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REFERENCES

- ALELIUNAS, R., R. M. KARP, R. J. LIPTON, L. LOVÁSZ and C. RACKOFF [79]. Random Walks, Universal Traversal Sequences, and Complexity of Maze Problems. *Proc. of 20th Annual IEEE FOCS*, Oct. 1979, pp. 218-223.
- BAKER, J., J. GILL and R. SOLOVAY [75]. Relativizations of the $P = ? NP$ Question. *JCSS*, Vol. 4, No. 4 (1975), pp. 431-442.
- BLAND, R. and M. LAS VERGNAS [78]. Orientability of Matroids. *J. of Combinatorial Theory, Series B*, 24 (1978), pp. 94-123.
- BLUM, M. and D. KOZEN [78]. On the Power of the Compass (or, Why Mazes are Easier to Search than Graphs). *Proc. of 19th Annual IEEE FOCS*, Oct. 1978, pp. 132-142.
- BORODIN, A. [77]. On Relating Time and Space to Size and Depth. *SICOMP*, Vol. 6 (1977), pp. 733-744.
- BORODIN, A., M. FISCHER, D. KIRKPATRICK, N. LYNCH and M. TOMPA [79]. A Time-Space Tradeoff for Sorting and Related Non-Oblivious Computations. *Proc. of 20th Annual IEEE FOCS*, Oct. 1979, pp. 319-327.
- BORODIN, A. and S. COOK [80]. A Time-Space Tradeoff for Sorting on a General Sequential Model of Computing. *To appear in Proc. of 12th Annual ACM STOC*, May 1980.
- BRENT, R. [74]. The Parallel Evaluation of Several Arithmetic Expressions. *JACM* 21 (1974), pp. 201-206.
- BRENT, R. and H. J. KUNG [79]. *The Area Time Complexity of Binary Multiplication*. Dept. of Computer Science Tech. Rep., Carnegie-Mellon Univ., 1979.
- CHANDRA, A. K. [73]. Efficient Compilation of Linear Recursive Programs. *Proc. of IEEE 14th Annual SWAT Conf.*, Oct. 1973.
- COBHAM, A. [66]. *The Recognition Problem for the Set of Perfect Squares*. Research Paper RC-1704, IBM Watson Research Center, Yorktown Heights, New York, April 1966.
- COOK, S. [73]. An Observation on Time-Storage Tradeoff. *Proc. of 5th Annual STOC*, May 1973, pp. 29-33.
- COOK, S. and R. SETHI [76]. Storage Requirements for Deterministic Polynomial Time Recognizable Languages. *JCSS*, Vol. 13, No. 1 (1976), pp. 25-37.
- COOK, S. [79]. Deterministic CFL's are Accepted Simultaneously in Polynomial Time and Log Squared Space. *Proc. of ACM 11th Annual STOC*, May 1979.
- [80]. The Theory of Unbounded Parallel Computation. *This conference*.
- COOK, S. and C. RACKOFF [80]. Space Lower Bounds for Maze Threadability on Restricted Machines. *To appear in SICOMP*.
- CSANKY, L. [76]. Fast Parallel Inversion Algorithms. *SICOMP*, Vol. 5, No. 4 (1976), pp. 618-623.
- DOBKIN, D. and R. LIPTON [78]. A Lower Bound of $\frac{1}{2} n^2$ on Linear Search Programs for the Knapsack Problem. *JCSS*, Vol. 16, No. 3 (June 1978), pp. 413-417.
- FREDMAN, M. [76]. New Bounds on the Complexity of the Shortest Path Problem. *SICOMP*, Vol. 5, No. 1 (March 1976), pp. 83-89.
- GALIL, Z. and J. SEIFERAS [77]. Saving Space in Fast String-Matching. *18th Annual Symposium on Foundations of Computer Science*, Providence, Rhode Island, Oct.-Nov. 1977, pp. 179-188.
- GRIGORYEV, D. Yu. [76]. An Application of Separability and Independence Notions for Proving Lower Bounds of Circuit Complexity (in Russian). *Notes of Scientific Seminars*, Vol. 60, Steklov Mathematical Institute, Leningrad Department, 1976, pp. 38-48.
- HENNIE, F. [66]. On-line Turing Machine Computations. *IEEE Trans. Elec. Comp. EC-15* (1966), pp. 35-44.

