References

[Apo74]   Tom M. Apostol, *Mathematical analysis*, second ed., Addison-Wesley, Read-
            ing, MA, 1974. (Cited on p. 185.)

[AS84]   Milton Abramowitz and Irene A. Stegun (eds.), *Handbook of mathematical
            functions with formulas, graphs, and mathematical tables*, Wiley, New York,
            1984. (Cited on pp. 23, 56, 102, 103, 116, 117, 135.)

[AW97]   Victor Adamchik and Stan Wagon, *A simple formula for π*, Amer. Math.
            Monthly **104** (1997), no. 9, 852–855. (Cited on p. viii.)

[Bai00]   David H. Bailey, *A compendium of BPP-type formulas for mathematical
            constants*, manuscript, November 2000,
            `http://crd.lbl.gov/˜dhbailey/dhbpapers/bbp-formulas.`
            `pdf.` (Cited on p. viii.)

[Bak90]   Alan Baker, *Transcendental number theory*, second ed., Cambridge Univer-
            sity Press, Cambridge, UK, 1990. (Cited on p. 219.)

[Bar63]   Vic D. Barnett, *Some explicit results for an asymmetric two-dimensional
            random walk*, Proc. Cambridge Philos. Soc. **59** (1963), 451–462. (Cited on
            pp. 13, 130, 137.)

[BB87]   Jonathan M. Borwein and Peter B. Borwein, *Pi and the AGM. A study in
            analytic number theory and computational complexity*, Wiley, New York,
            1987. (Cited on pp. 137, 138, 176, 216, 217, 259.)

[BB04]   Jonathan M. Borwein and David H. Bailey, *Mathematics by experiment:
            Plausible reasoning in the 21st century*, A. K. Peters, Wellesley, 2004. (Cited
            on p. viii.)

[BBG04]   Jonathan M. Borwein, David H. Bailey, and Roland Girgensohn, *Experi-
            mentation in mathematics: Computational paths to discovery*, A. K. Peters,
            Wellesley, 2004. (Cited on p. viii.)

[BBP97]   David Bailey, Peter Borwein, and Simon Plouffe, *On the rapid computa-
            tion of various polylogarithmic constants*, Math. Comp. **66** (1997), no. 218,
            903–913. (Cited on p. viii.)

[Ber89]   Bruce C. Berndt, *Ramanujan's notebooks. Part II*, Springer-Verlag, New York, 1989. (Cited on p. 211.)

[Ber98]   _____, *Ramanujan's notebooks. Part V*, Springer-Verlag, New York, 1998. (Cited on pp. 221.)

[Ber01]   Michael Berry, *Why are special functions special?*, Physics Today **54** (2001), no. 4, 11–12. (Cited on p. 121.)

[BF71]   Paul F. Byrd and Morris D. Friedman, *Handbook of elliptic integrals for engineers and scientists*, 2nd rev. ed., Springer-Verlag, New York, 1971. (Cited on p. 142.)

[BR95]   Bruce C. Berndt and Robert A. Rankin, *Ramanujan, Letters and commentary*, American Mathematical Society, Providence, 1995. (Cited on p. 220.)

[Bre71]   Claude Brezinski, *Accélération de suites à convergence logarithmique*, C. R. Acad. Sci. Paris Sér. A-B **273** (1971), A727–A730. (Cited on p. 246.)

[Bre76]   Richard P. Brent, *Fast multiple-precision evaluation of elementary functions*, J. Assoc. Comput. Mach. **23** (1976), no. 2, 242–251. (Cited on p. 30.)

[Bre88]   Claude Brezinski, *Quasi-linear extrapolation processes*, Numerical Mathematics, Singapore 1988, Birkhäuser, Basel, 1988, pp. 61–78. (Cited on p. 257.)

[Bre00]   _____, *Convergence acceleration during the 20th century*, J. Comput. Appl. Math. **122** (2000), no. 1–2, 1–21. (Cited on pp. 230, 231, 257.)

[BRS63]   Friedrich L. Bauer, Heinz Rutishauser, and Eduard Stiefel, *New aspects in numerical quadrature*, Proc. Sympos. Appl. Math., Vol. XV, Amer. Math. Soc., Providence, R.I., 1963, pp. 199–218. (Cited on pp. 68, 257.)

[BT99]   B. Le Bailly and J.-P. Thiran, *Computing complex polynomial Chebyshev approximants on the unit circle by the real Remez algorithm*, SIAM J. Numer. Anal. **36** (1999), no. 6, 1858–1877. (Cited on p. 119.)

