

Victor Y. Pan

SELECTED PUBLICATIONS

1 BOOKS

1. “How to Multiply Matrices Faster”, Lecture Notes in Computer Science, vol. 179 (XI + 212 pages), Springer, Berlin (1984).
2. “Polynomial and Matrix Computations”, Volume 1: “Fundamental Algorithms” (XVI + 415 pages) (by D. Bini and V. Y. Pan), in the series Progress in Theoretical Computer Science (R.V. Book editor), Birkhäuser, Boston (1994).
3. “Structured Matrices and Polynomials: Unified Superfast Algorithms” (XXV + 278 pages), Birkhäuser/Springer, Boston/New York (June 2001).
4. “Numerical Methods for Roots of Polynomials” (by J. M. McNamee and V. Y. Pan), Part 2 (XXII + 718 pages), Elsevier (2013).

2 CHAPTERS IN BOOKS AND SURVEY ARTICLES (12 ITEMS SELECTED OUT OF 24). *Items 1, 2, 3-5, 8, and 9 included new research results.*

1. “On Methods of Computing the Values of Polynomials”, Uspekhi Matematicheskikh Nauk, 21, 1 (127), 103–134 (1966). (Transl. Russian Mathematical Surveys, 21, 1 (127), 105–137 (1966).)
2. “How Can We Speed Up Matrix Multiplication?”, SIAM Review, 26, 3, 393–415 (1984).
3. “Complexity of Computations with Matrices and Polynomials,” SIAM Review, 34, 2, 225–262 (1992).
4. “Parallel Solution of Sparse Linear and Path Systems”, in Synthesis of Parallel Algorithms (J. H. Reif, editor), Chapter 14, pp. 621–678. Morgan Kaufmann publishers, San Mateo, CA (1993).
5. “Solving a Polynomial Equation: Some History and Recent Progress”, SIAM Review, 39, 2, 187–220 (1997).
6. “Solving Polynomials with Computers”, American Scientist, 86, 62–69 (January-February 1998).
7. “Some Recent Algebraic/Numerical Algorithms”, Electronic Proceedings of IMACS/ACA’98 (1998): <http://www-troja.fjfi.cvut.cz/aca98/sessions/approximate>
8. “Newton’s Iteration for Structured Matrices and Linear Systems of Equations” (by V. Y. Pan, S. Branham, R. Rosholt, and A. Zheng), SIAM volume on Fast Reliable Algorithms for Matrices with Structure (T. Kailath and A. H. Sayed, editors), chapter 7, pages 189–210, SIAM Publications, Philadelphia (1999).
9. “Root-finding with Eigen-solving” (by V. Y. Pan, D. Ivolgin, B. Murphy, R. E. Rosholt, Y. Tang, X. Wang, and X. Yan), pages 185–210 in Symbolic–Numeric Computation (Dongming Wang and Lihong Zhi, editors), Birkhäuser, Basel/Boston (2007).
10. “Fast Fourier Transform and Its Applications” (by I. Z. Emiris and V. Y. Pan, in “Algorithms and Theory of Computations Handbook”, Second Edition, Volume 1 (1016 pages): General Concepts and Techniques, pages 1–31 in Chapter 18 (Mikhail J. Atallah and Marina Blanton, editors), CRC Press Inc., Boca Raton, Florida (2009).
11. “Algebraic Algorithms” (by I. Z. Emiris, V. Y. Pan, and E. Tsigaridas), Chapter 10 (pages from 10–1 to 10-40) of Computing Handbook (Third edition), Volume I: Computer Science and

Software Engineering (Allen B. Tucker, Teo Gonzales, and Jorge L. Diaz-Herrera, editors), Taylor and Francis Group (2014).

12. "Fast Matrix Multiplication and Its Algebraic Neighborhood", DOI: 10.4213/sm8833 Matem. Sbornik, 208, 11, 90–138 (2017) and DOI:10.1070/SM8833: Sb. Math., 208, 11, 1661–1704 (2017).

