

# Bibliography `njhigham.bib`

Nicholas J. Higham\*

September 26, 2016

Blue denotes clickable links.

## References

- [1] Awad H. Al-Mohy and Nicholas J. Higham. [Computing the Fréchet derivative of the matrix exponential, with an application to condition number estimation](#). *SIAM J. Matrix Anal. Appl.*, 30(4):1639–1657, 2009.
- [2] Awad H. Al-Mohy and Nicholas J. Higham. [A new scaling and squaring algorithm for the matrix exponential](#). *SIAM J. Matrix Anal. Appl.*, 31(3):970–989, 2009.
- [3] Awad H. Al-Mohy and Nicholas J. Higham. [The complex step approximation to the Fréchet derivative of a matrix function](#). *Numer. Algorithms*, 53(1):133–148, 2010.
- [4] Awad H. Al-Mohy and Nicholas J. Higham. [Computing the action of the matrix exponential, with an application to exponential integrators](#). *SIAM J. Sci. Comput.*, 33(2):488–511, 2011.
- [5] Awad H. Al-Mohy and Nicholas J. Higham. [Improved inverse scaling and squaring algorithms for the matrix logarithm](#). *SIAM J. Sci. Comput.*, 34(4):C153–C169, 2012.

---

\*School of Mathematics, University of Manchester, Manchester, M13 9PL, UK  
([nick.higham@manchester.ac.uk](mailto:nick.higham@manchester.ac.uk), <http://www.maths.manchester.ac.uk/~higham>)

- [6] Awad H. Al-Mohy, Nicholas J. Higham, and Samuel D. Relton. [Computing the Fréchet derivative of the matrix logarithm and estimating the condition number](#). *SIAM J. Sci. Comput.*, 35(4):C394–C410, 2013.
- [7] Awad H. Al-Mohy, Nicholas J. Higham, and Samuel D. Relton. [New algorithms for computing the matrix sine and cosine separately or simultaneously](#). *SIAM J. Sci. Comput.*, 37(1):A456–A487, 2015.
- [8] Mary Aprahamian, Desmond J. Higham, and Nicholas J. Higham. [Matching exponential-based and resolvent-based centrality measures](#). *Journal of Complex Networks*, 2015. Advance Access published June 29, 2015.
- [9] Mary Aprahamian and Nicholas J. Higham. [The matrix unwinding function, with an application to computing the matrix exponential](#). *SIAM J. Matrix Anal. Appl.*, 35(1):88–109, 2014.
- [10] Mary Aprahamian and Nicholas J. Higham. Argument reduction for computing periodic functions. MIMS EPrint, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, 2015. In preparation.
- [11] Mary Aprahamian and Nicholas J. Higham. [Matrix inverse trigonometric and inverse hyperbolic functions: Theory and algorithms](#). MIMS EPrint 2016.4, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, January 2016. 25 pp. To appear in *SIAM J. Matrix Anal. Appl.*
- [12] Wayne Arter, J. Guy Morgan, Samuel D. Relton, and Nicholas J. Higham. [Ranking the importance of nuclear reactions for activation and transmutation events](#). MIMS EPrint 2015.17, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, February 2015. 37 pp. Revised May 2016. To appear in *Nuclear Science and Engineering*.
- [13] Susanne M. Balle, Per Christian Hansen, and Nicholas J. Higham. A Strassen-type matrix inversion algorithm for the Connection Machine. Technical Report CNC/1993/028, Centre for Novel Computing, University of Manchester, Manchester, England, October 1993. 29 pp.

- [14] Timo Betcke, Nicholas J. Higham, Volker Mehrmann, Christian Schröder, and Françoise Tisseur. NLEVP: A collection of non-linear eigenvalue problems. <http://www.mims.manchester.ac.uk/research/numerical-analysis/nlevp.html>.
- [15] Timo Betcke, Nicholas J. Higham, Volker Mehrmann, Christian Schröder, and Françoise Tisseur. NLEVP: A collection of nonlinear eigenvalue problems. MIMS EPrint 2011.116, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, December 2011. 27 pp.
- [16] Timo Betcke, Nicholas J. Higham, Volker Mehrmann, Christian Schröder, and Françoise Tisseur. NLEVP: A collection of nonlinear eigenvalue problems. Users' guide. MIMS EPrint 2011.117, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, December 2011. 8 pp.
- [17] Timo Betcke, Nicholas J. Higham, Volker Mehrmann, Christian Schröder, and Françoise Tisseur. [NLEVP: A collection of nonlinear eigenvalue problems](#). *ACM Trans. Math. Software*, 39(2):7:1–7:28, 2013.
- [18] Iain Bethune, J. Mark Bull, Nicholas J. Dingle, and Nicholas J. Higham. [Investigating the performance of asynchronous Jacobi's method for solving systems of linear equations](#). MIMS EPrint 2011.82, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, October 2011. 8 pp.
- [19] Iain Bethune, J. Mark Bull, Nicholas J. Dingle, and Nicholas J. Higham. [Performance analysis of asynchronous Jacobi's method implemented in MPI, SHMEM and OpenMP](#). *Int. J. High Performance Computing Applications*, 28(1):97–111, 2014.
- [20] Dario A. Bini, Nicholas J. Higham, and Beatrice Meini. [Algorithms for the matrix  \$p\$ th root](#). *Numer. Algorithms*, 39(4):349–378, 2005.
- [21] Adam Bojanczyk, Nicholas J. Higham, and Harikrishna Patel. [The equality constrained indefinite least squares problem: Theory and algorithms](#). *BIT*, 43(3):505–517, 2003.

- [22] Adam Bojanczyk, Nicholas J. Higham, and Harikrishna Patel. [Solving the indefinite least squares problem by hyperbolic QR factorization](#). *SIAM J. Matrix Anal. Appl.*, 24(4):914–931, 2003.
- [23] Rüdiger Borsdorf and Nicholas J. Higham. [A preconditioned Newton algorithm for the nearest correlation matrix](#). *IMA J. Numer. Anal.*, 30(1):94–107, 2010.
- [24] Rüdiger Borsdorf, Nicholas J. Higham, and Marcos Raydan. [Computing a nearest correlation matrix with factor structure](#). *SIAM J. Matrix Anal. Appl.*, 31(5):2603–2622, 2010.
- [25] Thierry Braconnier and Nicholas J. Higham. [Computing the field of values and pseudospectra using the Lanczos method with continuation](#). *BIT*, 36(3):422–440, 1996.
- [26] David P. Carlisle and Nicholas J. Higham.  $\text{\LaTeX} 2_{\varepsilon}$ : Should you upgrade to it? *SIAM News*, 29(1):12, 1996.
- [27] Sheung Hun Cheng and Nicholas J. Higham. [A modified Cholesky algorithm based on a symmetric indefinite factorization](#). *SIAM J. Matrix Anal. Appl.*, 19(4):1097–1110, 1998.
- [28] Sheung Hun Cheng and Nicholas J. Higham. [The nearest definite pair for the Hermitian generalized eigenvalue problem](#). *Linear Algebra Appl.*, 302-303:63–76, 1999.
- [29] Sheung Hun Cheng and Nicholas J. Higham. Implementation for LAPACK of a block algorithm for matrix 1-norm estimation. Numerical Analysis Report No. 393, Manchester Centre for Computational Mathematics, Manchester, England, August 2001. 19 pp. LAPACK Working Note 152.
- [30] Sheung Hun Cheng and Nicholas J. Higham. Parallel implementation of a block algorithm for matrix 1-norm estimation. In *Euro-Par 2001, Parallel Processing*, Rizos Sakellariou, John Keane, John Gurd, and Len Freeman, editors, volume 2150 of *Lecture Notes in Computer Science*, Springer-Verlag, Berlin, 2001, pages 568–577.
- [31] Sheung Hun Cheng, Nicholas J. Higham, Charles S. Kenney, and Alan J. Laub. Return to the middle ages: A half-angle iteration for the

