National Science Foundation, National Sciences and Engineering Council of Canada, American-Israeli Binational Science Foundation.*

- Scientific Journals: *Journal of the ACM*, *SIAM Journal on Computing*, *Theoretical Computer Science*, *Journal of Algorithms*, *IEEE Transactions on Information Theory*, *Journal of Computer Systems and Sciences*, *Information Processing Letters*, *Information and Control*, *Science of Computer Programming*, *Acta Informatica*, *Algorithmica*, *Advances in Computing Research*, *Journal of Complexity*, *Combinatorica*, *Journal of Economic Theory*.
- Book Reviews: *Addison Wesley*.

References

- Professor Richard M. Karp, U.C. Berkeley
- Professor Alan Borodin, University of Toronto
- Professor Andrew Yao, Tsinghua University
- Professor Richard Lipton, Georgia Institute of Technology
- Professor László Lovász, Eötvös Loránd University
- Professor Michael Sipser, MIT
- Professor Leslie Valiant, Harvard University
- Professor Michael Rabin, Harvard University
- Professor Nicholas Pippenger, Harvey Mudd College

Scientific Publications

Avi Wigderson
July 22, 2011

Ph.D Thesis: *Studies in Computational Complexity*, Princeton University, June 1983.

Advisor: Professor R.J. Lipton.

Note: In the following lists the authors appear in the order listed in the papers.

Scientific Journals:

1. A. Wigderson, *Improving the Performance for Approximate Graph Coloring*, J. ACM, vol. 30, no. 4, pp. 729–735, 1983.
2. H. Galperin, A. Wigderson, *Succinct Representation of Graphs*, Information and Control, vol. 56, no. 3, pp. 183–198, March 1984.
3. U. Vishkin, A. Wigderson, *Dynamic Parallel Memories*, Information and Control, vol. 56, no. 3, pp. 174–182, March 1984.
4. G. Vijayan, A. Wigderson, *Rectilinear Graphs and their Embedding*, SIAM J. Comput., vol. 14, no. 2, pp. 355–372, 1985.
5. U. Vishkin, A. Wigderson, *Depth-Width Trade-offs in Parallel Processing*, SIAM J. Comput., vol. 14, no. 2, pp. 303–314, 1985.
6. R. Karp, A. Wigderson, *A Fast Parallel Algorithm for the Maximal Independent Set Problem*, J. ACM, vol. 32, no. 4, pp. 762–773, 1985.
7. R. Karp, E. Upfal, A. Wigderson, *Constructing a Perfect Matching is in Random NC*, Combinatorica, vol. 6, no. 1, pp. 35–48, 1986.
8. M. Perry, A. Wigderson, *Search in a Known Pattern*, Journal of Political Economy, vol. 94, no. 1, pp. 225–230, 1986.
9. E. Upfal, A. Wigderson, *How to Share Memory in a Distributed System*, J. ACM, vol. 34, no. 1, pp. 116–127, 1986.
10. A. Borodin, F.E. Fich, F. Meyer auf der Heide, E. Upfal, A. Wigderson, *A Time-Space Tradeoff for Element Distinctness*, SIAM J. Comput., vol. 16, no. 1, pp. 97–99, 1987.
11. F. Meyer auf der Heide, A. Wigderson, *The Complexity of Parallel Sorting*, SIAM J. Comput., vol. 16, no. 1, pp. 100–107, 1987.
12. F. Fich, F. Meyer auf der Heide, A. Wigderson, *Lower Bounds for Parallel Random Access Machines with Unbounded Shared Memory*, Advances in Computing Research - Parallel and Distributed Computing, Ed. F. Preparata, vol. 4, pp 1-16, 1987.