3 RESEARCH PAPERS (in journals and refereed proceedings of conferences). 37 SELECTED FROM 277

1. "On Schemes for the Evaluation of Products and Inverses of Matrices", Uspekhi Matematicheskikh Nauk (in Russian), 27, 5 (167), 249–250 (1972). Also see translation into English: "Better Late Than Never: Filling a Void in the History of Fast Matrix Multiplication and Tensor Decompositions", arXiv:1411.1972 (6 Nov 2014)

2. "Strassen's Algorithm Is Not Optimal. Trilinear Technique of Aggregating, Uniting and Canceling for Constructing Fast Algorithms for Matrix Multiplication", Proceedings of the 19th Annual IEEE Symposium on Foundations of Computer Science (FOCS'78), 166–176, IEEE Computer Society Press, Long Beach, California (1978). Journal version: "New Fast Algorithms for Matrix Operations", SIAM J. on Computing, 9, 2, 321–342 (1980).

3. "Methods of Aggregations" (by W. L. Miranker and V. Y. Pan), Linear Algebra and Its Applications, 29, 231–257 (1980).

4. "New Combinations of Methods for the Acceleration of Matrix Multiplications", Computers and Mathematics (with Applications), 7, 73–125 (1981).

5. "Trilinear Aggregating with Implicit Canceling for a New Acceleration of Matrix Multiplication", Computers and Mathematics (with Applications), 8, 1, 23–34 (1982).

6. "Complexity of Parallel Matrix Computations", Theoretical Computer Science, 54, 65–85 (1987).

7. "On Computations with Dense Structured Matrices", Mathematics of Computation, 55, 191, 179–190 (1990). Proceedings version in ISSAC 1989.

8. "An Improved Newton Iteration for the Generalized Inverse of a Matrix, with Applications" (by V. Y. Pan and R. Schreiber), SIAM J. on Scientific and Statistical Computing, 12, 5, 1109–1131 (1991).

9. "On Practical Algorithms for Accelerated Matrix Multiplication" (by J. Laderman, V. Y. Pan and H-X. Sha), Linear Algebra and Its Applications, 162–164, 557–588 (1992).

10. "Parametrization of Newton's Iteration for Computations with Structured Matrices and Applications", Computers and Mathematics (with Applications), 24, 3, 61–75 (1992).

11. "Fast and Efficient Parallel Solution of Sparse Linear Systems" (by V. Y. Pan and J. Reif), SIAM J. on Computing, 22, 6, 1227–1250 (1993). Proceedings version in STOC 1985.

12. "Optimal and Nearly Optimal Algorithms for Approximating Polynomial Zeros", Computers and Mathematics (with Applications), 31, 12, 97–138 (1996). Proceedings version: "Optimal (up to Polylog Factors) Sequential and Parallel Algorithms for Approximating Complex Polynomial Zeros", Proc. 27th Annual ACM Symposium on Theory of Computing (STOC'95), 741–750, ACM Press, New York (1995).

13. "Planar Integer Linear Programming Is NC-equivalent to Euclidean GCD" (by D. F. Shallcross, V. Y. Pan and Y. Lin-Kriz), SIAM Journal on Computing, 27, 4, 960–971 (1998). Proceedings version in IEEE FOCS 1993.

14. "Fast Rectangular Matrix Multiplication and Applications" (by X. Huang and V. Y. Pan), J. of Complexity, 14, 257–299 (1998). Proceedings version in PASCO 1997.

15. "Approximating Complex Polynomial Zeros: Modified Quadtree (Weyl's) Construction and Improved Newton's Iteration", J. of Complexity, 16, 1, 213–264 (2000).

16. "Multivariate Polynomials, Duality and Structured Matrices" (by B. Mourrain and V. Y. Pan), J. of Complexity, 16, 1, 110–180 (2000).

17. "Univariate Polynomials: Nearly Optimal Algorithms for Numerical Factorization and Root-Finding", J. of Symbolic Computation, 33, 5, 701–733 (2002). Proceedings version in ISSAC 2001.