- logarithm of a unitary matrix. In *Proceedings of the Fourteenth International Symposium of Mathematical Theory of Networks and Systems, Perpignan, France, 2000*. CD ROM.
- [32] Sheung Hun Cheng, Nicholas J. Higham, Charles S. Kenney, and Alan J. Laub. [Approximating the logarithm of a matrix to specified accuracy](#). *SIAM J. Matrix Anal. Appl.*, 22(4):1112–1125, 2001.
  - [33] Robert M. Corless, Hui Ding, Nicholas J. Higham, and David J. Jeffrey. [The solution of  \$S \exp\(S\) = A\$  is not always the Lambert  \$W\$  function of  \$A\$](#) . In *ISSAC '07: Proceedings of the 2007 International Symposium on Symbolic and Algebraic Computation*, New York, 2007, pages 116–121. ACM Press.
  - [34] Anthony J. Cox and Nicholas J. Higham. Stability of Householder QR factorization for weighted least squares problems. In *Numerical Analysis 1997, Proceedings of the 17th Dundee Biennial Conference*, D. F. Griffiths, D. J. Higham, and G. A. Watson, editors, volume 380 of *Pitman Research Notes in Mathematics*, Addison Wesley Longman, Harlow, Essex, UK, 1998, pages 57–73.
  - [35] Anthony J. Cox and Nicholas J. Higham. [Accuracy and stability of the null space method for solving the equality constrained least squares problem](#). *BIT*, 39(1):34–50, 1999.
  - [36] Anthony J. Cox and Nicholas J. Higham. [Backward error bounds for constrained least squares problems](#). *BIT*, 39(2):210–227, 1999.
  - [37] Anthony J. Cox and Nicholas J. Higham. [Row-wise backward stable elimination methods for the equality constrained least squares problem](#). *SIAM J. Matrix Anal. Appl.*, 21(1):313–326, 1999.
  - [38] Philip I. Davies and Nicholas J. Higham. Generating test matrices for the one- and two-sided Jacobi methods. Numerical Analysis Report No. 338, Manchester Centre for Computational Mathematics, Manchester, England, January 1999. 13 pp.
  - [39] Philip I. Davies and Nicholas J. Higham. [Numerically stable generation of correlation matrices and their factors](#). *BIT*, 40(4):640–651, 2000.

- [40] Philip I. Davies and Nicholas J. Higham. [A Schur–Parlett algorithm for computing matrix functions](#). *SIAM J. Matrix Anal. Appl.*, 25(2): 464–485, 2003.
- [41] Philip I. Davies and Nicholas J. Higham. Computing  $f(A)b$  for matrix functions  $f$ . In *QCD and Numerical Analysis III*, Artan Boriçi, Andreas Frommer, Bálint Joó, Anthony Kennedy, and Brian Pendleton, editors, volume 47 of *Lecture Notes in Computational Science and Engineering*, Springer-Verlag, Berlin, 2005, pages 15–24.
- [42] Philip I. Davies, Nicholas J. Higham, and Françoise Tisseur. [Analysis of the Cholesky method with iterative refinement for solving the symmetric definite generalized eigenproblem](#). *SIAM J. Matrix Anal. Appl.*, 23(2):472–493, 2001.
- [43] Edvin Deadman and Nicholas J. Higham. Testing matrix function algorithms using identities. <http://blog.nag.com/2014/04/testing-matrix-function-algorithms.html>, 2014.
- [44] Edvin Deadman and Nicholas J. Higham. [Testing matrix function algorithms using identities](#). *ACM Trans. Math. Software*, 42(1):4:1–4:15, 2016.
- [45] Edvin Deadman, Nicholas J. Higham, and Rui Ralha. [Blocked Schur algorithms for computing the matrix square root](#). In *Applied Parallel and Scientific Computing: 11th International Conference, PARA 2012, Helsinki, Finland*, P. Manninen and P. Öster, editors, volume 7782 of *Lecture Notes in Computer Science*, Springer-Verlag, Berlin, 2013, pages 171–182.
- [46] James W. Demmel and Nicholas J. Higham. [Stability of block algorithms with fast level-3 BLAS](#). *ACM Trans. Math. Software*, 18(3): 274–291, 1992.
- [47] James W. Demmel and Nicholas J. Higham. [Improved error bounds for underdetermined system solvers](#). *SIAM J. Matrix Anal. Appl.*, 14(1):1–14, 1993.
- [48] James W. Demmel, Nicholas J. Higham, and Robert S. Schreiber. [Stability of block LU factorization](#). *Numer. Linear Algebra Appl.*, 2(2): 173–190, 1995.

