PUBLICATIONS (COMPLETE LIST)

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1 CLASSIFICATION BY RESEARCH SUBJECTS

ENUMERATION BELOW IS ACCORDING TO THE ORDER OF (i) THE BOOKS, (ii) SURVEYS AND BOOKS CHAPTERS AND (iii) RESEARCH PAPERS IN THE PUBLICATION LIST

1. REAL AND COMPLEX FUNCTIONS: papers 1, 3.

2. ECONOMICS: papers 11-13, 15-18

3. LOWER BOUNDS IN ALGEBRAIC COMPUTATIONS: papers 5, 7, 10, 29, 49.

4. FUNDAMENTAL POLYNOMIAL OPERATIONS.
   a) EVALUATION: survey paper 1 (containing also research results), research papers 2, 4, 6-10, 19, 62, 70, 101, 105, 121, 140, 148, 166, 247-249, 253, 263, 267.
   b) INTERPOLATION: papers 62, 70, 105, 120, 140, 148, 159, 166, 247-249, 253, 263, 267.
   c) MULTIPLICATION: papers 24, 118 (multivariate case), 249, 263.
   d) DIVISION: papers 42, 48, 51-53, 58, 75, 86, 97, 103, 111, 249, 263.

5. MATH PROGRAMMING.
   a) LINEAR PROGRAMMING: papers 13, 38, 39, 43, 50, 55, 57.
   b) INTEGER LINEAR PROGRAMMING: papers 89, 93, 113, 152.
   c) NONLINEAR PROGRAMMING: paper 79.

6. FAST MATRIX MULTIPLICATION: book 1, survey papers 2 and 24, and papers 14, 20, 21, 23, 25, 30, 32, 33, 36, 37, 40, 95, 145, 157, 163, 222.

7. MULTIGRID ALGORITHMS.
   a) ALGEBRAIC MULTIGRID: paper 22.
   b) COMPACT MULTIGRID: papers 73, 77, 93, 109.
8. PARALLEL COMPUTATIONS (ALSO SEE RELEVANT ITEMS IN PARTS 9-14).
   a) PROCESSOR EFFICIENT ALGORITHMS IN NC: book 2 (chapter 4) and papers 44-47, 50-58, 60-64, 66-69, 72, 74, 75, 80-82, 85, 88, 90, 93, 100, 102, 103, 106, 107, 111, 112, 115, 117, 119, 123, 125, 126, 129, 131-133, 138, 147, 163, 175.
   b) NC EQUIVALENCE OF LINEAR PROGRAMMING AND EUCLIDEAN GCD: papers 89, 113, 152.
   c) WORK-PRESERVING SPEED-UP: papers 91, 115, 122.

9. GRAPH ALGORITHMS.
   a) MATCHING: papers 45, 63.
   b) PATHS: item 6 in the list of book chapters; papers 54, 56, 66, 85, 90, 91, 122, 138, 147.

10. LINEAR SYSTEMS OF EQUATIONS AND MATRIX INVERSION (GENERAL INPUT MATRICES).
    a) NEWTON’S ITERATION AND RESIDUAL CORRECTION PROCESSES: book 3 (chapter 6), item 9 in the list of reviews and book chapters, and papers 44, 69, 83, 175, 178, 211, 216, 226, 231, 251, 268.
    b) RANDOMIZED ALGORITHMS: see section 18.
    c) PARALLEL ALGORITHMS: book 2 and papers 44, 47, 60, 67, 74, 81, 82, 91, 122, 175, 238.

11. LINEAR SYSTEMS OF EQUATIONS AND MATRIX INVERSION (TRIANGULAR, BANDED OR SPARSE INPUT): item 6 in the list of reviews and book chapters and papers 44, 107, 115, 117, 125.