18. “Inversion of Displacement Operators” (by V. Y. Pan and X. Wang), *SIAM J. on Matrix Analysis and Applications*, 24, 3, 660–677 (2003).
19. “Inverse Power and Durand-Kerner Iteration for Univariate Polynomial Root-Finding” (by D. A. Bini, L. Gemignani and V. Y. Pan), *Computers and Mathematics (with Applications)*, 47, 2/3, 447–459 (2004).
20. “Fast and Stable QR Eigenvalue Algorithms for Generalized Semiseparable Matrices and Secular Equation” (by D. A. Bini, L. Gemignani and V. Y. Pan), *Numerische Mathematik*, 3, 373–408 (2005).
21. “Improved Algorithms for Computing Determinants and Resultants” (by I. Z. Emiris and V. Y. Pan), *J. of Complexity*, 21, 1, 43–71 (2005).
22. “Homotopic Residual Correction Algorithms for General and Structures Matrices” (by V. Y. Pan, M. Kunin, R. Rosholt, and H. Kodal), *Mathematics of Computation*, 75, 345–368 (2006).
23. “Degeneration of Integer Matrices Modulo an Integer” (by V. Y. Pan and X. Wang), *Linear Algebra and Its Applications*, 429, 2113–2130 (2008).
24. “Solving Homogeneous Linear Systems with Randomized Preprocessing” (by V. Y. Pan and G. Qian), *Linear Algebra and Its Applications*, 432, 3272–3318 (2010).
25. “New Progress in Real and Complex Polynomial Root-Finding” (by V. Y. Pan and A.-L. Zheng), *Computers and Mathematics (with Applications)*, 61, 1305–1334 (2011).
26. “Solving Linear Systems of Equations with Randomization, Augmentation and Aggregation” (by V. Y. Pan and G. Qian), *Linear Algebra and Its Applications*, 437, 2851–2876 (2012).
27. “Randomized Preconditioning versus Pivoting” (by V. Y. Pan, G. Qian, and A.-L. Zheng), *Linear Algebra and Its Applications*, 438, 4, 1883–1889 (2013).
28. “Transformations of Matrix Structures Work Again”, *Linear Algebra and Its Applications*, 465, 1-32 (2015).
29. “Random Multipliers Numerically Stabilize Gaussian and Block Gaussian Elimination: Proofs and an Extension to Low-rank Approximation”, *Linear Algebra and Its Applications*, 481, 202–234 (2015).
30. “Nearly Optimal Refinement of Real Roots of a Univariate Polynomial” by Victor Y. Pan and Elias Tsigaridas, *J. of Symbolic Computations*, 74, 181–204 (2016). Proceedings version in ISSAC 2013.
31. “How Bad Are Vandermonde Matrices?”, *SIAM Journal of Matrix Analysis*, 37, 2, 676–694 (2016).
32. “Numerically Safe Gaussian Elimination with No Pivoting” (by Victor Y. Pan and Liang Zhao), *Linear Algebra and Its Applications*, 527, 349–383 (2017). <http://dx.doi.org/10.1016/j.laa.017.04.007> “Real Polynomial Root-finding by Means of Matrix and Polynomial Iterations” (by Victor Y. Pan and Liang Zhao), *Theoretical Computer Science, Special Issue on Symbolic-Numerical Algorithms* (Stephen Watt, Jan Verschelde, and Lihong Zhi, editors), 681, 101-116 (2017), <http://dx.doi.org/10.1016/j.tcs.2017.03.032>.
33. “Nearly Optimal Computations with Structured Matrices” (by V. Y. Pan and E. P. Tsigaridas), *Theoretical Computer Science, Special Issue on Symbolic-Numerical Algorithms* (Stephen Watt, Jan Verschelde, and Lihong Zhi, editors), 681, 117–137, 2017. <http://dx.doi.org/10.1016/j.tcs.2017.03.031>.
34. “Old and New Nearly Optimal Polynomial Root-Finders”, In: *Proceedings of the 21st International Workshop on Computer Algebra in Scientific Computing (CASC’2019)*, (M. England, W. Koepf, T.M. Sadikov, W.M. Seiler, and E. V. Vorozhtsov, editors), *Lecture Notes in Computer Science*, **11661**, 393–411, Springer, Nature Switzerland (2019), doi: 10.1007/978-3-030-26831-2 and arXiv:1805.12042 Submitted on 30 May 2018
35. “CUR LRA at Sublinear Cost Based on Volume Maximization” (by Q. Luan, V. Y. Pan), LNCS 11989, In Book: *Mathematical Aspects of Computer and Information Sciences (MACIS 2019)*, D. Salmanig et al (Eds.), Springer Nature Switzerland AG 2020, Chapter No: 10, pages 1– 17, Chapter DOI:10.1007/978-3-030-43120-4_10
36. “Acceleration of Subdivision Root-Finding for Sparse Polynomials”, In: *Computer Algebra in Scientific Computing*, Springer Nature Switzerland AG 2020, F. Boulier et al. (Eds.): CASC