- [49] Nicholas J. Dingle and Nicholas J. Higham. [Reducing the influence of tiny normwise relative errors on performance profiles](#). *ACM Trans. Math. Software*, 39(4):24:1–24:11, 2013.
- [50] Jack Dongarra, Iain Duff, Mark Gates, Azzam Haidar, Sven Hammarling, Nicholas J. Higham, Jonathon Hogg, Pedro Valero-Lara, Samuel D. Relton, Stanimire Tomov, and Mawussi Zounon. [A proposed API for Batched Basic Linear Algebra Subprograms](#). MIMS EPrint 2016.25, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, April 2016. 20 pp.
- [51] Jack Dongarra, Sven Hammarling, Nicholas J. Higham, Samuel D. Relton, Pedro Valero-Lara, and Mawussi Zounon. [Creating a standardised set of batched BLAS routines](#). In *Proceedings of the Fourth Workshop on Sustainable Software for Science: Practice and Experiences (WSSSE4)*, Gabrielle Allen, Jeffrey Carver, Sou-Cheng T. Choi, et al., editors, volume 1686, CEUR Workshop Proceedings, 2016.
- [52] Jeremy J. Du Croz and Nicholas J. Higham. [Stability of methods for matrix inversion](#). *IMA J. Numer. Anal.*, 12:1–19, 1992.
- [53] Massimiliano Fasi, Nicholas J. Higham, and Bruno Iannazzo. [An algorithm for the matrix Lambert  \$W\$  function](#). *SIAM J. Matrix Anal. Appl.*, 36(2):669–685, 2015.
- [54] Ivan Graham and Nicholas J. Higham. [UKIE applied/computational mathematicians greet the year in Sheffield, Manchester](#). *SIAM News*, 37(4):12, 2004.
- [55] Laurence Grammont, Nicholas J. Higham, and Françoise Tisseur. [A framework for analyzing nonlinear eigenproblems and parametrized linear systems](#). *Linear Algebra Appl.*, 435(3):623–640, 2011.
- [56] Chun-Hua Guo and Nicholas J. Higham. [A Schur–Newton method for the matrix  \$p\$ th root and its inverse](#). *SIAM J. Matrix Anal. Appl.*, 28(3):788–804, 2006.
- [57] Chun-Hua Guo and Nicholas J. Higham. [Iterative solution of a non-symmetric algebraic Riccati equation](#). *SIAM J. Matrix Anal. Appl.*, 29(2):396–412, 2007.

- [58] Chun-Hua Guo, Nicholas J. Higham, and Françoise Tisseur. [Detecting and solving hyperbolic quadratic eigenvalue problems](#). *SIAM J. Matrix Anal. Appl.*, 30(4):1593–1613, 2009.
- [59] Chun-Hua Guo, Nicholas J. Higham, and Françoise Tisseur. [An improved arc algorithm for detecting definite Hermitian pairs](#). *SIAM J. Matrix Anal. Appl.*, 31(3):1131–1151, 2009.
- [60] Nicholas Hale, Nicholas J. Higham, and Lloyd N. Trefethen. [Computing  \$A^\alpha\$ ,  \$\log\(A\)\$ , and related matrix functions by contour integrals](#). *SIAM J. Numer. Anal.*, 46(5):2505–2523, 2008.
- [61] Sven Hammarling and Nicholas J. Higham. [How to prepare a poster](#). *SIAM News*, 29(4):20, 19, 1996.
- [62] Sven Hammarling, Nicholas J. Higham, and Bo Kågström. CERFACS hosts workshop on reliability of computations. *SIAM News*, 26:4, 1993.
- [63] Sven Hammarling, Nicholas J. Higham, and Craig Lucas. [LAPACK-style codes for pivoted Cholesky and QR updating](#). In *Applied Parallel Computing. State of the Art in Scientific Computing. 8th International Workshop, PARA 2006*, Bo Kågström, Erik Elmroth, Jack Dongarra, and Jerzy Waśniewski, editors, number 4699 in *Lecture Notes in Computer Science*, Springer-Verlag, Berlin, 2007, pages 137–146.
- [64] Gareth I. Hargreaves and Nicholas J. Higham. [Efficient algorithms for the matrix cosine and sine](#). *Numer. Algorithms*, 40(4):383–400, 2005.
- [65] Desmond J. Higham and Nicholas J. Higham. [Backward error and condition of structured linear systems](#). *SIAM J. Matrix Anal. Appl.*, 13(1):162–175, 1992.
- [66] Desmond J. Higham and Nicholas J. Higham. [Componentwise perturbation theory for linear systems with multiple right-hand sides](#). *Linear Algebra Appl.*, 174:111–129, 1992.
- [67] Desmond J. Higham and Nicholas J. Higham. [Structured backward error and condition of generalized eigenvalue problems](#). *SIAM J. Matrix Anal. Appl.*, 20(2):493–512, 1998.



- [68] Desmond J. Higham and Nicholas J. Higham. *MATLAB Guide*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2000. xxii+283 pp. ISBN 0-89871-516-4.
- [69] Desmond J. Higham and Nicholas J. Higham. *MATLAB Guide*. Second edition, Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2005. xxiii+382 pp. ISBN 0-89871-578-4.
- [70] Desmond J. Higham and Nicholas J. Higham. *MATLAB Guide*. Second edition, A-Jin Publishing Company, Korea, 2006. 450 pp. Korean edition of [69]. ISBN 89-5761-168-1.
- [71] N. J. Higham. *Matrix condition numbers*. M.Sc. Thesis, University of Manchester, Manchester, England, October 1983. iv+86 pp.
- [72] Nicholas J. Higham. The Matrix Computation Toolbox. <http://www.maths.manchester.ac.uk/~higham/mctoolbox>.
- [73] Nicholas J. Higham. The Matrix Function Toolbox. <http://www.maths.manchester.ac.uk/~higham/mftoolbox>.
- [74] Nicholas J. Higham. Upper bounds for the condition number of a triangular matrix. Numerical Analysis Report No. 86, University of Manchester, Manchester, England, May 1983.
- [75] Nicholas J. Higham. Matrix computations in Basic on a microcomputer. Numerical Analysis Report No. 101, Department of Mathematics, University of Manchester, Manchester, M13 9PL, UK, June 1985. 62 pp.
- [76] Nicholas J. Higham. *Nearness Problems in Numerical Linear Algebra*. PhD thesis, University of Manchester, Manchester, England, July 1985. 173 pp.
- [77] Nicholas J. Higham. *Computing the polar decomposition—with applications*. *SIAM J. Sci. Statist. Comput.*, 7(4):1160–1174, 1986.
- [78] Nicholas J. Higham. *Efficient algorithms for computing the condition number of a tridiagonal matrix*. *SIAM J. Sci. Statist. Comput.*, 7(1): 150–165, 1986.

- [79] Nicholas J. Higham. Matrix computations in Basic on a microcomputer. *IMA Bulletin*, 22(1/2):13–20, 1986.
- [80] Nicholas J. Higham. [Newton’s method for the matrix square root](#). *Math. Comp.*, 46(174):537–549, 1986.
- [81] Nicholas J. Higham. [Computing real square roots of a real matrix](#). *Linear Algebra Appl.*, 88/89:405–430, 1987.
- [82] Nicholas J. Higham. [Error analysis of the Björck-Pereyra algorithms for solving Vandermonde systems](#). *Numer. Math.*, 50(5):613–632, 1987.
- [83] Nicholas J. Higham. [A survey of condition number estimation for triangular matrices](#). *SIAM Rev.*, 29(4):575–596, 1987.
- [84] Nicholas J. Higham. [Computing a nearest symmetric positive semidefinite matrix](#). *Linear Algebra Appl.*, 103:103–118, 1988.
- [85] Nicholas J. Higham. [Fast solution of Vandermonde-like systems involving orthogonal polynomials](#). *IMA J. Numer. Anal.*, 8:473–486, 1988.
- [86] Nicholas J. Higham. [FORTRAN codes for estimating the one-norm of a real or complex matrix, with applications to condition estimation \(Algorithm 674\)](#). *ACM Trans. Math. Software*, 14(4):381–396, 1988.
- [87] Nicholas J. Higham. [The symmetric Procrustes problem](#). *BIT*, 28:133–143, 1988.
- [88] Nicholas J. Higham. [The accuracy of solutions to triangular systems](#). *SIAM J. Numer. Anal.*, 26(5):1252–1265, 1989.
- [89] Nicholas J. Higham. A collection of test matrices in MATLAB. Numerical Analysis Report No. 172, University of Manchester, Manchester, England, July 1989.
- [90] Nicholas J. Higham. Matrix computations on a PC. *SIAM News*, 22:16, 1989.
- [91] Nicholas J. Higham. Matrix nearness problems and applications. In *Applications of Matrix Theory*, M. J. C. Gover and S. Barnett, editors, Oxford University Press, 1989, pages 1–27.