- HOPCROFT, J. and J. ULLMAN [79]. *Introduction to Automata Theory, Languages and Computation*. Addison-Wesley, 1979.
- HYAFIL, L. [79]. On the Parallel Eval of Multivariate Polynomials. *SICOMP*, Vol. 8, No. 2 (May 1979), pp. 120-123.
- KERR, L. [70]. *The Effect of Algebraic Structure on the Computational Complexity of Matrix Multiplication*. Ph.D. Thesis, Cornell University.
- KIRKPATRICK, D. [74]. Determining Graph Properties from Matrix Representations. *Proc. 6th Annual SIGACT STOC*, May 1974, pp. 84-90.
- KLEIN, P. [79]. *A Lower Bound for the Sorting Complexity on a RAM*. Universität Bielefeld (preprint).
- KNUTH, D. E. [73]. *The Art of Computer Programming, Vol. 3. Sorting and Searching*, Addison-Wesley Pub. Co., Reading, Massachusetts, 1973.
- LOVÁSZ, L. [79]. *The Matroid Parity Problem*. Working Paper, Dept. of Combinatorics and Optimization, Univ. of Waterloo.
- MASEK, W. J. [76]. *A Fast Algorithm for the String Editing Problem and Decision Graph Complexity*. M.Sc. thesis, Massachusetts Institute of Technology, Cambridge, Mass., May 1976.
- MULLER, D. E. and F. P. PREPARATA [75]. Bounds to Complexities of Networks for Sorting and for Switching. *JACM*, Vol. 22 (April 1975), pp. 195-201.
- MUNRO, I. and M. PATERSON [78]. Selection and Sorting with Limited Storage. *Proc. of IEEE 19th Annual FOCS*, Oct. 1978.
- PATERSON, M. S. and C. E. HEWITT [70]. Comparative Schematology. *Project MAC Conf. on Concurrent Systems and Parallel Computation*, Woods Hole, Massachusetts, June 1970, pp. 119-127.
- PAUL, W. [80]. Decision Trees and Random Access Machines. *This conference*.
- PIPPENGER, N. [74]. *Short Formulas for Symmetric Functions*. IBM Res. Report RC-5143, Yorktown Heights, 1974.
- PIPPENGER, N. and L. G. VALIANT [76]. Shifting Graphs and Their Applications. *Journal of the Association for Computing Machinery*, Vol. 23 (July 1976), pp. 423-432.
- PIPPENGER, N. [79]. On Simultaneous Resource Bounds, *Proc. of IEEE 20th Annual FOCS*, Oct. 1979.
- PREPARATA, F. [78]. New Parallel-Sorting Schemes. *IEEE Trans. on Computers*, Vol. c-27, No. 7 (July 1978), pp. 669-673.
- REGHBATI, E. and D. CORNEIL [78]. Parallel Computations in Graph Theory. *SICOMP*, Vol. 7, No. 2 (May 1978), pp. 230-237.
- REINGOLD, E. M. [72]. On the Optimality of Some Set Algorithms. *Journal of the Association for Computing Machinery*, Vol. 19 (Oct. 1972), pp. 649-659.
- RIVEST, R. and J. VUILLEMIN [76]. On Recognizing Graph Properties from Adjacency Matrices. *Theoretical Computer Science*, Vol. 3, (1976), pp. 371-384.
- RIVEST, R. and A. YAO [78]. On the Polyhedral Decision Problem. *To appear in SICOMP*.
- SAVAGE, J. and S. SWAMI [79]. *A Time-Space Tradeoff for Linear Recursion*. Brown Univ. Tech. Rep., 1979.
- SAVITCH, W. J. [70]. Relationships between Nondeterministic and Deterministic Tape Complexities. *JCSS*, Vol. 4, No. 2 (1970), pp. 177-192.
- SAVITCH, W. [73]. Maze Recognizing Automata and Nondeterministic Tape Complexities. *JCSS*, Vol. 7 (1973), pp. 389-403.
- SCHNORR, C. [76]. A Lower Bound on the Number of Additions in Monotone Computations. *Theoretical Computer Science*, Vol. 2 (1976), pp. 305-315.
- SHAMIR, E. and M. SNIR [77]. *Lower Bounds on the Number of Multiplications and the Number of Additions in Monotone Computations*. IBM Report RC 6757, 1977.
- SPECKER, E. und V. STRASSEN [76]. *Komplexität von Entscheidungsproblemen*. Springer-Verlag, Lecture Notes in Computer Science, 1976.

- SPIRA, P. M. [71]. On Time Hardware Complexity Tradeoffs for Boolean Functions. *Proc. 4th Hawaii Symp. on Systems Science*, 1971, pp. 525-527.
- STRASSEN, V. [73]. Die Berechnungskomplexität von elementary-symmetrischen Functionen und von Interpolationskoeffizienten. *Numerische Mathematik*, Vol. 20, Nr. 3 (1973), pp. 238-251.
- TARJAN, R. [77]. Reference Machines Require Nonlinear Time to Maintain Disjoint Sets. *Proc. of ACM 9th Annual STOC*, May 1977.
- THOMPSON, C. D. [79]. Area-Time Complexity for VLSI. *Proc. 11th Annual ACM STOC*, May 1979, pp. 81-88.
- TOMPA, M. [78]. *Time-Space Tradeoffs for Straight-Line and Branching Programs*. Univ. of Toronto, Comp. Sci. Dept. Tech. Rep. #122, July 1978.
- VALIANT, L. [75]. Parallelism in Comparison Problems. *SICOMP*, Vol. 4 (Sept. 1975), pp. 348-355.
- [77]. Graph-Theoretic Arguments in Low-Level Complexity. *Mathematical Foundations of Computer Science*, Lecture Notes in Computer Science, Vol. 53, Springer-Verlag, Berlin, 1977, pp. 162-176.
- [79a]. The Complexity of Computing the Permanent. *Theoretical Computer Science*, Vol. 8, No. 2 (1979), pp. 189-202.
- [79b]. Completeness Classes in Algebra. *Proc. of IEEE 20th Annual FOCS*, Oct. 1979, pp. 249-261.
- [79c]. Negation can be Exponentially Powerful. *Proc. of ACM 16th Annual STOC*, 1979, pp. 189-196.
- [80]. Reducibility by Algebraic Projections. *This conference*.

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