2020, LNCS 12291, Ch. 27, pp. 1 – 17, 2020
https://doi.org/10.1007/978-3-030-60026-6_27

37. “Faster Numerical Univariate Polynomial Root-Finding by Means of Subdivision Iterations” (by Qi Luan, Victor Y. Pan, Wongeun Kim, and Vitaly Zaderman), In: Computer Algebra in Scientific Computing, Springer Nature Switzerland AG 2020, F. Boulier et al. (Eds.): CASC 2020, LNCS 12291, Ch. 25, pp. 1 – 16, 2020
https://doi.org/10.1007/978-3-030-60026-6_25

4 RESEARCH PAPERS (in journals and refereed proceedings of conferences). 80 SELECTED FROM 277

1. “On Schemes for the Evaluation of Products and Inverses of Matrices”, *Uspekhi Matematicheskikh Nauk* (in Russian), 27, 5 (167), 249–250 (1972). Also see translation into English: “Better Late Than Never: Filling a Void in the History of Fast Matrix Multiplication and Tensor Decompositions”, arXiv:1411.1972 (6 Nov 2014)
2. “Strassen’s Algorithm Is Not Optimal. Trilinear Technique of Aggregating, Uniting and Canceling for Constructing Fast Algorithms for Matrix Multiplication”, *Proceedings of the 19th Annual IEEE Symposium on Foundations of Computer Science (FOCS’78)*, 166–176, IEEE Computer Society Press, Long Beach, California (1978).
3. “Fields Extension and Trilinear Aggregating, Uniting and Canceling for the Acceleration of Matrix Multiplication”, *Proceedings of the 20th Annual IEEE Symposium on Foundations of Computer Science (FOCS’79)*, 28–38, IEEE Computer Society Press, Long Beach, California (1979).
4. “Methods of Aggregations” (by W. L. Miranker and V. Y. Pan), *Linear Algebra and Its Applications*, 29, 231–257 (1980).
5. “New Fast Algorithms for Matrix Operations”, *SIAM J. on Computing*, 9, 2, 321–342 (1980).
6. “New Combinations of Methods for the Acceleration of Matrix Multiplications”, *Computers and Mathematics (with Applications)*, 7, 73–125 (1981).
7. “Trilinear Aggregating with Implicit Canceling for a New Acceleration of Matrix Multiplication”, *Computers and Mathematics (with Applications)*, 8, 1, 23–34 (1982).
8. “Polynomial Division and Its Computational Complexity” (by D. Bini and V. Y. Pan), *Journal of Complexity*, 2, 179–203 (1986).
9. “Complexity of Parallel Matrix Computations”, *Theoretical Computer Science*, 54, 65–85 (1987).
10. “Improved Processor Bounds for Combinatorial Problems in RNC” (by Z. Galil and V. Y. Pan), *Combinatorica*, 8, 2, 189–200 (1988).
11. “Fast and Efficient Solution of Path Algebra Problems” (by V. Y. Pan and J. Reif), *Journal of Computer and Systems Sciences*, 38, 3, 494–510 (1989).
12. “On Computations with Dense Structured Matrices”, *Mathematics of Computation*, 55, 191, 179–190 (1990). Proceedings version in ISSAC 1989.
13. “Processor Efficient Parallel Solution of Linear Systems over an Abstract Field” (by E. Kaltofen and V. Y. Pan), *Proc. 3rd Annual ACM Symposium on Parallel Algorithms and Architectures (SPAA’91)*, 180–191, ACM Press, New York (1991).

