Avi Wigderson

Resumé

January 14, 2011

Born: September 9, 1956
Marital Status: Married, three children
Current Address : Institute for Advanced Study, Einstein Drive, Princeton, NJ 08540, USA.

Research Interests: Complexity Theory, Parallel Computation, Combinatorics and Graph Theory, Combinatorial Optimization Algorithms, Randomness and Cryptography, Distributed and Neural Networks.

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

- *Fields Institute Distinguished Lecture Series*, 2010.
- *Gödel Prize*, 2009.
- *Conant Prize*, 2008.
- *Gibbs Lecture*, San Diego, 2008.
- *ICM Plenary Lecture*, Madrid, 2006.
- *The Yoram Ben-Porat Presidential Prize for Outstanding Researcher*

- *Nevanlinna Prize*, 1994.
- *Invited speaker at the International Congress of Mathematicians , Zurich, Switzerland, 1994.*
- *Invited speaker at the International Congress of Mathematicians , Kyoto, Japan 1990.*
- *Bergman Fellowship*, 1989.
- *Alon Fellowship*, 1986–1989.
- *IBM Graduate Fellowship*, Princeton University, 1982–1983.
- *President's List of Excellence*, The Technion, 1977–1980.

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 Probabalistic 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 Mathematitians, 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 Mathematitians, 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 '92.
- *Member:* ISTCS '94, ICALP '90, STOC '89, STRUCTURES '89, STOC '86.

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 Andy Yao, Princeton University.
- Professor Richard Lipton, Princeton University.
- Professor Lazlo Lovasz, Hungarian Academy of Sciences and Princeton University.
- Professor Michael Sipser, MIT.
- Professor Lesley Valiant, Harvard University.
- Professor Michael Rabin, Hebrew University and Harvard University.
- Professor Nicholas Pippenger, University of British Columbia.

Scientific Publications

Avi Wigderson
January 14, 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*, Journal of the ACM, Vol. 30, No. 4, pp. 729–735, October 1983.

2. G. Vijayan, A. Wigderson, *Rectilinear Graphs and their Embedding*, SIAM Journal on Computing, Vol. 14, No. 2, pp. 355–372, May 1985.

3. U. Vishkin, A. Wigderson, *Depth-Width Trade-offs in Parallel Processing*, SIAM Journal on Computing, Vol. 14, No. 2, pp. 303–314, May 1985.

4. H. Galperin, A. Wigderson, *Succinct Representation of Graphs* , Information and Control, Vol. 56, No. 3, pp. 183–198, March 1984.

5. U. Vishkin, A. Wigderson, *Dynamic Parallel Memories*, Information and Control, Vol. 56, No. 3, pp. 174–182, March 1984.

6. R. Karp, A. Wigderson, *A Fast Parallel Algorithm for the Maximal Independent Set Problem*, Journal of the ACM, Vol. 32, No. 4, pp.762–773, October 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. A. Borodin, F.E. Fich, F. Meyer auf der Heide, E. Upfal, A. Wigderson, *A Time-Space Tradeoff for Element Distinctness*, SIAM Journal on Computing, Vol. 16, No. 1, pp. 97–99, February 1987.

10. E. Upfal, A. Wigderson, *How to Share Memory in a Distributed System*, Journal of the ACM, Vol. 34, No. 1, pp.116–127, 1986.

11. D. Long, A. Wigderson, *The Discrete Logarithm Hides O(log n) Bits*, SIAM Journal on Computing, Vol. 17, No. 2, pp. 363–372, 1988.

12. F. Meyer auf der Heide, A. Wigderson, *The Complexity of Parallel Sorting*, SIAM Journal on Computing, Vol. 16, No. 1, pp. 100–107, 1987.

13. 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.

14. F. Fich, P. Ragde, A. Wigderson, *Simulations among Concurrent-Write PRAMs*, Algorithmica, Vol. 3, pp. 43–51, 1988.

15. 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

16. Faith E. Fich, P. Ragde, A. Wigderson, *Relations between Concurrent-Write Models of Parallel Computation* , SIAM Journal on Computing, Vol. 17, No. 3, pp. 606–627, 1988.