[BY93]   Folkmar Bornemann and Harry Yserentant, *A basic norm equivalence for the theory of multilevel methods*, Numer. Math. **64** (1993), no. 4, 455–476. (Cited on p. 157.)

[BZ91]   Claude Brezinski and Michela Redivo Zaglia, *Extrapolation methods*, North-Holland, Amsterdam, 1991. (Cited on pp. 225, 230, 257.)

[BZ92]   Jonathan M. Borwein and I. John Zucker, *Fast evaluation of the gamma function for small rational fractions using complete elliptic integrals of the first kind*, IMA J. Numer. Anal. **12** (1992), no. 4, 519–526. (Cited on p. 143.)

[Cau27]   Augustin-Louis Cauchy, *Sur quelques propositions fondamentales du calcul des résidus*, Exerc. Math. **2** (1827), 245–276. (Cited on pp. 211, 212.)

[CDG99]   David W. Corne, Marco Dorigo, and Fred Glover (eds.), *New ideas in opti-
            mization*, McGraw-Hill, Berkshire, 1999. (Cited on p. 106.)

[CGH⁺96]   Robert M. Corless, Gaston H. Gonnet, David E. G. Hare, David J. Jeffrey,
            and Donald E. Knuth, *On the Lambert W function*, Adv. Comput. Math. **5**
            (1996), no. 4, 329–359. (Cited on pp. 23, 24.)

[CM01]   Nikolai Chernov and Roberto Markarian, *Introduction to the ergodic theory
            of chaotic billiards*, Instituto de Matemática y Ciencías Afines (IMCA),
            Lima, 2001. (Cited on p. 44.)

[Col95]   Courtney S. Coleman, CODEE Newsletter (spring 1995), cover. (Cited on
            p. 91.)

[Cox84]   David A. Cox, *The arithmetic-geometric mean of Gauss*, Enseign. Math. (2)
            30 (1984), no. 3–4, 275–330. (Cited on p. 216.)

[Cox89]   _____ , *Primes of the form $x^2 + ny^2$. Fermat, class field theory and complex
            multiplication*, Wiley, New York, 1989. (Cited on p. 220.)

[CP01]   Richard Crandall and Carl Pomerance, *Prime numbers, A computational
            perspective*, Springer-Verlag, New York, 2001. (Cited on pp. 156, 202.)

[CRZ00]   Henri Cohen, Fernando Rodriguez Villegas, and Don Zagier, *Convergence
            acceleration of alternating series*, Experiment. Math. **9** (2000), no. 1, 3–12.
            (Cited on pp. 241, 257.)

[Dau92]   Ingrid Daubechies, *Ten lectures on wavelets*, Society for Industrial and
            Applied Mathematics (SIAM), Philadelphia, 1992. (Cited on p. 284.)

[DB02]   Peter Deuflhard and Folkmar Bornemann, *Scientific computing with ordi-
            nary differential equations*, Springer-Verlag, New York, 2002, Translated by
            Werner C. Rheinboldt. (Cited on pp. 170, 172, 207.)

[Dem97]   James W. Demmel, *Applied numerical linear algebra*, Society for Industrial
            and Applied Mathematics (SIAM), Philadelphia, 1997. (Cited on pp. 124,
            205.)

[DeV02]   Carl DeVore, 2002, A Maple worksheet on Trefethen's Problem 3,
            `http://groups.yahoo.com/group/100digits/files/Tref3.
            mws`. (Cited on p. 257.)

[DH03]   Peter Deuflhard and Andreas Hohmann, *Numerical analysis in modern
            scientific computing. An introduction*, second ed., Springer-Verlag, New
            York, 2003. (Cited on pp. 148, 154.)

[Dix82]   John D. Dixon, *Exact solution of linear equations using p-adic expansions*,
            Numer. Math. **40** (1982), no. 1, 137–141. (Cited on p. 167.)

[DJ01]   Richard T. Delves and Geoff S. Joyce, *On the Green function for the anisotropic simple cubic lattice*, Ann. Phys. **291** (2001), 71–133. (Cited on p. 144.)

[DKK91]   Eusebius Doedel, Herbert B. Keller, and Jean-Pierre Kernévez, *Numerical analysis and control of bifurcation problems. I. Bifurcation in finite dimensions*, Internat. J. Bifur. Chaos Appl. Sci. Engrg. **1** (1991), no. 3, 493–520. (Cited on p. 88.)