14. "An Improved Newton Iteration for the Generalized Inverse of a Matrix, with Applications" (by V. Y. Pan and R. Schreiber), *SIAM J. on Scientific and Statistical Computing*, 12, 5, 1109–1131 (1991).
15. "Parametrization of Newton's Iteration for Computations with Structured Matrices and Applications", *Computers and Mathematics (with Applications)*, 24, 3, 61–75 (1992).
16. "Compact Multigrid" (by V. Y. Pan and J. Reif), *SIAM J. on Scientific and Statistical Computing*, 13, 1, 119–127 (1992).
17. "Parallel Solution of Toeplitz-like Linear Systems", *J. of Complexity*, 8, 1–21 (1992).
18. "A Fast, Preconditioned Conjugate Gradient Toeplitz Solver" (by V. Y. Pan and R. Schreiber), *Computers and Mathematics (with Applications)*, 24, 7, 17–24 (1992).
19. "On Practical Algorithms for Accelerated Matrix Multiplication" (by J. Laderman, V. Y. Pan and H.-X. Sha), *Linear Algebra and Its Applications*, 162–164, 557–588 (1992).
20. "Practical Improvement of the Divide-and-Conquer Eigenvalue Algorithms" (by D. Bini and V. Y. Pan), *Computing*, 48, 109–123 (1992). Proceedings version in SODA 1991.
21. "Processor-Efficient Parallel Solution of Linear Systems II. The Positive Characteristic and Singular Cases" (by E. Kaltofen and V. Y. Pan), *Proc. of 33rd Annual IEEE Symposium on Foundations of Computer Science (FOCS'92)*, 714–723, IEEE Computer Society Press, Los Alamitos, California (1992).
22. "Concurrent Iterative Algorithm for Toeplitz-like Linear Systems", *IEEE Trans. on Parallel and Distributed Systems*, 4, 5, 592–600 (1993).
23. "Fast and Efficient Parallel Solution of Sparse Linear Systems" (by V. Y. Pan and J. Reif), *SIAM J. on Computing*, 22, 6, 1227–1250 (1993). Proceedings version in STOC 1985.
24. "Decreasing the Displacement Rank of a Matrix", *SIAM J. on Matrix Analysis and Applications*, 14, 1, 118–121 (1993).
25. "A New Algorithm for the Symmetric Tridiagonal Eigenvalue Problem" (by V. Y. Pan and J. Demmel), *Journal of Complexity*, 9, 387–405 (1993).
26. "Improved Parallel Polynomial Division" (by D. Bini and V. Y. Pan), *SIAM J. on Computing*, 22, 3, 617–627 (1993). Proceedings version in FOCS 1992.
27. "Fast and Efficient Parallel Solution of Sparse Linear Systems" (by V. Y. Pan and J. Reif), *SIAM J. on Computing*, 22, 6, 1227–1250 (1993). Proceedings version in STOC 1985.
28. "New Resultant Inequalities and Complex Polynomial Factorization", *SIAM Journal on Computing* 23, 5, 934–950 (1994).
29. "An Algebraic Approach to Approximate Evaluation of a Polynomial on a Set of Real Points", *Advances in Computational Mathematics*, 3, 41–58 (1995).
30. "Work-Preserving Speed-up of Parallel Matrix Computations" (by V. Y. Pan and F. P. Preparata), *SIAM J. on Computing*, 24, 4, 811–821 (1995). Proceedings version in SPAA 1992.
31. "Optimal (up to Polylog Factors) Sequential and Parallel Algorithms for Approximating Complex Polynomial Zeros", *Proc. 27th Annual ACM Symposium on Theory of Computing (STOC'95)*, 741–750, ACM Press, New York (1995).
32. "Optimal and Nearly Optimal Algorithms for Approximating Polynomial Zeros", *Computers and Mathematics (with Applications)*, 31, 12, 97–138 (1996).