12. LINEAR SYSTEMS OF EQUATIONS AND MATRIX INVERSION (STRUCTURED INPUT).
    a) DISPLACEMENT TRANSFORMATION OF MATRIX STRUCTURE; APPLICATIONS TO POLYNOMIAL EVALUATION AND INTERPOLATION: book 3 and papers 71, 76, 140, 150, 156, 203, 248, 253, 259, 267.
    b) NEWTON’S ITERATION AND RESIDUAL CORRECTION PROCESSES: book 3 (chapter 6), item 9 in the list of reviews and book chapters and papers 72, 83, 88, 93, 106, 132, 141, 178, 179, 187, 200, 201, 204, 211, 216, 229, 231, 251.
    d) HOMOTOPIC/CONTINUATION TECHNIQUES: book 3 (chapter 6) and papers 93, 106, 178, 187, 200, 201, 211, 216, 231.
    e) INVERSION OF DISPLACEMENT OPERATORS: book 3 and paper 194.
    f) SOLUTION WITH LIFTING TECHNIQUES: papers 192, 226, 238.
    g) SOLUTION WITH PRECONDITIONED CONJUGATE GRADIENT METHOD: papers 94, 128.
    h) UNIFICATION OF SUPERFAST ALGORITHMS: book 3 and papers 71, 76, 150, 156, 159, 168.
    i) OTHER METHODS: books 2 and 3 and papers 60, 62, 72, 74, 81, 102, 131-133, 168, 248, 249, 263.
    j) APPLICATIONS TO POLYNOMIAL GCD AND RATIONAL INTERPOLATION: papers 133, 149, 159, 166, 195.
    k) NORM ESTIMATION: papers 254, 259.

14. ROOT-FINDING FOR POLYNOMIALS.
   a) BOOK 4 and items 8, 10, 13, 18 and 22 in the list of survey articles and book chapters.
   c) OTHER NEARLY OPTIMAL ALGORITHMS: papers 68, 80, 153, 169, 246, 250, 258, 262, 264.
   e) REAL POLYNOMIAL ROOT-FINDERS: papers 68, 80, 153, 213, 235, 246, 252, 258, 261.
   h) APPLICATION TO APPROXIMATE POLYNOMIAL GCD: papers 149, 182.

15. ROOT-FINDING FOR SYSTEMS OF POLYNOMIALS: papers 136, 137, 139, 144, 151, 155, 170, 176, 185, 189, 193, 197, 208.


17. SYMBOLIC-NUMERICAL COMPUTATIONS (ALSO SEE PARTS 8, 12-15, and 19).
   a) BOOKS AND SURVEYS: books 2 and 3 and 4, 5, 8-14, 16-18 and 22 in the list of SURVEY ARTICLES AND BOOK CHAPTERS.
   b) APPROXIMATE POLYNOMIAL GCD: papers 149, 182.
   c) NUMERICAL COMPUTATION OF DETERMINANTS: papers 160, 180, 221.
   d) RECOVERY OF A RATIONAL NUMBER FROM ITS NUMERICAL APPROXIMATION: paper 199.
   e) NUMERICAL COMPUTATIONS WITH ERROR-FREE OUTPUT: papers 154, 224.


21. MANIPULATION WITH INTEGERS:
   (a) BINARY SEGMENTATION: book 1, papers 87, 158, 224.
   (b) RATIONAL RECONSTRUCTION, EUCLIDEAN ALGORITHM: papers 190, 196, 199.

22. LINEAR RECURRENCES: papers 142, 172.

2 PUBLICATIONS: FOUR CATHEGORIES

- 4 research monographs
- over 20 book chapters and survey articles
• over 170 refereed publications in journals
• over 80 refereed publications in conference proceedings

3 BOOKS


4 CHAPTERS IN BOOKS AND SURVEY ARTICLES

The list in this section includes prefaces; items 1-6, 8, 9 and 17 included new research results.