13. D. Long, A. Wigderson, *The Discrete Logarithm Hides $O(\log n)$ Bits*, SIAM J. Comput., vol. 17, no. 2, pp. 363–372, 1988.
14. F. Fich, P. Ragde, A. Wigderson, *Simulations among Concurrent-Write PRAMs*, Algorithmica, vol. 3, pp. 43–51, 1988.
15. Faith E. Fich, P. Ragde, A. Wigderson, *Relations between Concurrent-Write Models of Parallel Computation*, SIAM J. Comput., vol. 17, no. 3, pp. 606–627, 1988.
16. A. Borodin, F.E. Fich, F. Meyer auf der Heide, E. Upfal, A. Wigderson, *A tradeoff between Search and Update Time for the Implicit Dictionary Problem*, Theoretical Computer Science, vol. 58, pp. 57–68, 1988.
17. Richard M. Karp, E. Upfal and A. Wigderson, *The Complexity of Parallel Search*, Journal of Computer and System Sciences, vol. 36, no. 2, pp. 225–253, 1988.
18. N. Linial, L. Lovasz, A. Wigderson, *Rubber Bands, Convex Embeddings and Graph Connectivity*, Combinatorica, vol. 8, pp. 91–102, 1988.
19. P. Ragde, W. Steiger, E. Szemerédi, A. Wigderson, *The Parallel Complexity of Element Distinctness is $\Omega(\sqrt{\log n})$* , SIAM J. Discrete Math, vol. 1, no. 3, pp. 399–410, 1988.
20. M. Ajtai, A. Wigderson, *Deterministic Simulation of Probabilistic Constant-Depth Circuits*, Advances in Computing Research - Randomness and Computation, Ed. F. Preparata and S. Micali, vol. 5, pp. 199–223, 1989.
21. B. Yust, M. Meyer auf der Heide, A. Wigderson, *On Computations with Integer Division*, Theoretical Informatics and Applications, vol. 23, no. 1, pp. 101–111, 1989.
22. N. Alon, M. Karchmer, A. Wigderson, *Linear Circuits over $GF(2)$* , SIAM J. Comput., vol. 19, no. 6, pp. 1064–1067, 1990.
23. F. Fich, A. Wigderson, *Towards Understanding Exclusive Reads*, SIAM J. Comput., vol. 19, no. 4, pp. 718–727, 1990.
24. M. Karchmer, A. Wigderson, *Monotone Circuits for Connectivity require Super-Logarithmic Depth*, SIAM J. Discrete Math, vol. 3, no. 2, pp. 255–265, 1990.
25. R. Heiman, I. Newman, A. Wigderson, *On Read-Once Threshold Formulae and their Randomized Decision Tree Complexity*, Theoretical Computer Science, vol. 107, no. 1, pp. 63–76, 1990.
26. O. Goldreich, S. Micali and Avi Wigderson, *Proofs that Yield Nothing but their Validity, or All Languages in NP have Zero-Knowledge Proof Systems*, J. ACM, vol. 38, no. 1, pp. 691–729, 1991.

27. P. Ragde and A. Wigderson, *Linear-Size Constant-Depth Polylog- Threshold Circuits*, Information Processing Letters, vol. 39, no. 3, pp. 143-146, 1991.
28. R. Heiman, A. Wigderson, *Randomized vs. Deterministic Decision Tree Complexity for Read-Once Boolean Functions*, Complexity Theory, vol. 1, pp. 311–329, 1991.
29. Y. Gil, W. Steiger, A. Wigderson, *Geometric Medians*, Discrete Math, vol. 108, no. 1, pp. 37–51, 1992.
30. R. Raz, A. Wigderson, *Monotone Circuits for Matching require Linear Depth*, J. ACM, vol. 39, pp. 736-744, 1992.
31. M. Karchmer, N. Linial, I. Newman, M. Saks and A. Wigderson, *Combinatorial Characterization of Read-Once Formulae*, J. Discrete Math. Vol. 114, pp. 275–282, 1993.
32. L. Babai, L. Fortnow, N. Nisan, A. Wigderson, *BPP has Subexponential Time Simulations unless EXPTIME has Publishable Proofs*, Complexity Theory, vol. 3, pp. 307–318, 1993.
33. N. Nisan, A. Wigderson, *Rounds in Communication Complexity Revisited*, SIAM J. Comput., vol. 22, no. 1, pp. 211–219, 1993.
34. J. Håstad, A. Wigderson, *Composition of the Universal Relation*, in “Advances in Computational Complexity Theory”, AMS-DIMACS book series in Discrete Mathematics and Theoretical Computer Science, vol. 13, pp. 119–134, 1993.
35. S. Hoory, A. Wigderson, *Universal Sequences for Expander Graphs*, Information Processing Letters, vol. 46, no. 2, pp. 67–69, 1993.
36. A. Razborov, E. Szemerédi, A. Wigderson, *Constructing Small Sets that are Uniform in Arithmetic Progressions*, Combinatorics, Probability, and Complexity, vol. 2, pp. 513–518, 1993.
37. A. Razborov and A. Wigderson, *$n^{\Omega(\log n)}$ Lower Bounds on the Size of Depth 3 Threshold Circuits with AND Gates at the Bottom*, IPL, vol. 45, no. 6, pp. 303–307, 1993.
38. S. Ben-David, A. Borodin, R. Karp, G. Tardos, A. Wigderson, *On the Power of Randomization in On-line Algorithms*, Algorithmica, vol. 11, no. 1, pp. 2–14, 1994.
39. N. Nisan, A. Wigderson, *Hardness vs. Randomness*, Journal of Computer Systems and Sciences, vol. 49, no. 2, pp. 149–167, 1994.
40. M. Karchmer, I. Newman, M. Saks, A. Wigderson, *Non-deterministic Communication Complexity with Few Witnesses*, JCSS, vol. 49, no. 2, pp. 247-257, 1994.