[DR84]   Philip J. Davis and Philip Rabinowitz, *Methods of numerical integration*, second ed., Academic Press, Orlando, FL, 1984. (Cited on pp. 68, 70.)

[DR90]   John M. DeLaurentis and Louis A. Romero, *A Monte Carlo method for Poisson's equation*, J. Comput. Phys. **90** (1990), no. 1, 123–140. (Cited on pp. 200, 201.)

[DS00]   Jack Dongarra and Francis Sullivan, *The top 10 algorithms*, IEEE Computing in Science and Engineering **2** (2000), no. 1, 22–23. (Cited on p. viii.)

[DT02]   Tobin A. Driscoll and Lloyd N. Trefethen, *Schwarz–Christoffel mapping*, Cambridge University Press, Cambridge, UK, 2002. (Cited on p. 223.)

[DTW02]   Jean-Guillaume Dumas, William Turner, and Zhendong Wan, *Exact solution to large sparse integer linear systems*, Abstract for ECCAD'2002, May 2002. (Cited on p. 164.)

[Dys96]   Freeman J. Dyson, *Review of "Nature's Numbers" by Ian Stewart*, Amer. Math. Monthly **103** (1996), 610–612. (Cited on p. 147.)

[EMOT53]   Arthur Erdélyi, Wilhelm Magnus, Fritz Oberhettinger, and Francesco G. Tricomi, *Higher transcendental functions. Vols. I, II*, McGraw-Hill, New York, 1953. (Cited on p. 135.)

[Erd56]   Arthur Erdélyi, *Asymptotic expansions*, Dover, New York, 1956. (Cited on p. 70.)

[Eva93]   Gwynne Evans, *Practical numerical integration*, Wiley, Chichester, UK, 1993. (Cited on p. 18.)

[Fel50]   William Feller, *An introduction to probability theory and its applications. Vol. I*, Wiley, New York, 1950. (Cited on pp. 125, 126.)

[FH98]   Samuel P. Ferguson and Thomas C. Hales, *A formulation of the Kepler conjecture*, Tech. report, ArXiv Math MG, 1998, `http://arxiv.org/abs/math.MG/9811072`. (Cited on p. 95.)

[FLS63]   Richard P. Feynman, Robert B. Leighton, and Matthew Sands, *The Feynman lectures on physics. Vol. 1: Mainly mechanics, radiation, and heat*, Addison-Wesley, Reading, MA, 1963. (Cited on p. 230.)

[Fou78]   Joseph Fourier, *The analytical theory of heat*, Cambridge University Press, Cambridge, UK, 1878, Translated by Alexander Freeman. Reprinted by Dover Publications, New York, 1955. French original: "Théorie analytique de la chaleur," Didot, Paris, 1822. (Cited on pp. 169, 174, 175, 176.)

[GH83]   John Guckenheimer and Philip Holmes, *Nonlinear oscillations, dynamical systems, and bifurcations of vector fields*, Springer-Verlag, New York, 1983. (Cited on p. 40.)

[GL81]   Alan George and Joseph W. H. Liu, *Computer solution of large sparse positive definite systems*, Prentice-Hall, Englewood Cliffs, NJ, 1981. (Cited on pp. 149, 150, 151.)

[GL96]   Gene H. Golub and Charles F. Van Loan, *Matrix computations*, third ed., Johns Hopkins Studies in the Mathematical Sciences, Johns Hopkins University Press, Baltimore, 1996. (Cited on pp. 49, 51, 53.)

[Goo83]   Nicolas D. Goodman, *Reflections on Bishop's philosophy of mathematics*, Math. Intelligencer **5** (1983), no. 3, 61–68. (Cited on p. 147.)

[Grif90]   Peter Griffin, *Accelerating beyond the third dimension: Returning to the origin in simple random walk*, Math. Sci., **15** (1990), 24–35. (Cited on p. 146.)

[GW01]   Walter Gautschi and Jörg Waldvogel, *Computing the Hilbert transform of the generalized Laguerre and Hermite weight functions*, BIT **41** (2001), no. 3, 490–503. (Cited on p. 70.)

[GZ77]   M. Lawrence Glasser and I. John Zucker, *Extended Watson integrals for the cubic lattices*, Proc. Nat. Acad. Sci. U.S.A. **74** (1977), no. 5, 1800–1801. (Cited on p. 143.)

[Hac92]   Wolfgang Hackbusch, *Elliptic differential equations. Theory and numerical treatment*, Springer-Verlag, Berlin, 1992. (Cited on p. 205.)