- [92] Nicholas J. Higham. Analysis of the Cholesky decomposition of a semi-definite matrix. In *Reliable Numerical Computation*, M. G. Cox and S. J. Hammarling, editors, Oxford University Press, 1990, pages 161–185.
- [93] Nicholas J. Higham. [Bounding the error in Gaussian elimination for tridiagonal systems](#). *SIAM J. Matrix Anal. Appl.*, 11(4):521–530, 1990.
- [94] Nicholas J. Higham. Computing error bounds for regression problems. In *Statistical Analysis of Measurement Error Models and Applications, Contemporary Mathematics 112*, Philip J. Brown and Wayne A. Fuller, editors, American Mathematical Society, Providence, RI, USA, 1990, pages 195–208.
- [95] Nicholas J. Higham. [Experience with a matrix norm estimator](#). *SIAM J. Sci. Statist. Comput.*, 11(4):804–809, 1990.
- [96] Nicholas J. Higham. [Exploiting fast matrix multiplication within the level 3 BLAS](#). *ACM Trans. Math. Software*, 16(4):352–368, 1990.
- [97] Nicholas J. Higham. How accurate is Gaussian elimination? In *Numerical Analysis 1989, Proceedings of the 13th Dundee Conference*, D. F. Griffiths and G. A. Watson, editors, volume 228 of *Pitman Research Notes in Mathematics*, Longman Scientific and Technical, Essex, UK, 1990, pages 137–154.
- [98] Nicholas J. Higham. Is fast matrix multiplication of practical use? *SIAM News*, 23:12+, 1990.
- [99] Nicholas J. Higham. Iterative refinement enhances the stability of  $QR$  factorization methods for solving linear equations. Numerical Analysis Report No. 182, University of Manchester, Manchester, England, April 1990.
- [100] Nicholas J. Higham. MATLAB: A tool for teaching and research. *Mathematics and Statistics Newsletter of Computers in Teaching Initiative*, 1(1):4–8, 1990.
- [101] Nicholas J. Higham. [Review of “G. H. Golub and C. F. Van Loan, Matrix Computations, Second Edition, Johns Hopkins University Press, Baltimore, Maryland, 1989”](#). *Linear Algebra Appl.*, 141:289–292, 1990.

- [102] Nicholas J. Higham. [Review of “M. J. C. Gover and S. Barnett, eds., Applications of Matrix Theory, Oxford University Press, 1989”](#). *The Mathematical Gazette*, 74(468):202, 1990.
- [103] Nicholas J. Higham. [Stability analysis of algorithms for solving confluent Vandermonde-like systems](#). *SIAM J. Matrix Anal. Appl.*, 11(1): 23–41, 1990.
- [104] Nicholas J. Higham. [Algorithm 694: A collection of test matrices in MATLAB](#). *ACM Trans. Math. Software*, 17(3):289–305, 1991.
- [105] Nicholas J. Higham. [Iterative refinement enhances the stability of QR factorization methods for solving linear equations](#). *BIT*, 31:447–468, 1991.
- [106] Nicholas J. Higham. Solving linear equations. In *New Applications of Mathematics*, Christine Bondi, editor, Penguin, London, 1991, pages 33–56.
- [107] Nicholas J. Higham. Three measures of precision in floating point arithmetic. *NA Digest*, Volume 91, Issue 16, 1991. Electronic mail magazine: [na.help@na-net.ornl.gov](mailto:na.help@na-net.ornl.gov).
- [108] Nicholas J. Higham. [Estimating the matrix  \$p\$ -norm](#). *Numer. Math.*, 62:539–555, 1992.
- [109] Nicholas J. Higham. IMA workshop participants fête Golub on 60th birthday. *SIAM News*, 25:3+, 1992.
- [110] Nicholas J. Higham. The joy of anonymous FTP. *IMA Numerical Analysis Newsletter*, 17(1):61–64, 1992.
- [111] Nicholas J. Higham. LAPACK released in March. *SIAM News*, 25:20, 1992.
- [112] Nicholas J. Higham. [Stability of a method for multiplying complex matrices with three real matrix multiplications](#). *SIAM J. Matrix Anal. Appl.*, 13(3):681–687, 1992.
- [113] Nicholas J. Higham. [The accuracy of floating point summation](#). *SIAM J. Sci. Comput.*, 14(4):783–799, 1993.

- [114] Nicholas J. Higham. *Handbook of Writing for the Mathematical Sciences*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1993. xii+241 pp. ISBN 0-89871-314-5.
- [115] Nicholas J. Higham. [Optimization by direct search in matrix computations](#). *SIAM J. Matrix Anal. Appl.*, 14(2):317–333, 1993.
- [116] Nicholas J. Higham. [Perturbation theory and backward error for  \$AX - XB = C\$](#) . *BIT*, 33:124–136, 1993.
- [117] Nicholas J. Higham. The Test Matrix Toolbox for MATLAB. Numerical Analysis Report No. 237, Manchester Centre for Computational Mathematics, Manchester, England, December 1993. 76 pp.
- [118] Nicholas J. Higham.  $\text{\LaTeX}$ : A versatile tool for  $\text{\LaTeX}$  users. *SIAM News*, 27:10, 11, 19, 1994.
- [119] Nicholas J. Higham. *Handbook of Writing for the Mathematical Sciences*. Nippon Hyoron Sha, Tokyo, 1994. x+235 pp. Japanese edition of [114], translated by Shoji Okumura and Takemitsu Hasegawa. ISBN 4-535-78211-3.
- [120] Nicholas J. Higham. [The matrix sign decomposition and its relation to the polar decomposition](#). *Linear Algebra Appl.*, 212/213:3–20, 1994.
- [121] Nicholas J. Higham. A survey of componentwise perturbation theory in numerical linear algebra. In *Mathematics of Computation 1943–1993: A Half Century of Computational Mathematics*, Walter Gautschi, editor, volume 48 of *Proceedings of Symposia in Applied Mathematics*, American Mathematical Society, Providence, RI, USA, 1994, pages 49–77.
- [122] Nicholas J. Higham. Which dictionary for the mathematical scientist? *IMA Bulletin*, 30(5/6):81–88, 1994.
- [123] Nicholas J. Higham. Review of “Howard Anton and Chris Rorres, Elementary Linear Algebra: Applications Version, Seventh edition, Wiley, New York, 1994.”. *IMA Bulletin*, 31(7/8):122–123, 1995.
- [124] Nicholas J. Higham. [Stability of parallel triangular system solvers](#). *SIAM J. Sci. Comput.*, 16(2):400–413, 1995.