41. J. Friedman and A. Wigderson, *On the Second Largest Eigenvalue of Hypergraphs*, Combinatorica, vol. 15, no. 1, pp. 43–65, 1995.
42. N. Alon, U. Feige, A. Wigderson, D. Zuckerman, *Derandomized Graph Products*, Computational Complexity, vol. 5, no. 1, pp. 60–75, 1995.
43. M. Karchmer, R. Raz, A. Wigderson, *Super-Logarithmic Depth Lower Bounds via Direct Sum in Communication Complexity*, Computational Complexity, vol. 5, pp. 191–204, 1995.
44. L. Lovasz, I. Newman, M. Naor, A. Wigderson, *Search Problems in the Decision Tree Model*, SIAM J. Discrete Math., vol. 8, pp. 119–132, 1995.
45. N. Nisan, A. Wigderson, *A note on Rank vs. Communication Complexity*, Combinatorica, vol. 15, no. 4, pp. 557–566, 1995.
46. I. Newman, A. Wigderson, *Lower Bounds on Formula Size of Boolean Functions using Hypergraph Entropy*, SIAM J. Discrete Math., vol. 8, no. 4, pp. 78–87, 1996.
47. Y. Gil, F. Meyer auf der Heide, A. Wigderson, *The Tree Model for Hashing: Lower and Upper Bounds*, SIAM J. Comput., vol. 10, pp. 936–955, 1996.
48. H. Alt, L. Guibas, R. Karp, K. Mehlhorn, A. Wigderson, *A Method for Obtaining Probabilistic Algorithms with Small Tail Probabilities*, Algorithmica, vol. 16, nos. 4–5, pp. 543–547, 1996.
49. A. Gál, A. Wigderson, *Boolean complexity classes vs. their arithmetic analogs*, Random Structures and Algorithms, vol. 9, nos. 1 and 2, pp. 99–111, 1996.
50. O. Goldreich, A. Wigderson, *Tiny Families of Functions with Random Properties: A Quality-Size Trade-off*, Random Structures and Algorithms, vol. 11, no. 4, pp. 315–343, 1997.
51. A. Condon, L. Hellerstein, S. Pottle, A. Wigderson, *Finite State Automata with Nondeterministic and Probabilistic States*, SIAM J. Comput., vol. 27, no. 3, pp. 739–762, 1998.
52. P. Miltersen, N. Nisan, S. Safra, A. Wigderson, *On Data Structures and Asymmetric Communication Complexity*, JCSS, vol. 57, no. 1, pp. 37–49, 1998.
53. L. Babai, A. Gál, A. Wigderson, *Superpolynomial lower bounds for monotone span programs.*, Combinatorica, vol. 19, no. 3, pp. 301–319, 1999.
54. A. Wigderson, D. Zuckerman, *Expanders that beat the eigenvalue bound: explicit construction and applications*. Combinatorica, vol. 19, no. 1, pp. 125–138, 1999.