[Had45]   Jacques Hadamard, *The psychology of invention in the mathematical field*, Princeton University Press, Princeton, NJ, 1945. (Cited on p. 17.)

[Han92]   Eldon Hansen, *Global optimization using interval analysis*, Monographs and Textbooks in Pure and Applied Mathematics, Vol. 165, Marcel Dekker, New York, 1992. (Cited on pp. 84, 94, 95, 98.)

[Har40]   Godfrey H. Hardy, *Ramanujan. Twelve lectures on subjects suggested by his life and work*, Cambridge University Press, Cambridge, UK, 1940. (Cited on p. 221.)

[Har02]   Gareth I. Hargreaves, *Interval analysis in MATLAB*, Master's thesis, University of Manchester, December 2002, Numerical Analysis Report No. 416. (Cited on p. 272.)

[Hav03]   Julian Havil, *Gamma*, Princeton University Press, Princeton, NJ, 2003. (Cited on p. 281.)

[Hen61]   Ernst Henze, *Zur Theorie der diskreten unsymmetrischen Irrfahrt*, ZAMM **41** (1961), 1–9. (Cited on pp. 13, 137.)

[Hen64]   Peter Henrici, *Elements of numerical analysis*, Wiley, New York, 1964. (Cited on p. 19.)

[Hen74]   _____, *Applied and computational complex analysis. Vol. 1: Power series—integration—conformal mapping—location of zeros*, Wiley, New York, 1974. (Cited on pp. 67, 211, 212, 213.)

[Hen77]   _____, *Applied and computational complex analysis. Vol. 2: Special functions—integral transforms—asymptotics—continued fractions*, Wiley, New York, 1977. (Cited on pp. 62, 70.)

[Hen86]   _____, *Applied and computational complex analysis. Vol. 3: Discrete Fourier analysis—Cauchy integrals—construction of conformal maps—univalent functions*, Wiley, New York, 1986. (Cited on pp. 203, 204, 213, 214, 223.)

[Her83]   Joseph Hersch, *On harmonic measures, conformal moduli and some elementary symmetry methods*, J. Analyse Math. **42** (1982/83), 211–228. (Cited on p. 213.)

[Hig96]   Nicholas J. Higham, *Accuracy and stability of numerical algorithms,* 2nd ed., Society for Industrial and Applied Mathematics (SIAM), Philadelphia, 2002. http://www.ma.man.ac.uk/~higham/asna (Cited on pp. 5, 40, 48, 49, 54, 151, 152, 159, 163, 164, 173, 192, 205, 208.)

[HJ85]   Roger A. Horn and Charles R. Johnson, *Matrix analysis*, Cambridge University Press, Cambridge, UK, 1985. (Cited on pp. 53, 155, 162, 163, 165.)

[Hof67]   Peter Hofmann, *Asymptotic expansions of the discretization error of boundary value problems of the Laplace equation in rectangular domains*, Numer. Math. **9** (1966/1967), 302–322. (Cited on p. 206.)

[Hug95]   Barry D. Hughes, *Random walks and random environments. Vol. 1: Random walks*, Oxford University Press, New York, 1995. (Cited on pp. 121, 122, 130, 139, 140, 143.)

[IMT70]   Masao Iri, Sigeiti Moriguti, and Yoshimitsu Takasawa, *On a certain quadrature formula (Japanese)*, Kokyuroku Ser. Res. Inst. for Math. Sci. Kyoto Univ. **91** (1970), 82–118; English translation: J. Comput. Appl. Math. 17, 3–20 (1987). (Cited on p. 68.)

[Jac29]   Carl Gustav Jacob Jacobi, *Fundamenta nova theoriae functionum ellipticarum*, Bornträger, Regiomontum (Königsberg), 1829. (Cited on p. 218.)

[JDZ03]   Geoff S. Joyce, Richard T. Delves, and I. John Zucker, *Exact evaluation of the Green functions for the anisotropic face-centred and simple cubic lattices*, J. Phys. A: Math. Gen. **36** (2003), 8661–8672. (Cited on p. 144.)

[Joh82]   Fritz John, *Partial differential equations*, fourth ed., Springer-Verlag, New York, 1982. (Cited on p. 176.)

[Kea96]   R. Baker Kearfott, *Rigorous global search: Continuous problems*, Nonconvex Optimization and Its Applications, Vol. 13, Kluwer Academic Publishers, Dordrecht, 1996. (Cited on pp. 84, 93, 94, 95, 97.)

[Kno56]   Konrad Knopp, *Infinite sequences and series*, Dover, New York, 1956. (Cited on p. 135.)