- [125] Nicholas J. Higham. [The Test Matrix Toolbox for MATLAB \(version 3.0\)](#). Numerical Analysis Report No. 276, Manchester Centre for Computational Mathematics, Manchester, England, September 1995. 70 pp.
- [126] Nicholas J. Higham. *Accuracy and Stability of Numerical Algorithms*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1996. xxviii+688 pp. ISBN 0-89871-355-2.
- [127] Nicholas J. Higham. *Accuracy and Stability of Numerical Algorithms*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1996. xxviii+688 pp. ISBN 0-89871-355-2.
- [128] Nicholas J. Higham. Review of “Acta Numerica 1994 and Acta Numerica 1995, Cambridge University Press”. *Mathematics Today*, 32(1/2): 28, 1996.
- [129] Nicholas J. Higham. Review of “Are Magnus Bruaset, A Survey of Preconditioned Iterative Methods, volume 328 of Pitman Research Notes in Mathematics. Longman Scientific and Technical, Essex, UK, 1995.”. *IMA Bulletin*, 32(3/4):60, 1996.
- [130] Nicholas J. Higham. [Review of “Dario Bini and Victor Y. Pan, \*Polynomial and Matrix Computations. Volume 1: Fundamental Algorithms\*, Birkhäuser, 1994”](#). *Math. Comp.*, 65(214):888–889, 1996.
- [131] Nicholas J. Higham. [Iterative refinement for linear systems and LAPACK](#). *IMA J. Numer. Anal.*, 17(4):495–509, 1997.
- [132] Nicholas J. Higham. Manchester hosts inaugural meeting of UK and Irish SIAM Section. *SIAM News*, 30(3):3, 1997.
- [133] Nicholas J. Higham. Recent developments in dense numerical linear algebra. In *The State of the Art in Numerical Analysis*, I. S. Duff and G. A. Watson, editors, Oxford University Press, 1997, pages 1–26.
- [134] Nicholas J. Higham. Review of “James R. Schott, *Matrix Analysis for Statistics*, Wiley, 1997”. *Mathematics Today*, 33(5):161–162, 1997.
- [135] Nicholas J. Higham. [Stability of the diagonal pivoting method with partial pivoting](#). *SIAM J. Matrix Anal. Appl.*, 18(1):52–65, 1997.

- [136] Nicholas J. Higham. [Stable iterations for the matrix square root](#). *Numer. Algorithms*, 15(2):227–242, 1997.
- [137] Nicholas J. Higham. Testing linear algebra software. In *Quality of Numerical Software: Assessment and Enhancement*, Ronald F. Boisvert, editor, Chapman and Hall, London, 1997, pages 109–122.
- [138] Nicholas J. Higham. Commentary on Lanczos’s “Introduction” to the “Tables of Chebyshev Polynomials  $S_n(x)$  and  $C_n(x)$ ”. In *Cornelius Lanczos Collected Published Papers with Commentaries*, William R. Davis et al., editors, volume VI, North Carolina State University, Raleigh, NC 27695-8202, USA, 1998, pages 3:557–3:559.
- [139] Nicholas J. Higham. [Factorizing complex symmetric matrices with positive definite real and imaginary parts](#). *Math. Comp.*, 67(224):1591–1599, 1998.
- [140] Nicholas J. Higham. [Handbook of Writing for the Mathematical Sciences](#). Second edition, Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1998. xvi+302 pp. ISBN 0-89871-420-6.
- [141] Nicholas J. Higham. Review of “Christoph W. Ueberhuber, Numerical Computation: Methods, Software and Analysis, Springer-Verlag, 1997”. *Computational Science and Engineering*, 5(1):79, 1998.
- [142] Nicholas J. Higham. [Featured book review: Selected books on numerical linear algebra](#). *SIAM Rev.*, 41(3):607–610, 1999.
- [143] Nicholas J. Higham. [A fitting tribute to a pioneering numerical analyst \[Cleve Moler\]](#). *SIAM News*, 32(10):3, 1999.
- [144] Nicholas J. Higham. A new `sqrtn` for MATLAB. Numerical Analysis Report No. 336, Manchester Centre for Computational Mathematics, Manchester, England, January 1999. 11 pp.
- [145] Nicholas J. Higham. Notes on accuracy and stability of algorithms in numerical linear algebra. In *The Graduate Student’s Guide to Numerical Analysis ’98*, Mark Ainsworth, Jeremy Levesley, and Marco Marletta, editors, Springer-Verlag, Berlin, 1999, pages 48–82.

- [146] Nicholas J. Higham. Review of “Peter D. Lax, *Linear Algebra*, Wiley, 1997”. *Bull. London Math. Soc.*, 31:374–375, 1999.
- [147] Nicholas J. Higham. [Stability of block  \$\text{LDL}^T\$  factorization of a symmetric tridiagonal matrix](#). *Linear Algebra Appl.*, 287:181–189, 1999.
- [148] Nicholas J. Higham. [QR factorization with complete pivoting and accurate computation of the SVD](#). *Linear Algebra Appl.*, 309:153–174, 2000.
- [149] Nicholas J. Higham. Review of “Jack J. Dongarra, Iain S. Duff, Danny C. Sorensen, and Henk A. van der Vorst, *Numerical Linear Algebra for High-Performance Computers*, Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1998”. *SIAM Rev.*, 42(3):529, 2000.
- [150] Nicholas J. Higham. [Evaluating Padé approximants of the matrix logarithm](#). *SIAM J. Matrix Anal. Appl.*, 22(4):1126–1135, 2001.
- [151] Nicholas J. Higham. Review of “Michael Alley, *The Craft of Editing: A Guide for Managers, Scientists and Engineers*. Springer-Verlag, 2000”. *SIAM Rev.*, 43(1):202, 2001.
- [152] Nicholas J. Higham. [Accuracy and Stability of Numerical Algorithms](#). Second edition, Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2002. xxx+680 pp. ISBN 0-89871-521-0.
- [153] Nicholas J. Higham. [Cholesky factorization](#). In *Encyclopedia of Mathematics*, Springer-Verlag, Berlin, 2002, pages 863–865.
- [154] Nicholas J. Higham. [Computing the nearest correlation matrix—A problem from finance](#). *IMA J. Numer. Anal.*, 22(3):329–343, 2002.
- [155] Nicholas J. Higham. The Matrix Computation Toolbox for MATLAB (version 1.0). Numerical Analysis Report No. 410, Manchester Centre for Computational Mathematics, Manchester, England, August 2002. 19 pp.
- [156] Nicholas J. Higham. Review of “Arnold Neumaier. *Introduction to Numerical Analysis*. Cambridge University Press, 2001”. *SIAM Rev.*, 44(3):492–493, 2002.