55. Y. Rabinovich, A. Wigderson, *Techniques for bounding the convergence rate of genetic algorithms*. Random Structures Algorithms vol. 14, no. 2, pp. 111–138, 1999.
56. R. Armoni, A. Ta-Shma, A. Wigderson, S. Zhou, *An $O(\log(n)^{\frac{4}{3}})$ space algorithm for (s,t) connectivity in undirected graphs*, J. ACM, vol. 47, no. 2, pp. 294–311, 2000.
57. A. Shpilka, A. Wigderson *Depth-3 Arithmetic Formulae over Fields of Characteristic Zero*, Journal of Computational Complexity, vol. 10, no. 1, 1–27, 2001.
58. E. Ben-Sasson, A. Wigderson *Space Complexity in Propositional Calculus*, SIAM Journal of Computing, vol. 31, no. 4, pp. 1184–1211, 2001.
59. O. Reingold, S. Vadhan, A. Wigderson *Entropy Waves, the Zig-Zag Graph Product, and New Constant-Degree Expanders*, Annals of Math, vol. 155, no. 1, pp. 157–187, 2002.
60. R. Impagliazzo, V. Kabanets, A. Wigderson *In Search of an Easy Witness: Exponential Time vs. Probabilistic Polynomial Time*, JCSS, vol. 65, no. 4, pp. 672–694, 2002.
61. A. Wigderson *On the Work of Madhu Sudan*, Notices of the AMS, vol. 50., no 1, pp. 45–50, 2003.
62. J. Håstad, A. Wigderson *Simple Analysis of Graph Tests for Linearity and PCP*, Random Structures and Algorithms, vol. 22, no. 2, pp. 139–160, 2003.
63. E. Ben-Sasson, R. Impagliazzo, A. Wigderson *Near Optimal Separation of Tree-Like and General Resolution*, Combinatorica, vol. 24, issue 4, pp. 585–604, 2003.
64. A. Ambainis, L. Schulman, A. Ta-Shma, Vazirani, A. Wigderson, *The Quantum Communication Complexity Sampling*, SIAM J. Comput., vol. 32, no. 6, pp. 1570–1585, 2003.
65. A. Razborov, A. Wigderson, A. Yao, *Read-once Branching Programs, Rectangular Proofs of the Pigeonhole Principle and the Transversal Calculus*, Combinatorica, vol. 22, no. 4, pp. 555–574, 2003.
66. R. Meshulam, A. Wigderson *Expanders in Group Algebras*, Combinatorica, vol. 24, issue 4, pp. 659–680, 2004.
67. M. Alekhnovitch, E. Ben-Sasson, A. Razborov, A. Wigderson, *Pseudorandom Generators in Propositional Proof Complexity*, SIAM J. Comput., vol. 34, no. 1, pp. 67–88, 2004.

68. E. Ben-Sasson, R. Impagliazzo, A. Wigderson, *Near Optimal Separation of Tree-like and General Resolution*, Combinatorica, vol. 24, issue 4, pp. 585–604, 2004.
69. B. Barak, R. Impagliazzo, A. Wigderson, *Extracting randomness using few independent sources*, SIAM J. Comput., vol. 36, no. 4, pp. 1095–1118, 2006.
70. A. Shpilka, A. Wigderson, *Derandomizing homomorphism testing in general groups*, SIAM J. Comput., vol. 36, no. 4, pp. 1215–1230, 2006.
71. O. Reingold, R. Shaltiel, A. Wigderson, *Extracting Randomness via Repeated Condensing*, SIAM J. Comput., vol. 35, no. 5, pp. 1185–1209, 2006.
72. P. Beame, T. Pitassi, N. Segerlind, A. Wigderson, *A Strong Direct Product Theorem for Corruption and the Multiparty NOF Communication Complexity of Set Disjointness*, Special Issue Computational Complexity, 2006.
73. E. Rozenman, A. Shalev, A. Wigderson, *Iterative Construction of Cayley Expander Graphs*, Theory of Computing, vol. 2, pp. 91–120, 2006.
74. R. Impagliazzo, R. Shaltiel, A. Wigderson, *Reducing the seed length in the Nissan-Wigderson generator*, Combinatorica, 26 (6), pp. 647–681, 2006.
75. A. Wigderson, D. Xiao, *Derandomizing the AW matrix-valued Chernoff bound using pessimistic estimators and applications*, Electronic Colloquium on Computational Complexity, Report TR06-105, vol. 13, no. 105, 2006.
76. S. Hoory, N. Linial, A. Wigderson, *Expander graphs and their applications*, Bulletin of the American Mathematical Society, vol. 43, no. 4, pp. 439–561, 2006.
77. E. Rozenman, A. Shalev, A. Wigderson, *Iterative construction of Cayley expander graphs*, Theory of Computing, vol. 2, pp. 91–120, 2006. A shorter version appeared in STOC 04.
78. J. Håstad, A. Wigderson, *The Randomized Communication Complexity of Set Disjointness*, Theory of Computing, vol. 3, pp. 211–219, 2007.
79. A. Wigderson, D. Xiao, *Derandomizing the AW matrix-valued Chernoff bound using pessimistic estimators and applications*, Theory of Computing, vol. 4, pp. 53–76, 2008.
80. G. Kalai, A. Wigderson, *Neighborly Embedded Manifolds*, Discrete and Computational Geometry, vol. 40, no. 3., pp. 319–324, 2008.
81. Z. Dvir, A. Gabizon, A. Wigderson, *Extractors and rank extractors for polynomial sources*, Computational Complexity, vol. 18, no. 1, pp. 1–58, 2009.