[Knu81]   Donald E. Knuth, *The art of computer programming. Vol. 2: Seminumerical algorithms*, second ed., Addison-Wesley, Reading, 1981. (Cited on p. 29.)

[Koe98]   Wolfram Koepf, *Hypergeometric summation. An algorithmic approach to summation and special function identities*, Vieweg, Braunschweig, 1998. (Cited on pp. 131, 132.)

[Kol48]   Andrey N. Kolmogorov, *A remark on the polynomials of P. L. Čebyšev deviating the least from a given function*, Uspehi Matem. Nauk (N.S.) **3** (1948), no. 1(23), 216–221. (Cited on p. 118.)

[KS91]   Erich Kaltofen and B. David Saunders, *On Wiedemann's method of solving sparse linear systems*, Applied algebra, algebraic algorithms and error-correcting codes (New Orleans, LA, 1991), Lecture Notes in Comput. Sci., Vol. 539, Springer, Berlin, 1991, pp. 29–38. (Cited on p. 166.)

[Küh82]   Wilhelm O. Kühne, *Huppel en sy maats*, Tafelberg, Kaapstad, 1982. (Cited on p. 101.)

[KW95]   Arnold Knopfmacher and Richard Warlimont, *Distinct degree factorizations for polynomials over a finite field*, Trans. Amer. Math. Soc. **347** (1995), no. 6, 2235–2243. (Cited on p. 282.)

[Lan82]   Oscar E. Lanford, III, *A computer-assisted proof of the Feigenbaum conjectures*, Bull. Amer. Math. Soc. (N.S.) **6** (1982), no. 3, 427–434. (Cited on p. 95.)

[LB92]   John Lund and Kenneth L. Bowers, *Sinc methods for quadrature and differential equations*, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, 1992. (Cited on p. 188.)

[Lev73]   David Levin, *Development of non-linear transformations of improving convergence of sequences*, Internat. J. Comput. Math. **3** (1973), 371–388. (Cited on p. 243.)

[Lon56]   Ivor M. Longman, *Note on a method for computing infinite integrals of oscillatory functions*, Proc. Cambridge Philos. Soc. **52** (1956), 764–768. (Cited on p. 18.)

[Luk75]   Yudell L. Luke, *Mathematical functions and their approximations*, Academic Press, New York, 1975. (Cited on pp. 117, 195.)

[LV94]   Dirk P. Laurie and Lucas M. Venter, *A two-phase algorithm for the Chebyshev solution of complex linear equations*, SIAM J. Sci. Comput. **15** (1994), no. 6, 1440–1451. (Cited on pp. 111, 115.)

[Lyn85]   James N. Lyness, *Integrating some infinite oscillating tails*, Proceedings of the International Conference on Computational and Applied Mathematics (Leuven, 1984), Vol. 12/13, 1985, pp. 109–117. (Cited on p. 19.)

[Men43]   Luigi Frederico Menabrea, *Sketch of the analytical engine invented by Charles Babbage, Esq. With notes by the translator (A.A.L.)*, Taylor's Scientific Memoirs **3** (1843), no. 29, 666–731. (Cited on p. 263.)

[Mil63]   John Milnor, *Morse theory*, Based on lecture notes by M. Spivak and R. Wells. Annals of Mathematics Studies, No. 51, Princeton University Press, Princeton, NJ, 1963. (Cited on p. 89.)

[Mil94]   Gradimir V. Milovanović, *Summation of series and Gaussian quadratures*, Approximation and Computation (West Lafayette, IN, 1993), Birkhäuser, Boston, 1994, pp. 459–475. (Cited on p. 66.)

[Mon56]   Elliot W. Montroll, *Random walks in multidimensional spaces, especially on periodic lattices*, J. Soc. Indust. Appl. Math. **4** (1956), 241–260. (Cited on p. 145.)

[Moo66]   Ramon E. Moore, *Interval analysis*, Prentice-Hall, Englewood Cliffs, NJ, 1966. (Cited on p. 92.)

[Mor78]   Masatake Mori, *An IMT-type double exponential formula for numerical integration*, Publ. Res. Inst. Math. Sci. Kyoto Univ. **14** (1978), no. 3, 713–729. (Cited on p. 68.)

[MS83]   Guriĭ I. Marchuk and Vladimir V. Shaĭdurov, *Difference methods and their extrapolations*, Springer-Verlag, New York, 1983. (Cited on p. 206.)