17. 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.

18. 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.

19. N. Linial, L. Lovasz and A. Wigderson, *Rubber Bands, Convex Embeddings and Graph Connectivity*, Combinatorica, Vol. 8, pp.91–102, 1988.

20. P. Ragde, W. Steiger, E. Szemeredi and A. Wigderson, *The Parallel Complexity of Element Distinctness is* $\Omega(\sqrt{\log n})$, SIAM Journal on Discrete Mathematics, Vol. 1, No. 3, pp. 399–410, 1988.

21. M. Karchmer, N. Linial, I. Newman, M. Saks and A. Wigderson, *Combinatorial Characterization of Read-Once Formulæ*, J. Discrete Math. Vol. 114, pp. 275–282, 1993.

22. O. Goldreich, S. Micali and Avi Wigderson, *Proofs that Yield Nothing but their Validity, or All Languages in NP have Zero-Knowledge Proof Systems*, Journal of the ACM, Vol. 38, No. 1, pp. 691–729, 1991.

23. N. Alon, M. Karchmer and A. Wigderson, *Linear Circuits over* $GF(2)$, SIAM Journal on Computing, Vol. 19, No. 6, pp. 1064-1067, 1990.

24. F. Fich and A. Wigderson, *Towards Understanding Exclusive Reads*, SIAM Journal on Computing, Vol. 19, No. 4, pp. 718–727, 1990.

25. M. Karchmer and A. Wigderson, *Monotone Circuits for Connectivity require Super-Logarithmic Depth*, SIAM Journal on Discrete Mathematics, Vol. 3, No. 2, pp. 255-265, 1990.

26. P. Ragde and A. Wigderson, *Linear–Size Constant–Depth Polylog– Threshold Circuits* , Information Processing Letters, Vol. 39, No. 3, pp. 143-146, 1991.

27. N. Nisan and A. Wigderson, *Rounds in Communication Complexity Revisited*, SIAM Journal on Computing, Vol. 22, No. 1, pp. 211–219, 1993.

28. R. Heiman, I. Newman and A. Wigderson, *On Read–Once Threshold Formulae and their Randomized Decision Tree Complexity*, Theoretical Computer Science, Vol. 107, No. 1, pp. 63–76, 1990.

29. Y. Gil, W. Steiger and A. Wigderson, *Geometric Medians*, Discrete Math, Vol. 108, No. 1, pp. 37–51, 1992.

30. L. Babai, L. Fortnow, N. Nisan and A. Wigderson, *BPP has Subexponential Time Simulations unless EXPTIME has Publishable Proofs*, Complexity Theory, Vol. 3, pp. 307–318, 1993.

31. R. Heiman and A. Wigderson, *Randomized vs. Deterministic Decision Tree Complexity for Read–Once Boolean Functions*, Complexity Theory, Vol. 1, pp. 311–329, 1991.

32. R. Raz, A. Wigderson, *Monotone Circuits for Matching require Linear Depth*, Journal of the ACM, Vol. 39, pp. 736-744, 1992.

33. N. Nisan, A. Wigderson, *Hardness vs. Randomness*, Journal of Computer Systems and Sciences, Vol. 49, No. 2, pp. 149–167, 1994.

34. I. Newman, A. Wigderson, *Lower Bounds on Formula Size of Boolean Functions using Hypergraph Entropy*, SIAM Journal on Discrete Mathematics, Vol. 8 No. 4, pp. 78–87, 1996.

35. J. Friedman and A. Wigderson, *On the Second Largest Eigenvalue of Hypergraphs*, Combinatorica, Vol. 15, No. 1, pp. 43–65, 1995.

36. J. Håstad and 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.

37. 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.

38. 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.

39. S. Hoory and A. Wigderson, *Universal Sequences for Expander Graphs*, Information Processing Letters, Vol. 46, No. 2, pp. 67–69, 1993.

40. A. Razborov, E. Szemeredi, A. Wigderson, *Constructing Small Sets that are Uniform in Arithmetic Progressions*, Probability, Combinatorics and Complexity, Vol. 2, pp. 513–518, 1993.