5 RESEARCH PAPERS (in journals and refereed proceedings of conferences).


15. "Models for Planning Costs with Optimization of Foreign Trade of Several Coun-


33. "Trilinear Aggregating is the Basis for the Asymptotically Fastest Known Algorithms for Matrix Multiplication”, Conference Record, Second Conference on Foundations
of Software Technology and Theoretical Computer Science (FST and TCS’82), 321–337, Indian Institute of Technology, Bangalore, India (December 1982).


50. "Fast and Efficient Parallel Linear Programming and Least Squares Computations" (by V. Y. Pan and J. Reif), VLSI Algorithms and Architectures, Lecture Notes in Computer


55. "Fast and Efficient Linear Programming and Linear Least-Squares Computations" (by V. Y. Pan and J. Reif), Computers and Mathematics (with Applications), 12A, 12, 1217–1227 (1986).


105. "A New Approach to Fast Polynomial Interpolation and Multipoint Evaluation” (by V. Y. Pan, A. Sadikou, E. Landowne, and O. Tiga), Computers and Mathematics (with
107. "Fast and Efficient Parallel Solution of Sparse Linear Systems" (by V. Y. Pan and
108. "Decreasing the Displacement Rank of a Matrix”, SIAM J. on Matrix Analysis,
14, 1, 118–121 (1993).
109. "Generalized Compact Multigrid" (by V. Y. Pan and J. Reif), Computers and
110. "A New Algorithm for the Symmetric Tridiagonal Eigenvalue Problem” (by V. Y.
111. “Improved Parallel Polynomial Division” (by D. Bini and V. Y. Pan), SIAM J. on
112. "Improved Parallel Computations with Toeplitz–like and Hankel–like Matrices”
113. "The NC-Equivalence of Planar Integer Linear Programming and Euclidean GCD”
(by D. Shallcross, V. Y. Pan, and Yu Lin-Kriz), Proc. 34th Annual IEEE Symposium on
Foundations of Computer Science (FOCS’93), 557–564, IEEE Computer Society Press, Los
Alamitos, California (1993).
114. "New Resultant Inequalities and Complex Polynomial Factorization”, SIAM Journ-
115. "Improved Parallel Solution of a Triangular Linear System”, Computers and Math-
ematics (with Applications), 27, 11, 41–43 (1994).
116. "New Techniques for Approximating Complex Polynomial Zeros”, Proc. 5th An-
nual ACM-SIAM Symposium on Discrete Algorithms (SODA’94), 260–270, ACM Press,
117. "Optimum Parallel Computations with Band Matrices” (by V. Y. Pan, I. Sobze
and A. Atinkpahoum), Proc. 5th Annual ACM-SIAM Symposium on Discrete Algorithms
118. "Simple Multivariate Polynomial Multiplication”, J. Symbolic Computation, 18,
119. "Parallel Solution of Toeplitz and Toeplitz–like Linear Systems over Fields of Small
Positive Characteristic” (by E. Kaltofen and V. Y. Pan), Proceedings of First International
Symposium on Parallel Symbolic Computation (PASCO’94), Linz, Austria (Sept. 1994),
Lecture Notes Series in Computing, 5, 225–233, World Scientific Publishing Company, Sin-
gapore (1994).
120. " Algebraic Improvement of Numerical Algorithms: Interpolation and Economiza-
121. "An Algebraic Approach to Approximate Evaluation of a Polynomial on a Set of
122. "Work-Preserving Speed-up of Parallel Matrix Computations” (by V. Y. Pan and
123. "Parallel Computation of a Krylov Matrix for a Sparse and Structured Input”,
124. "Deterministic Improvement of Complex Polynomial Factorization Based on the
Properties of the Associated Resultant”, Computers and Mathematics (with Applications),


252. “Real Polynomial Root–finding by Means of Matrix and Polynomial Iterations”,


http://dx.doi.org/10.1016/j.laa.2017.04.007


http://dx.doi.org/10.1016/j.amc.2017.08.010