- [157] Nicholas J. Higham. [Review of “Michael Overton, Numerical Computing with IEEE Floating Point Arithmetic: Including One Theorem, One Rule of Thumb, and One Hundred and One Exercises. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2001”](#). *SIAM Rev.*, 44(2):287–288, 2002.
- [158] Nicholas J. Higham. [J-orthogonal matrices: Properties and generation](#). *SIAM Rev.*, 45(3):504–519, 2003.
- [159] Nicholas J. Higham. [SIAG/LA prizewinners speed up the QR algorithm](#). *SIAM News*, 36(9):3, 2003.
- [160] Nicholas J. Higham. [The numerical stability of barycentric Lagrange interpolation](#). *IMA J. Numer. Anal.*, 24(4):547–556, 2004.
- [161] Nicholas J. Higham. An interview with Peter Lancaster. Numerical Analysis Report No. 468, Manchester Centre for Computational Mathematics, Manchester, England, June 2005. 10 pp.
- [162] Nicholas J. Higham. [An interview with Peter Lancaster](#). *SIAM News*, 38(6):5–6, 2005.
- [163] Nicholas J. Higham. [Review of “Folkmar Bornemann, Dirk Laurie, Stan Wagon, and Jörg Waldvogel. The SIAM 100-Digit Challenge: A Study in High-Accuracy Numerical Computing, 2004”](#). *SIAM Rev.*, 47(2):382–383, 2005.
- [164] Nicholas J. Higham. [The scaling and squaring method for the matrix exponential revisited](#). *SIAM J. Matrix Anal. Appl.*, 26(4):1179–1193, 2005.
- [165] Nicholas J. Higham. Functions of matrices. In *Handbook of Linear Algebra*, Leslie Hogben, editor, Chapman and Hall/CRC, Boca Raton, FL, USA, 2006, pages 11.1–11.13.
- [166] Nicholas J. Higham. [Review of “Alan J. Laub. \*Matrix Analysis for Scientists and Engineers\*”](#). *SIAM Rev.*, 48(1):170–171, 2006.
- [167] Nicholas J. Higham. [Review of “Moody T. Chu and Gene H. Golub. \*Inverse Eigenvalue Problems: Theory, Algorithms, and Applications\*”](#). *J. Fluid Mech.*, 556:442–443, 2006.

- [168] Nicholas J. Higham. Commentary on matrix factorizations and applications. In *Milestones in Matrix Computation: The Selected Works of Gene H. Golub, with Commentaries*, Raymond H. Chan, Chen Greif, and Dianne P. O’Leary, editors, Oxford University Press, 2007, pages 227–235.
- [169] Nicholas J. Higham. [Review of “Lloyd N. Trefethen and Mark Embree. \*Spectra and Pseudospectra: The Behavior of Nonnormal Matrices and Operators\*”](#). *Bull. Amer. Math. Soc.*, 44(2):277–284, 2007.
- [170] Nicholas J. Higham. [Cayley, Sylvester, and early matrix theory](#). *Linear Algebra Appl.*, 428:39–43, 2008.
- [171] Nicholas J. Higham. [Functions of Matrices: Theory and Computation](#). Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2008. xx+425 pp. ISBN 978-0-898716-46-7.
- [172] Nicholas J. Higham. [In his own words \[interview with Gene Golub\]](#). *SIAM News*, 41(1):3, 2008. Extracts from [173].
- [173] Nicholas J. Higham. An interview with Gene Golub. MIMS EPrint 2008.8, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, February 2008. 13 pp.
- [174] Nicholas J. Higham. [Cholesky factorization](#). *WIREs Comp. Stat.*, 1(2):251–254, 2009.
- [175] Nicholas J. Higham. [The scaling and squaring method for the matrix exponential revisited](#). *SIAM Rev.*, 51(4):747–764, 2009.
- [176] Nicholas J. Higham. [Gaussian elimination](#). *WIREs Comp. Stat.*, 3(3): 230–238, 2011.
- [177] Nicholas J. Higham. Arthur Buchheim (1859–1888). <http://nickhigham.wordpress.com/2013/01/31/arthur-buchheim>, January 2013.
- [178] Nicholas J. Higham. Gene Golub SIAM Summer School 2013. <http://nickhigham.wordpress.com/2013/08/09/gene-golub-siam-summer-school-2013>, August 2013.

- [179] Nicholas J. Higham. The nearest correlation matrix. <https://nickhigham.wordpress.com/2013/02/13/the-nearest-correlation-matrix>, February 2013.
- [180] Nicholas J. Higham. Why to nominate for prizes. <http://blogs.siam.org/why-to-nominate-for-prizes>, December 2013.
- [181] Nicholas J. Higham. Confessions of a vice president at large. <http://blogs.siam.org/confessions-of-a-vice-president-at-large>, January 2014.
- [182] Nicholas J. Higham. Functions of matrices. In *Handbook of Linear Algebra*, Leslie Hogben, editor, Chapman and Hall/CRC, Boca Raton, FL, USA, second edition, 2014, pages 17.1–17.15.
- [183] Nicholas J. Higham. Numerical conditioning. In *Walter Gautschi. Selected Works with Commentaries*, Claude Brezinski and Ahmed Sameh, editors, volume 1, Birkhäuser, New York, 2014, pages 37–40.
- [184] Nicholas J. Higham. Sylvester’s influence on applied mathematics. *Mathematics Today*, 50(4):202–206, 2014.
- [185] Nicholas J. Higham. Algorithms. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 40–49.
- [186] Nicholas J. Higham. Color spaces and digital imaging. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 808–813.
- [187] Nicholas J. Higham. Floating-point arithmetic. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 96–97.
- [188] Nicholas J. Higham. Functions of matrices. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis,

Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 97–99.

- [189] Nicholas J. Higham. Goals of applied mathematical research. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 48–55.
- [190] Nicholas J. Higham. How to read and understand a paper. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 903–906.
- [191] Nicholas J. Higham. The Jordan canonical form. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 112–113.
- [192] Nicholas J. Higham. The language of applied mathematics. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 8–27.
- [193] Nicholas J. Higham. Making the Princeton Companion to Applied Mathematics. *Mathematics Today*, 51(5):212–214, 2015.
- [194] Nicholas J. Higham. [Matrix functions: Computation](#). In *Encyclopedia of Applied and Computational Mathematics*, Björn Engquist, editor, Springer-Verlag, Berlin, 2015, pages 863–865.
- [195] Nicholas J. Higham. Methods of solution. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 27–40.