41. 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, pp. 303–307, 1993.

42. M. Karchmer, I. Newman, M. Saks, A. Wigderson, *Non– deterministic Communication Complexity with Few Witnesses*, JCSS, Vol. 49, No. 2, 1994.

43. N. Alon, U. Feige, A. Wigderson, D. Zuckerman, *Derandomized Graph Products*, Computational Complexity, pp. 60-75, 1995.

44. Y. Gil, F. Meyer auf der Heide, A. Wigderson, *The Tree Model for Hashing: Lower and Upper Bounds*, SIAM J. on Computing, Vol. 10, pp. 936–955, 1996.

45. H. Alt, L. Guibas, R. Karp, K. Mehlhorn and A. Wigderson, *A Method for Obtaining Probabilistic Algorithms with Small Tail Probabilities*, Algorithmica, Vol. 16, No. 4-5, pp. 543–547, 1996.

46. A. Condon, L. Hellerstein, S. Pottle, A. Wigderson, *Finite State Automata with Nondeterministic and Probabilistic States*, SIAM J. on Computing, Vol. 27, No. 3, pp. 739-762, June 1998.

47. L. Lovasz, I. Newman, M. Naor, A. Wigdreson, *Search Problems in the Decision Tree Model*, SIAM J. on Discrete Math., Vol. 8, pp. 119–132, 1995.

48. N. Nisan, A. Wigderson, *A note on Rank vs. Communication Complexity*, Combinatorica, Vol. 15, No 4, pp. 557–566, 1995.

49. A. Gál, A. Wigderson, *Boolean Complexity Classes vs. Their Arithmetic Analogs*, Random Structures and Algorithms, Vol. 9, pp. 1–13, 1996.

50. M. Karchmer, R. Raz and A. Wigderson, *Super–Logarithmic Depth Lower Bounds via Direct Sum in Communication Complexity*, Computational Complexity, Vol. 5, pp. 191–204, 1995.

51. P. Miltersen, N. Nisan, S. Safra, A. Wigderson, *On Data Structures and Asymmetric Communication Complexity*, JCSS, Vol. 57, No. 1, pp. 37–49, 1998.

52. A. Gal and A. Wigderson, *Boolean complexity classes vs. their arithmetic analogs*, Random Structures and Algorithms, Vol. 9, Nos. 1 and 2, pp. 99-111, 1996.

53. 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.

54. R. Armoni, A. Ta-Shma, A. Wigderson, S. Zhou, *An* $0(\log(n)^{\frac{4}{3}})$ *space algorithm for* (s,t) *connectivity in undirected graphs*, J. ACM Vol. 47, No. 2, 294–311, 2000.

55. L. Babai, A. Gál, A. Wigderson, *Superpolynomial lower bounds for monotone span programs.*, Combinatorica Vol. 19, No. 3, 301–319, 1999.

56. A. Wigderson, D. Zuckerman, *Expanders that beat the eigenvalue bound: explicit construction and applications.* Combinatorica Vol. 19, No. 1, 125–138, 1999.

57. Y. Rabinovich, A. Wigderson, *Techniques for bounding the convergence rate of genetic algorithms.* Random Structures Algorithms Vol. 14, No. 2, 111–138, 1999.

58. O. Reingold, S. Vadhan, A. Wigderson *Entropy Waves, the Zig-Zag Graph Product, and New Constant-Degree Expanders*, Annals of Math, Vol 155, No 1 157–187, 2002.

59. A. Shpilka, A. Wigderson *Depth-3 Arithmetic Formulae over Fields of Characteristic Zero*, Journal of Computational Complexity, Vol 10, No 1, 1–27, 2001.

60. E. Ben-Sasson, A. Wigderson *Space Complexity in Propositional Calculus*, SIAM Journal of Computing, 31 No 4, 1184–1211, 2001.

61. A. Wigderson *On the Work of Madhu Sudan*, Notices of the AMS, 50, No 1, 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, 139–160, 2003.