33. "Parallel Computation of Polynomial GCD and Some Related Parallel Computations over Abstract Fields", *Theoretical Computer Science*, 162, 2, 173-223 (1996).
34. "Efficient Parallel Algorithms for Computing All Pair Shortest Paths in Directed Graphs" (by Y. Han, V. Y. Pan and J. Reif), *Algorithmica*, 17, 399-415 (1997).
35. "Planar Integer Linear Programming Is NC-equivalent to Euclidean GCD" (by D. F. Shallcross, V. Y. Pan, and Y. Lin-Kriz), *SIAM Journal on Computing*, 27, 4, 960-971 (1998). Proceedings version in FOCS 1993.
36. "Computing Matrix Eigenvalues and Polynomial Zeros Where the Output Is Real" (by D. Bini and V. Y. Pan), *SIAM J. on Computing*, 27, 4, 1099-1115 (1998). Proceedings version in SODA 1991.
37. "Fast Rectangular Matrix Multiplication and Applications" (by X. Huang and V. Y. Pan), *J. of Complexity*, 14, 257-299 (1998). Proceedings version in PASCOCO 1997.
38. "Efficient Parallel Algorithms for Computing All Pair Shortest Paths in Directed Graphs" (by Y. Han, V.Y. Pan, and J. Reif), *Algorithmica*, 17, 399-415 (1997).
39. "A Unified Superfast Algorithm for Boundary Rational Tangential Interpolation Problem and for Inversion and Factorization of Dense Structured Matrices" (by V. Olshevsky and V. Y. Pan), *Proc. 39th Annual IEEE Symposium on Foundation of Computer Science (FOCS'98)*, 192-201, IEEE Computer Society Press, Los Alamitos, California (1998).
40. "Sign Determination in Residue Number Systems" (by H. Brönnimann, I. Z. Emiris, V. Y. Pan and S. Pion), *Theoretical Computer Science*, 210, 1, 173-197 (1999).
41. "Newton's Iteration for Structured Matrices and Linear Systems of Equations" (by V. Y. Pan, S. Branham, R. Rosholt, and A. Zheng), *SIAM volume on Fast Reliable Algorithms for Matrices with Structure* (T. Kailath and A. H. Sayed, editors), ch. 7, pp. 189-210, SIAM Publications, Philadelphia (1999).
42. "Approximating Complex Polynomial Zeros: Modified Quadtree (Weyl's) Construction and Improved Newton's Iteration", *J. of Complexity*, 16, 1, 213-264 (2000).
43. "Multivariate Polynomials, Duality and Structured Matrices" (by B. Mourrain and V. Y. Pan), *J. of Complexity*, 16, 1, 110-180 (2000).
44. "New Techniques for the Computation of Linear Recurrence Coefficients", *Finite Fields and Their Applications*, 6, 93-118 (2000).
45. "Computation of a Specified Root of a Polynomial System of Equations Using Eigenvectors" (by D. Bondyfalat, B. Mourrain, and V. Y. Pan), *Linear Algebra and Its Applications*, 319, 193-209 (2000).
46. "Certification of Numerical Computation of the Sign of the Determinant of a Matrix" (by V. Y. Pan and Y. Yu), *Algorithmica*, 30, 708-724 (2001).
47. "Numerical Computation of a Polynomial GCD and Extensions", *Information and Computation*, 167, 2, 71-85 (2001).
48. "Structured Matrices and Newton's Iteration: Unified Approach" (by V. Y. Pan, Y. Rami, and X. Wang), *Linear Algebra and Its Applications*, 343/344, 233-265 (2002).
49. "Symbolic and Numerical Methods for Exploiting Structure in Constructing Resultant Matrices" (by I. Z. Emiris and V. Y. Pan), *Journal of Symbolic Computation*, 33, 393-413 (2002).
50. "Univariate Polynomials: Nearly Optimal Algorithms for Numerical Factorization and Root-Finding", *J. of Symbolic Computation*, 33, 5, 701-733 (2002).