- [196] Nicholas J. Higham. Numerical linear algebra and matrix analysis. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 263–281.
- [197] Nicholas J. Higham. Programming languages: An applied mathematics view. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 828–839.
- [198] Nicholas J. Higham. The singular value decomposition. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 126–127.
- [199] Nicholas J. Higham. The Sylvester and Lyapunov equations. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 168–169.
- [200] Nicholas J. Higham. What is applied mathematics? In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 1–8.
- [201] Nicholas J. Higham. Workflow. In *The Princeton Companion to Applied Mathematics*, Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors, Princeton University Press, Princeton, NJ, USA, 2015, pages 912–916.
- [202] Nicholas J. Higham. [Cambridge hosts 20th anniversary meeting of UKIE SIAM Section](#). *SIAM News*, 49(2):10, 2016.
- [203] Nicholas J. Higham. Iterating MATLAB commands. <https://nickhigham.wordpress.com/2016/05/13/iterating-matlab-commands>, May 2016.

- [204] Nicholas J. Higham. [Mixed precision computations](#). In *New Directions in Numerical Computation*, Tobin A. Driscoll, Endre Süli, and Alex Townsend, editors, volume 63, Notices Amer. Math. Soc., 2016, pages 398–400.
- [205] Nicholas J. Higham. The top 10 algorithms in applied mathematics. <https://nickhigham.wordpress.com/2016/03/29/the-top-10-algorithms-in-applied-mathematics>, March 2016.
- [206] Nicholas J. Higham and Awad H. Al-Mohy. [Computing matrix functions](#). *Acta Numerica*, 19:159–208, 2010.
- [207] Nicholas J. Higham and Sheung Hun Cheng. [Modifying the inertia of matrices arising in optimization](#). *Linear Algebra Appl.*, 275–276: 261–279, 1998.
- [208] Nicholas J. Higham and Edvin Deadman. [A catalogue of software for matrix functions. Version 1.0](#). MIMS EPrint 2014.8, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, February 2014. 19 pp.
- [209] Nicholas J. Higham and Edvin Deadman. [A catalogue of software for matrix functions. Version 2.0](#). MIMS EPrint 2016.3, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, January 2016. 22 pp. Updated March 2016.
- [210] Nicholas J. Higham, Mark R. Dennis, Paul Glendinning, Paul A. Martin, Fadil Santosa, and Jared Tanner, editors. [The Princeton Companion to Applied Mathematics](#). Princeton University Press, Princeton, NJ, USA, 2015. xvii + 994 + 16 color plates pp. ISBN 978-0-691-15039-0.
- [211] Nicholas J. Higham and Desmond J. Higham. [Large growth factors in Gaussian elimination with pivoting](#). *SIAM J. Matrix Anal. Appl.*, 10 (2):155–164, 1989.
- [212] Nicholas J. Higham and Peter Kandolf. [Computing the action of trigonometric and hyperbolic matrix functions](#). MIMS EPrint 2016.40, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, July 2016. 14 pp.

- [213] Nicholas J. Higham and Hyun-Min Kim. [Numerical analysis of a quadratic matrix equation](#). *IMA J. Numer. Anal.*, 20(4):499–519, 2000.
- [214] Nicholas J. Higham and Hyun-Min Kim. [Solving a quadratic matrix equation by Newton’s method with exact line searches](#). *SIAM J. Matrix Anal. Appl.*, 23(2):303–316, 2001.
- [215] Nicholas J. Higham and Philip A. Knight. [Componentwise error analysis for stationary iterative methods](#). In *Linear Algebra, Markov Chains, and Queueing Models*, Carl D. Meyer and Robert J. Plemmons, editors, volume 48 of *IMA Volumes in Mathematics and Its Applications*, Springer-Verlag, New York, 1993, pages 29–46.
- [216] Nicholas J. Higham and Philip A. Knight. [Finite precision behavior of stationary iteration for solving singular systems](#). *Linear Algebra Appl.*, 192:165–186, 1993.
- [217] Nicholas J. Higham and Philip A. Knight. [Matrix powers in finite precision arithmetic](#). *SIAM J. Matrix Anal. Appl.*, 16(2):343–358, 1995.
- [218] Nicholas J. Higham, Mihail Konstantinov, Volker Mehrmann, and Petko Petkov. [The sensitivity of computational control problems](#). *IEEE Control Systems Magazine*, 24(1):28–43, 2004.
- [219] Nicholas J. Higham, Ren-Cang Li, and Françoise Tisseur. [Backward error of polynomial eigenproblems solved by linearization](#). *SIAM J. Matrix Anal. Appl.*, 29(4):1218–1241, 2007.
- [220] Nicholas J. Higham and Lijing Lin. [On  \$p\$ th roots of stochastic matrices](#). *Linear Algebra Appl.*, 435(3):448–463, 2011.
- [221] Nicholas J. Higham and Lijing Lin. [A Schur–Padé algorithm for fractional powers of a matrix](#). *SIAM J. Matrix Anal. Appl.*, 32(3):1056–1078, 2011.
- [222] Nicholas J. Higham and Lijing Lin. [An improved Schur–Padé algorithm for fractional powers of a matrix and their Fréchet derivatives](#). *SIAM J. Matrix Anal. Appl.*, 34(3):1341–1360, 2013.
- [223] Nicholas J. Higham and Lijing Lin. [Matrix functions: A short course](#). In *Matrix Functions and Matrix Equations*, Zhaojun Bai, Weiguo Gao,

and Yangfeng Su, editors, number 19 in *Series in Contemporary Applied Mathematics*, World Scientific, Singapore, 2015, pages 1–27.

- [224] Nicholas J. Higham, D. Steven Mackey, Niloufer Mackey, and Françoise Tisseur. [Computing the polar decomposition and the matrix sign decomposition in matrix groups](#). *SIAM J. Matrix Anal. Appl.*, 25(4): 1178–1192, 2004.
- [225] Nicholas J. Higham, D. Steven Mackey, Niloufer Mackey, and Françoise Tisseur. [Functions preserving matrix groups and iterations for the matrix square root](#). *SIAM J. Matrix Anal. Appl.*, 26(3):849–877, 2005.
- [226] Nicholas J. Higham, D. Steven Mackey, Niloufer Mackey, and Françoise Tisseur. [Symmetric linearizations for matrix polynomials](#). *SIAM J. Matrix Anal. Appl.*, 29(1):143–159, 2006.
- [227] Nicholas J. Higham, D. Steven Mackey, and Françoise Tisseur. [The conditioning of linearizations of matrix polynomials](#). *SIAM J. Matrix Anal. Appl.*, 28(4):1005–1028, 2006.
- [228] Nicholas J. Higham, D. Steven Mackey, and Françoise Tisseur. [Definite matrix polynomials and their linearization by definite pencils](#). *SIAM J. Matrix Anal. Appl.*, 31(2):478–502, 2009.
- [229] Nicholas J. Higham, D. Steven Mackey, Françoise Tisseur, and Seamus D. Garvey. [Scaling, sensitivity and stability in the numerical solution of quadratic eigenvalue problems](#). *Internat. J. Numer. Methods Eng.*, 73(3):344–360, 2008.
- [230] Nicholas J. Higham, Christian Mehl, and Françoise Tisseur. [The canonical generalized polar decomposition](#). *SIAM J. Matrix Anal. Appl.*, 31(4):2163–2180, 2010.
- [231] Nicholas J. Higham and Vanni Noferini. [An algorithm to compute the polar decomposition of a  \$3 \times 3\$  matrix](#). *Numer. Algorithms*, 73(2): 349–369, 2016.
- [232] Nicholas J. Higham and Pythagoras Papadimitriou. Parallel singular value decomposition via the polar decomposition. Numerical Analysis Report No. 239, Manchester Centre for Computational Mathematics, Manchester, England, October 1993.