[MS01]   Masatake Mori and Masaaki Sugihara, *The double-exponential transformation in numerical analysis*, J. Comput. Appl. Math. **127** (2001), no. 1–2, 287–296. (Cited on p. 188.)

[MT03]   Oleg Marichev and Michael Trott, *Meijer G function*, The Wolfram Functions Site, Wolfram Research, 2003, `http://functions.wolfram.com`. (Cited on p. 194.)

[Neh52]   Zeev Nehari, *Conformal mapping*, McGraw-Hill, New York, 1952. (Cited on p. 203.)

[Neu90]   Arnold Neumaier, *Interval methods for systems of equations*, Encyclopedia of Mathematics and Its Applications, vol. 37, Cambridge University Press, Cambridge, U.K., 1990. (Cited on pp. 93, 94.)

[Nie06]   Niels Nielsen, *Handbuch der Theorie der Gammafunktion.*, Teubner, Leipzig, 1906. (Cited on p. 56.)

[NPWZ97]   István Nemes, Marko Petkovšek, Herbert S. Wilf, and Doron Zeilberger, *How to do Monthly problems with your computer*, Amer. Math. Monthly **104** (1997), no. 6, 505–519. (Cited on p. 132.)

[Olv74]   Frank W. J. Olver, *Asymptotics and special functions*, Academic Press, New York, 1974. (Cited on pp. 70, 227.)

[OM99]   Takuya Ooura and Masatake Mori, *A robust double exponential formula for Fourier-type integrals*, J. Comput. Appl. Math. **112** (1999), no. 1–2, 229–241. (Cited on pp. 28, 190, 191.)

[PBM86]   Anatoliĭ P. Prudnikov, Yury A. Brychkov, and Oleg I. Marichev, *Integrals and series. Vol. 1: Elementary functions*, Gordon & Breach, New York, 1986. (Cited on p. 142.)

[PdDKÜK83] Robert Piessens, Elise de Doncker-Kapenga, Christoph W. Überhuber, and David K. Kahaner, *QUADPACK: A subroutine package for automatic integration*, Springer-Verlag, Berlin, 1983. (Cited on pp. 18, 183.)

[Pól21]   Georg Pólya, *Über eine Aufgabe der Wahrscheinlichkeitsrechnung betreffend die Irrfahrt im Straßennetz*, Math. Ann. **83** (1921), 149–160. (Cited on pp. 122, 135, 143.)

[Pow64]   Michael J. D. Powell, *An efficient method for finding the minimum of a function of several variables without calculating derivatives*, Comput. J. **7** (1964), 155–162. (Cited on p. 184.)

[PTVF92]   William H. Press, Saul A. Teukolsky, William T. Vetterling, and Brian P. Flannery, *Numerical recipes in C*, second ed., Cambridge University Press, Cambridge, UK, 1992. (Cited on p. 77.)

[PW34]   Raymond E. A. C. Paley and Norbert Wiener, *Fourier transforms in the complex domain*, American Mathematical Society, New York, 1934. (Cited on p. 70.)

[PWZ96]   Marko Petkovšek, Herbert S. Wilf, and Doron Zeilberger, *A = B*, A. K. Peters, Wellesley, 1996. (Cited on pp. 131, 132.)

[Rai60]   Earl D. Rainville, *Special functions*, Macmillan, New York, 1960. (Cited on p. 135.)

[Rau91]   Jeffrey Rauch, *Partial differential equations*, Springer-Verlag, New York, 1991. (Cited on pp. 199, 209.)

[Rem34a]   Eugene J. Remes (Evgeny Ya. Remez), *Sur le calcul effectif des polynômes d'approximation de Tchebichef*, C. R. Acad. Sci. Paris **199** (1934), 337–340. (Cited on p. 107.)

[Rem34b]   _____, *Sur un procédé convergent d'approximation successives pour déterminer les polynômes d'approximation*, C. R. Acad. Sci. Paris **198** (1934), 2063–2065. (Cited on p. 107.)

[RS75]   Michael Reed and Barry Simon, *Methods of modern mathematical physics. II. Fourier analysis, self-adjointness*, Academic Press, New York, 1975. (Cited on p. 70.)

[Rud87]   Walter Rudin, *Real and complex analysis*, third ed., McGraw-Hill, New York, 1987. (Cited on p. 48.)

[Rum98]   Siegfried M. Rump, *A note on epsilon-inflation*, Reliab. Comput. **4** (1998), no. 4, 371–375. (Cited on p. 97.)

[Rum99a]   _____, *Fast and parallel interval arithmetic*, BIT **39** (1999), no. 3, 534–554. (Cited on p. 272.)