51. “Accelerated Solution of Multivariate Polynomial Systems of Equations” (by B. Mourrain, V. Y. Pan, and O. Ruatta), *SIAM J. on Computing*, 32, 2, 435–454 (2003).
52. “Inversion of Displacement Operators” (by V. Y. Pan and X. Wang), *SIAM J. on Matrix Analysis and Applications*, 24, 3, 660–677 (2003).
53. “Inverse Power and Durand-Kerner Iteration for Univariate Polynomial Root-Finding” (by D. A. Bini, L. Gemignani, and V. Y. Pan), *Computers and Mathematics (with Applications)*, 47, 2/3, 447–459 (2004).
54. “Fast and Stable QR Eigenvalue Algorithms for Generalized Semiseparable Matrices and Secular Equation” (by D. A. Bini, L. Gemignani, and V. Y. Pan), *Numerische Mathematik*, 3, 373–408 (2005).
55. “Homotopic Residual Correction Algorithms for General and Structures Matrices” (by V. Y. Pan, M. Kunin, R. Rosholt, and H. Kodai), *Mathematics of Computation*, 75, 345–368 (2006).
56. “Degeneration of Integer Matrices Modulo an Integer” (by V. Y. Pan and X. Wang), *Linear Algebra and Its Applications*, 429, 2113–2130 (2008).
57. “Solving Homogeneous Linear Systems with Randomized Preprocessing” (by V. Y. Pan and G. Qian), *Linear Algebra and Its Applications*, 432, 3272–3318 (2010).
58. “Additive Preconditioning for Matrix Computations” (by V. Y. Pan, D. Ivolgin, B. Murphy, R. E. Rosholt, Y. Tang, and X. Yan), *Linear Algebra and Its Applications*, 432, 1070–1089 (2010).
59. “Newton’s Iteration for Matrix Inversion, Advances and Extensions”, pp. 364–381, in *Matrix Methods: Theory, Algorithms and Applications (dedicated to the Memory of Gene Golub, edited by Vadim Olshevsky and Eugene Tyrtyshnikov)*, World Scientific Publishing, New Jersey, ISBN-13 978-981-283-601-4, ISBN-10-981-283-601-2 (2010).
60. “Randomized Preconditioning of the MBA Algorithm” (by V. Y. Pan, G. Qian, and A.-L. Zheng), in *Proc. International Symposium on Symbolic and Algebraic Computation (IS-SAC’2011)*, San Jose, California, June 2011 (edited by Anton Leykin), 281–288, ACM Press, New York (2011).
61. “New Progress in Real and Complex Polynomial Root-Finding” (by V. Y. Pan and A.-L. Zheng), *Computers and Mathematics (with Applications)*, 61, 1305–1334 (2011).
62. “Solving Linear Systems of Equations with Randomization, Augmentation and Aggregation” (by V. Y. Pan and G. Qian), *Linear Algebra and Its Applications*, 437, 2851–2876 (2012).
63. “Randomized Preconditioning versus Pivoting” (by V. Y. Pan, G. Qian, and A.-L. Zheng), *Linear Algebra and Its Applications*, 438, 4, 1883–1889 (2013).
64. “Estimating the Norms of Circulant and Toeplitz Random Matrices and Their Inverses” (by V. Y. Pan, J. Svadlenka, and L. Zhao), *Linear Algebra and Its Applications*, 468, 197–210 (2015).
65. “Transformations of Matrix Structures Work Again”, *Linear Algebra and Its Applications*, 465, 1–32 (2015).
66. “Random Multipliers Numerically Stabilize Gaussian and Block Gaussian Elimination: Proofs and an Extension to Low-rank Approximation”, *Linear Algebra and Its Applications*, 481, 202–234 (2015).