- [233] Nicholas J. Higham and Pythagoras Papadimitriou. A new parallel algorithm for computing the singular value decomposition. In *Proceedings of the Fifth SIAM Conference on Applied Linear Algebra*, John G. Lewis, editor, Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1994, pages 80–84.
- [234] Nicholas J. Higham and Pythagoras Papadimitriou. [A parallel algorithm for computing the polar decomposition](#). *Parallel Comput.*, 20(8): 1161–1173, 1994.
- [235] Nicholas J. Higham and Alex Pothén. [Stability of the partitioned inverse method for parallel solution of sparse triangular systems](#). *SIAM J. Sci. Comput.*, 15(1):139–148, 1994.
- [236] Nicholas J. Higham and Samuel D. Relton. [Estimating the condition number of the Fréchet derivative of a matrix function](#). *SIAM J. Sci. Comput.*, 36(6):C617–C634, 2014.
- [237] Nicholas J. Higham and Samuel D. Relton. [Higher order Fréchet derivatives of matrix functions and the level-2 condition number](#). *SIAM J. Matrix Anal. Appl.*, 35(3):1019–1037, 2014.
- [238] Nicholas J. Higham and Samuel D. Relton. [Estimating the largest elements of a matrix](#). MIMS EPrint 2015.116, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, December 2015. 18 pp. Revised August 2016. To appear in SIAM J. Sci. Comput.
- [239] Nicholas J. Higham and Robert S. Schreiber. [Fast polar decomposition of an arbitrary matrix](#). *SIAM J. Sci. Statist. Comput.*, 11(4):648–655, 1990.
- [240] Nicholas J. Higham and David J. Silvester. [“Nothing was Ever the Same Again”](#). *SIAM News*, 31(7):1,8, 1998.
- [241] Nicholas J. Higham and Matthew I. Smith. [Computing the matrix cosine](#). *Numer. Algorithms*, 34:13–26, 2003.
- [242] Nicholas J. Higham and G. W. Stewart. Numerical linear algebra in statistical computing. In *The State of the Art in Numerical Analysis*, A. Iserles and M. J. D. Powell, editors, Oxford University Press, 1987, pages 41–57.

- [243] Nicholas J. Higham and Nataša Strabić. [Anderson acceleration of the alternating projections method for computing the nearest correlation matrix](#). *Numer. Algorithms*, 72(4):1021–1042, 2016.
- [244] Nicholas J. Higham and Nataša Strabić. [Bounds for the distance to the nearest correlation matrix](#). *SIAM J. Matrix Anal. Appl.*, 37(3):1088–1102, 2016.
- [245] Nicholas J. Higham, Nataša Strabić, and Vedran Šego. [Restoring definiteness via shrinking, with an application to correlation matrices with a fixed block](#). *SIAM Rev.*, 58(2):245–263, 2016.
- [246] Nicholas J. Higham and Françoise Tisseur. [A block algorithm for matrix 1-norm estimation, with an application to 1-norm pseudospectra](#). *SIAM J. Matrix Anal. Appl.*, 21(4):1185–1201, 2000.
- [247] Nicholas J. Higham and Françoise Tisseur. [More on pseudospectra for polynomial eigenvalue problems and applications in control theory](#). *Linear Algebra Appl.*, 351–352:435–453, 2002.
- [248] Nicholas J. Higham and Françoise Tisseur. [Bounds for eigenvalues of matrix polynomials](#). *Linear Algebra Appl.*, 358:5–22, 2003.
- [249] Nicholas J. Higham, Françoise Tisseur, and Paul M. Van Dooren. [Detecting a definite Hermitian pair and a hyperbolic or elliptic quadratic eigenvalue problem, and associated nearness problems](#). *Linear Algebra Appl.*, 351–352:455–474, 2002.
- [250] Ramaseshan Kannan, Stephen Hendry, Nicholas J. Higham, and Françoise Tisseur. [Detecting the causes of ill-conditioning in structural finite element models](#). *Computers and Structures*, 133:79–89, 2014.
- [251] Lijing Lin, Nicholas J. Higham, and Jianxin Pan. [Covariance structure regularization via entropy loss function](#). *Comput. Statist. Data Anal.*, 72:315–327, 2014.
- [252] Yuji Nakatsukasa and Nicholas J. Higham. [Backward stability of iterations for computing the polar decomposition](#). *SIAM J. Matrix Anal. Appl.*, 33(2):460–479, 2012.

- [253] Yuji Nakatsukasa and Nicholas J. Higham. [Stable and efficient spectral divide and conquer algorithms for the symmetric eigenvalue decomposition and the SVD](#). *SIAM J. Sci. Comput.*, 35(3):A1325–A1349, 2013.
- [254] Françoise Tisseur and Nicholas J. Higham. [Structured pseudospectra for polynomial eigenvalue problems, with applications](#). *SIAM J. Matrix Anal. Appl.*, 23(1):187–208, 2001.
- [255] David Topping, Mark Barley, Michael J. Bane, Nicholas Higham, Bernard Aumont, Nicholas Dingle, and Gordon McFiggans. [UMan-SysProp V1.0: An online and open-source facility for molecular property prediction and atmospheric aerosol calculations](#). *Geoscientific Model Development*, 9(2):899–914, 2016.
- [256] Anne Trefethen, Nick Higham, Iain Duff, and Peter Coveney. Applications/algorithms roadmapping activity. First stage final report. MIMS EPrint 2009.85, Manchester Institute for Mathematical Sciences, The University of Manchester, UK, June 2009. 84 pp.
- [257] Anne Trefethen, Nick Higham, Iain Duff, and Peter Coveney. [Developing a high-performance computing/numerical analysis roadmap](#). *Int. J. High Performance Computing Applications*, 23(4):423–426, 2009.
- [258] Weijian Zhang and Nicholas J. Higham. [Matrix Depot: An extensible test matrix collection for Julia](#). *PeerJ Computer Science*, 2:e58, 2016.