[Rum99b]   _____, *INTLAB—interval laboratory*, Developments in Reliable Computing (Tibor Csendes, ed.), Kluwer, Dordrecht, 1999, pp. 77–104. (Cited on p. 272.)

[Rut90]   Heinz Rutishauser, *Lectures on numerical mathematics*, Birkhäuser, Boston, 1990. (Cited on p. 107.)

[Sal55]   Herbert E. Salzer, *A simple method for summing certain slowly convergent series*, J. Math. Phys. **33** (1955), 356–359. (Cited on p. 237.)

[Sch69]   Charles Schwartz, *Numerical integration of analytic functions*, J. Computational Phys. **4** (1969), 19–29. (Cited on p. 68.)

[Sch89]   Hans R. Schwarz, *Numerical analysis: A comprehensive introduction*, Wiley, Chichester, UK, 1989, With a contribution by Jörg Waldvogel, Translated from the German. (Cited on p. 68.)

[Sid03]   Avram Sidi, *Practical extrapolation methods: Theory and applications*, Cambridge University Press, Cambridge, UK, 2003. (Cited on pp. 230, 257.)

[Sin70a]   Yakov G. Sinaǐ, *Dynamical systems with elastic reflections. Ergodic properties of dispersing billiards*, Uspehi Mat. Nauk **25** (1970), no. 2 (152), 141–192. (Cited on p. 44.)

[Sin70b]   Ivan Singer, *Best approximation in normed linear spaces by elements of linear subspaces*, Springer-Verlag, Berlin, 1970. (Cited on pp. 113, 119.)

[SL68]   Vladimir I. Smirnov and N. A. Lebedev, *Functions of a complex variable: Constructive theory*, The MIT Press, Cambridge, MA, 1968. (Cited on pp. 113, 119.)

[Smi97]   Frank Smithies, *Cauchy and the creation of complex function theory*, Cambridge University Press, Cambridge, UK, 1997. (Cited on p. 211.)

[Sok97]   Alan D. Sokal, *Monte Carlo methods in statistical mechanics: Foundations and new algorithms*, Functional integration (Cargèse, 1996), NATO Adv. Sci. Inst. Ser. B Phys., Vol. 361, Plenum, New York, 1997, pp. 131–192. (Cited on pp. 199, 201.)

[SR97]   Lawrence F. Shampine and Mark W. Reichelt, *The MATLAB ODE suite*, SIAM J. Sci. Comput. **18** (1997), no. 1, 1–22. (Cited on p. 171.)

[Ste65]   Hans J. Stetter, *Asymptotic expansions for the error of discretization algorithms for non-linear functional equations*, Numer. Math. **7** (1965), 18–31. (Cited on p. 172.)

[Ste73]   Frank Stenger, *Integration formulae based on the trapezoidal formula*, J. Inst. Math. Appl. **12** (1973), 103–114. (Cited on p. 68.)

[Ste84]   Gilbert W. Stewart, *A second order perturbation expansion for small singular values*, Linear Algebra Appl. **56** (1984), 231–235. (Cited on p. 58.)

[Ste01]   ———, *Matrix algorithms. Vol. II, Eigensystems*, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, 2001. (Cited on p. 162.)

[SW97]   Dan Schwalbe and Stan Wagon, *VisualDSolve, Visualizing differential equations with Mathematica*, TELOS/Springer-Verlag, New York, 1997. (Cited on p. 87.)

[Syl60]   James Joseph Sylvester, *Notes on the meditation of Poncelet's theorem*, Philosophical Magazine **20** (1860), 533. (Cited on p. 181.)

[Sze75]   Gábor Szegő, *Orthogonal polynomials*, fourth ed., American Mathematical Society, Providence, 1975. (Cited on p. 135.)

[Tab95]   Serge Tabachnikov, *Billiards*, Société Mathématique de France, Marseille, 1995. (Cited on pp. 40, 44.)

[Tan88]   Ping Tak Peter Tang, *A fast algorithm for linear complex Chebyshev approximations*, Math. Comp. **51** (1988), no. 184, 721–739. (Cited on p. 119.)

[TB97]   Lloyd N. Trefethen and David Bau, III, *Numerical linear algebra*, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, 1997. (Cited on pp. 4, 10, 154, 156.)

[Tho95]   James W. Thomas, *Numerical partial differential equations: Finite difference methods*, Springer-Verlag, New York, 1995. (Cited on p. 172.)