67. “Low-rank Approximation of a Matrix: Novel Insights, New Progress, and Extensions” by Victor Y. Pan and Liang Zhao, Proc. of the Eleventh International Computer Science Symposium in Russia (CSR’2016), (Alexander Kulikov and Gerhard Woeginger, editors), St. Petersburg, Russia, June 2016, Lecture Notes in Computer Science (LNCS), Volume 9691, 352–366, Springer International Publishing, Switzerland (2016).
68. “Nearly Optimal Refinement of Real Roots of a Univariate Polynomial” by Victor Y. Pan and Elias Tsigaridas, *J. of Symbolic Computations*, 74, 181–204 (2016).
69. “How Bad Are Vandermonde Matrices?”, *SIAM Journal of Matrix Analysis and Applications*, 37, 2, 676–694 (2016).
70. “Real Polynomial Root-finding by Means of Matrix and Polynomial Iterations” by V. Y. Pan and L. Zhao, *Theoretical Computer Science, Special Issue on Symbolic– Numerical Algorithms* (Stephen Watt, Jan Verschelde, and Lihong Zhi, editors), 681, 101–116 (2017), <http://dx.doi.org/10.1016/j.tcs.2017.03.032>
71. ”Numerically Safe Gaussian Elimination with No Pivoting” (by Victor Y. Pan and Liang Zhao), *Linear Algebra and Its Applications*, 527, 349–383 (2017). <http://dx.doi.org/10.1016/j.laa.2017.04.007>
72. “Fast Approximate Computations with Cauchy Matrices and Polynomials”, *Mathematics of Computation*, 86, 2799–2826 (2017). <https://doi.org/10.1090/mcom/3204>
73. “Real Polynomial Root–finding by Means of Matrix and Polynomial Iterations” (by Victor Y. Pan and Liang Zhao), *Theoretical Computer Science, Special Issue on Symbolic–Numerical Algorithms* (Stephen Watt, Jan Verschelde, and Lihong Zhi, editors), 681, 101–116 (2017), <http://dx.doi.org/10.1016/j.tcs.2017.03.032>.
74. “Nearly Optimal Computations with Structured Matrices” (by V. Y. Pan and E. P. Tsigaridas), *Theoretical Computer Science, Special Issue on Symbolic–Numerical Algorithms* (Stephen Watt, Jan Verschelde, and Lihong Zhi, editors)), 681, 117–137, 2017. <http://dx.doi.org/10.1016/j.tcs.2017.03.031>.
75. “Old and New Nearly Optimal Polynomial Root-Finders”, In: *Proceedings of the 21st International Workshop on Computer Algebra in Scientific Computing (CASC’2019)*, (M. England, W. Koepf, T.M. Sadikov, W.M. Seiler, and E. V. Vorozhtsov, editors), *Lecture Notes in Computer Science*, **11661**, 393–411, Springer, Nature Switzerland (2019), doi: 10.1007/978-3-030-26831-2 and arXiv:1805.12042 Submitted on 30 May 2018
76. “Sublinear Cost Low Rank Approximation via Subspace Sampling” (by V. Y. Pan, Q. Luan, J. Svadlenka, and L. Zhao), In *LNCS 11989, Book: Mathematical Aspects of Computer and Information Sciences (MACIS 2019)*, D. Salmanig et al (Eds.), Springer Nature Switzerland AG 2020, Chapter No: 9, pages 1– 16, Springer Nature Switzerland AG 2020 Chapter DOI:10.1007/978-3-030-43120-4_9
77. “CUR LRA at Sublinear Cost Based on Volume Maximization” (by Q. Luan, V. Y. Pan), *LNCS 11989, In Book: Mathematical Aspects of Computer and Information Sciences (MACIS 2019)*, D. Salmanig et al (Eds.), Springer Nature Switzerland AG 2020, Chapter No: 10, pages 1– 17, Chapter DOI:10.1007/978-3-030-43120-4_10
78. “Acceleration of Subdivision Root-Finding for Sparse Polynomials”, In: *Computer Algebra in Scientific Computing*, Springer Nature Switzerland AG 2020, F. Boulier et al. (Eds.): *CASC 2020, LNCS 12291*, Ch. 27, pp. 1 – 17, 2020 <https://doi.org/10.1007/978 - 3 - 030 - 60026 - 6.27>
79. “Faster Numerical Univariate Polynomial Root-Finding by Means of Subdivision Iterations” (by Qi Luan, Victor Y. Pan, Wongeun Kim, and Vitaly Zaderman), In: *Computer Algebra in*

Scientific Computing, Springer Nature Switzerland AG 2020, F. Boulier et al. (Eds.): CASC
2020, LNCS 12291, Ch. 25, pp. 1 – 16, 2020
https://doi.org/10.1007/978-3-030-60026-6_25