82. R. Impagliazzo, R. Jaiswal, V. Kabanets, A. Wigderson, *Uniform Direct Product Theorems: Simplified, Optimized, and Derandomized*, SIAM J. Comput., vol. 39, no. 4, pp. 1637–1665, 2010.
83. B. Barak, G. Kindler, R. Shaltiel, B. Sudakov, A. Wigderson, *Simulating Independence: New Constructions of Condensers, Ramsey Graphs, Dispersers and Extractors*, J. ACM, vol. 57, no. 4, 2010.
84. Z. Dvir, A. Wigderson, *Monotone Expanders: Constructions and Applications*, Theory of Computing, vol. 6, pp. 291–308, 2010.
85. R. Impagliazzo, R. Jaiswal, V. Kabanets, A. Wigderson, *Uniform Direct Product Theorems: Simplified, Optimized, and Derandomized*, SIAM J. Comput., vol. 39, no. 4, pp. 1637–1665, 2010.
86. P. Hrubeš, A. Wigderson, A. Yehudayoff, *An Asymptotic Bound on the Composition Number of Integer Sums of Squares Formulas*, Canadian Mathematical Bulletin, published electronically on July 8, 2011, doi: 10.4153/CMB-2011-143-x, 2011.

Refereed Conferences

Note: Full versions of the papers numbered 1, 4–14, 18–20, 22, 24, 27–29, 32, 34–36, 38–40, 53, appeared in journals.

1. A. Wigderson, *A New Approximate Graph Coloring Algorithm*, Proc. of STOC 1982, pp. 325–329, 1982.
2. D. Dolev, C. Dwork, N. Pippenger, A. Wigderson, *Superconcentrators, Generalizers, and Generalized Connectors with Limited Depth*, Proc. of STOC 1983, pp. 42–51, 1983.
3. D. Dolev, A. Wigderson, *The Security of Multi-Party Protocols in Distributed Systems*, Proc. of the Crypto 82 Conference, pp. 167–176, 1982.
4. D. Long, A. Wigderson, *How Discreet is the Discrete Log?*, Proc. of STOC 1983, pp. 413–420, 1983.
5. U. Vishkin, A. Wigderson, *Depth-Width Trade-offs in Parallel Computation*, Proc. of FOCS 1983, pp. 146–153, 1983.
6. R. Karp, A. Wigderson, *A Fast Parallel Algorithm for the Maximal Independent Set Problem*, Proc. of STOC 1984, pp. 266–272, 1984.
7. F. Fich, P. Ragde, A. Wigderson, *Relations Between Concurrent-Write Models of Parallel Computation*, Conference on the Principles of Distributed Computation, 1984.
8. E. Upfal, A. Wigderson, *How to Share Memory in a Distributed System*, Proc. of FOCS 1984, pp. 171–180, 1984.
9. R. Karp, E. Upfal, A. Wigderson, *Constructing a Perfect matching is in Random NC*, Proc. of STOC 1985, pp. 22–32, 1985.
10. F. Fich, F. Meyer auf der Heide, P. Ragde, A. Wigderson, *One, Two, Three...Infinity: Lower Bounds for Parallel Computation*, Proc. of STOC 1985, pp. 48–58, 1985.
11. R. Karp, E. Upfal, A. Wigderson, *Are Search and Decision Problems Computationally Equivalent?* Proc. of STOC 1985, pp. 464–475, 1985.
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