[TM74]   Hidetosi Takahasi and Masatake Mori, *Double exponential formulas for numerical integration*, Publ. Res. Inst. Math. Sci. Kyoto Univ. **9** (1973/74), 721–741. (Cited on p. 68.)

[Tre81]   Lloyd N. Trefethen, *Near-circularity of the error curve in complex Chebyshev approximation*, J. Approx. Theory **31** (1981), no. 4, 344–367. (Cited on p. 115.)

[Tre98]   ———, *Maxims about numerical mathematics, computers, science, and life*, SIAM News **31** (1998), no. 1, 4.
http://www.siam.org/siamnews/01-98/maxims.htm. (Cited on pp. vii, 4, 34.)

[Tre00]   ———, *Predictions for scientific computing 50 years from now*, Mathematics Today (April 2000), 53–57. (Cited on p. 4.)

[Tre02]   _____, *The $100, 100-Digit Challenge*, SIAM News **35** (2002), no. 6, 1–3. (Cited on pp. 2, 169, 259.)

[Tse96]   Ching-Yih Tseng, *A multiple-exchange algorithm for complex Chebyshev approximation by polynomials on the unit circle*, SIAM J. Numer. Anal. **33** (1996), no. 5, 2017–2049. (Cited on p. 119.)

[Tuc02]   Warwick Tucker, *A rigorous ODE solver and Smale's 14th problem*, Found. Comput. Math. **2** (2002), no. 1, 53–117. (Cited on p. 95.)

[vzGG99]   Joachim von zur Gathen and Jürgen Gerhard, *Modern computer algebra*, Cambridge University Press, New York, 1999. (Cited on pp. 164, 166, 167.)

[Wal88]   Jörg Waldvogel, *Numerical quadrature in several dimensions*, Numerical Integration, III (Oberwolfach, 1987), Birkhäuser, Basel, 1988, pp. 295–309. (Cited on p. 68.)

[Wat39]   George N. Watson, *Three triple integrals*, Quart. J. Math., Oxford Ser. **10** (1939), 266–276. (Cited on p. 143.)

[Wat88]   G. Alistair Watson, *A method for the Chebyshev solution of an overdetermined system of complex linear equations*, IMA J. Numer. Anal. **8** (1988), no. 4, 461–471. (Cited on p. 111.)

[Wat00]   _____, *Approximation in normed linear spaces*, J. Comput. Appl. Math. **121** (2000), no. 1–2, 1–36. (Cited on p. 119.)

[Web91]   Heinrich Weber, *Elliptische Functionen und algebraische Zahlen*, Vieweg, Braunschweig, 1891. (Cited on pp. 220, 221.)

[Wen89]   Ernst Joachim Weniger, *Nonlinear sequence transformations for the acceleration of convergence and the summation of divergent series*, Computer Physics Reports **10** (1989), 189–371. (Cited on pp. 225, 230.)

[Wie86]   Douglas H. Wiedemann, *Solving sparse linear equations over finite fields*, IEEE Trans. Inform. Theory **32** (1986), no. 1, 54–62. (Cited on p. 165.)

[Wim81]   Jet Wimp, *Sequence transformations and their applications*, Mathematics in Science and Engineering, Vol. 154, Academic Press, New York, 1981. (Cited on p. 230.)

[WW96]   Edmund T. Whittaker and George N. Watson, *A course of modern analysis*, Cambridge University Press, Cambridge, UK, 1996, Reprint of the fourth (1927) edition. (Cited on pp. 101, 135, 176.)

[Wyn56a]   Peter Wynn, *On a device for computing the $e_m(S_n)$ tranformation*, Math. Tables Aids Comput. **10** (1956), 91–96. (Cited on p. 245.)

[Wyn56b]   _____, *On a procrustean technique for the numerical transformation of slowly convergent sequences and series*, Proc. Cambridge Philos. Soc. **52** (1956), 663–671. (Cited on p. 245.)

[Wyn66]   _____ , *Upon systems of recursions which obtain among the quotients of the Padé table*, Numer. Math. **8** (1966), 264–269. (Cited on p. 245.)

[You81]   Laurence Chisholm Young, *Mathematicians and their times*, North-Holland, Amsterdam, 1981. (Cited on p. 48.)

[Zau89]   Erich Zauderer, *Partial differential equations of applied mathematics*, second ed., Wiley, New York, 1989. (Cited on pp. 202, 209.)

[Zuc79]   I. J. Zucker, *The summation of series of hyperbolic functions*, SIAM J. Math. Anal. **10** (1979), no. 1, 192–206. (Cited on p. 220.)