63. R. Impagliazzo, V. Kabanets, A. Wigderson *In Search of an Easy Witness: Exponential Time vs. Probabilistic Polynomial Time*, JCSS, Vol. 65, No. 4, 672–694, 2002.

64. E. Ben-Sasson, R. Impagliazzo, A. Wigderson *Near Optimal Separation of Tree-Like and General Resolution*, Combinatorica, Vol. 24, Issue 4, 585–604, 2003.

65. A. Ambainis, L. Schulman, A. Ta-Shma, Vazirani, A. Wigderson, *The Quantum Communication Complexity Sampling*, Siam Journal on Computing, Vol 32, No 6, 1570–1585, 2003.

66. 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, 555–574, 2003.

67. R. Meshulam, A. Wigderson *Expanders in Group Algebras*, Combinatorica, Vol. 24, Issue 4, 659–680, 2004.

68. M. Alekhnovitch, E. Ben-Sasson, A. Razborov, A. Wigderson, *Pseudorandom Generators in Propositional Proof Complexity*, SIAM Journal on Computing, Vol 34, Number 1, 2004.

69. 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.

70. B. Barak, R. Impagliazzo, A. Wigderson, *Extracting randomness using few independent sources*, SICOMP, Vol 36, Number 3, 2006.

71. A. Shpilka, A. Wigderson, *Derandomizing homomorphism testing in general groups*, SICOMP, Vol 36, Number 3, 2006.

72. O. Reingold, R. Shaltiel, A. Wigderson, *Extracting Randomness via Repeated Condensing*, SIAM Journal on Computing, Vol 35, Number 5, pp. 1185–1209, 2006.

73. 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.

74. E. Rozenman, A. Shalev, A. Wigderson, *Iterative Construction of Cayley Expander Graphs*, Theory of Computing, 2/5, pp 91–120, 2006.

75. R. Impagliazzo, R. Shaltiel, A. Wigderson, *Reducing the seed length in the Nissan-Wigderson generator*, Combinatorica, 26 (6), pp. 647–681, 2006.

76. A. Wigderson, D. Xiao, *Derandomizing the AW matrix-valued Chernoff bound using pessimistic estimators and applications*, Electronic Colloquium on Computational Complexity, Report TR06-105, ISSN 1433–8092, 13th Year, 105th Report.

77. 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.

78. E. Rozenman, A. Shalev, A. Wigderson, *Iteartive construction of Cayley expander graphs*, Theory of Computing, vol. 2, no. 5, pp. 91-120, 2006. A shorter version appeared in STOC 04.

79. J. Håstad, A. Wigderson, *The Randomized Communication Complexity of Set Disjointness*, Theory of Computing, vol. 3, no. 11, pp. 211-219, 2007.

80. A. Wigderson, D. Xiao, *Derandomizing the AW matric-valued Chernoff bound using pessimistic estimators and applications*, Theory of Computing, vol. 4, article 3, pp. 53-76, 2008.

81. G. Kalai, A. Wigderson, *Neighborly Embedded Manifolds*, Discrete and Computational Geometry, vol. 40, no. 3., October 2008.

82. Z. Dvir, A. Gabizon, A. Wigderson, *Extractors and rank extractors for polynomial sources*, Computational Complexity, vol. 18, no. 1, pp. 1-58, 2009.

    S. Aaronson, A. Wigderson, *Algebrization: A New Barrier in Complexity Theory*, TOTC, vol. 1, no. 1, 2009..

83. 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.

84. B. Barak, G. Kindler, R. Shaltiel, B. Sudakov, A. Wigderson, *Simulating Indpeendence: New Constructions of Condensers, Ramsey Graphs, Dispersers and Extractors*, J. ACM, vol. 57, no. 4, 2010.

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.

12. M. Ajtai, A. Wigderson, *Deterministic Simulation of Probabilistic Constant-Depth Circuits*, Proc. of FOCS 1985, pp. 11–19, 1985.

13. F. Meyer auf der Heide, A. Wigderson, *The Complexity of Parallel Sorting*, Proc. of FOCS 1985, pp. 532–540, 1985.

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