

References

- [Abd17] A. R. Abdulghany. ‘Generalization of parallel axis theorem for rotational inertia’. In: *American Journal of Physics* 85 (Oct. 2017), pp. 791–795.
DOI: 10.1119/1.4994835.
- [ACFL95] E. F. Arias, P. Charlot, M. Feissel and J.-F. Lestrade. ‘The extragalactic reference system of the International Earth Rotation Service, ICRS’. In: *Astronomy & Astrophysics* 303 (Nov. 1995), pp. 604–608.
- [ACMo6] I. Alonso-Mallo, B. Cano and M. J. Moreta. ‘Stability of Runge–Kutta–Nyström methods’. In: *Journal of Computational and Applied Mathematics* 189.1-2 (1st May 2006), pp. 120–131.
DOI: 10.1016/j.cam.2005.01.005.
- [AK15] Z. A. Anastassi and A. A. Kosti. ‘A 6(4) optimized embedded Runge–Kutta–Nyström pair for the numerical solution of periodic problems’. In: *Journal of Computational and Applied Mathematics* 275 (2015), pp. 311–320.
DOI: 10.1016/j.cam.2014.07.016.
- [Arc+11] B. A. Archinal, M. F. A’Hearn, E. Bowell, A. Conrad, G. J. Consolmagno, R. Courtin, T. Fukushima, D. Hestroffer, J. L. Hilton, G. A. Krasinsky, G. Neumann, J. Oberst, P. K. Seidelmann, P. Stooke, D. J. Tholen, P. C. Thomas and I. P. Williams. ‘Report of the IAU Working Group on Cartographic Coordinates and Rotational Elements: 2009’. In: *Celestial Mechanics and Dynamical Astronomy* 109.2 (2011), pp. 101–135.
DOI: 10.1007/s10569-010-9320-4.
eprint: <http://goo.gl/d6Wd1J>.
- [BC72] R. A. Broucke and P. J. Cefola. ‘On the Equinoctial Orbit Elements’. In: *Celestial Mechanics* 5.3 (May 1972), pp. 303–310.
DOI: 10.1007/BF01228432.
- [BCM07] S. Blanes, F. Casas and A. Murua. ‘Splitting methods for non-autonomous linear systems’. In: *International Journal of Computer Mathematics* 84.6 (2007), pp. 713–727.
DOI: 10.1080/00207160701458567.
- [BCR00] S. Blanes, F. Casas and J. Ros. ‘Processing Symplectic Methods for Near-Integrable Hamiltonian Systems’. In: *Celestial Mechanics and Dynamical Astronomy* 77.1 (2000), pp. 17–36.
DOI: 10.1023/A:1008311025472.
- [BCR01a] S. Blanes, F. Casas and J. Ros. ‘High-order Runge–Kutta–Nyström geometric methods with processing’. In: *Applied Numerical Mathematics* 39.3–4 (2001). Themes in Geometric Integration, pp. 245–259.
DOI: 10.1016/S0168-9274(00)00035-0.
- [BCR01b] S. Blanes, F. Casas and J. Ros. ‘New Families of Symplectic Runge–Kutta–Nyström Integration Methods’. In: *Numerical Analysis and Its Applications*. NAA 2000 (Rousse, Bulgaria, 11th–15th June 2000). Ed. by L. Vulkov, P. Yalamov and J. Waśniewski. Lecture Notes in Computer Science 1988. International Conference on Numerical Analysis and Its Applications. Springer Berlin Heidelberg, 2001, pp. 102–109.
DOI: 10.1007/3-540-45262-1_13.
- [BCR99] S. Blanes, F. Casas and J. Ros. ‘Symplectic Integration with Processing: A General Study’. In: *SIAM Journal on Scientific Computing* 21.2 (1999), pp. 711–727.
DOI: 10.1137/S1064827598332497.
- [Běi13] 北斗卫星导航系统公开服务性能规范(1.0 版)—*BeiDou Navigation Satellite System Open Service Performance Standard (Version 1.0)*. BDS-OS-PS-1.0. Chinese: <http://www.beidou.gov.cn/zt/zcfg/201710/P020171202709828404659.pdf>—English: <http://www.beidou.gov.cn/xt/gfxz/201805/P020180509584193805984.pdf>. 中国卫星导航系统管理办公室—China Satellite Navigation Office, Dec. 2013.
- [Ben97] J. R. Benada. *PO.DAAC Merged GDR (TOPEX-Poseidon) Generation B User’s handbook, version 2.0*. D-11007. Jet Propulsion Laboratory, 30th July 1997.
eprint: https://podaac-tools.jpl.nasa.gov/drive/files/allData/topex/L2/mgdrb/docs/uimgdrb/html/usr_toc.htm.

- [Beuo03] H. Beust. ‘Symplectic integration of hierarchical stellar systems’. In: *Astronomy & Astrophysics* 400 (Mar. 2003), pp. 1129–1144.
DOI: 10.1051/0004-6361:20030065.
- [BF54] P. F. Byrd and M. D. Friedman. *Handbook of elliptic integrals for engineers and physicists*. Springer-Verlag, 1954.
- [Bjö94] Å. Björck. ‘Numerics of Gram-Schmidt orthogonalization’. In: *Linear Algebra and its Applications* 197–198 (1994), pp. 297–316.
DOI: 10.1016/0024-3795(94)90493-6.
- [Bla+13] S. Blanes, F. Casas, A. Farrés, J. Laskar, J. Makazaga and A. Murua. ‘New families of symplectic splitting methods for numerical integration in dynamical astronomy’. In: *Applied Numerical Mathematics* 68 (2013), pp. 58–72.
DOI: 10.1016/j.apnum.2013.01.003.
- [BM02] S. Blanes and P. C. Moan. ‘Practical Symplectic Partitioned Runge–Kutta and Runge–Kutta–Nyström Methods’. In: *Journal of Computational and Applied Mathematics* 142.2 (May 2002), pp. 313–330.
DOI: 10.1016/S0377-0427(01)00492-7.
- [Bra+14] B. K. Bradley, B. A. Jones, G. Beylkin, K. Sandberg and P. Axelrad. ‘Bandlimited implicit Runge–Kutta integration for Astrodynamics’. In: *Celestial Mechanics and Dynamical Astronomy* 119.2 (2014), pp. 143–168.
DOI: 10.1007/s10569-014-9551-x.
- [Brao6] C. J. F. ter Braak. ‘A Markov Chain Monte Carlo version of the genetic algorithm Differential Evolution: easy Bayesian computing for real parameter spaces’. In: *Statistics and Computing* 16 (Sept. 2006), pp. 239–249.
DOI: 10.1007/s11222-006-8769-1.
- [Bre73] R. P. Brent. *Algorithms for minimization without derivatives*. Prentice-Hall, 1973.
- [BS96] F. Blanc and C. Schgounn. *AVISO/Altimetry, AVISO User Handbook for Merged TOPEX/-POSEIDON products, Edition 3.0*. AVI-NT-02-101-CN. Centre national d’études spatiales, July 1996.
- [BSFL98] R. S. Bhat, B. E. Shapiro, R. B. Frauenholz and R. K. Leavitt. *TOPEX/Poseidon Orbit Maintenance for First Five Years*. Technical Report 97-1398. Jet Propulsion Laboratory, 11th May 1998.
eprint: <https://trs.jpl.nasa.gov/handle/2014/22860>.
- [Bul65] R. Bulirsch. ‘Numerical Calculation of Elliptic Integrals and Elliptic Functions’. In: *Numerische Mathematik* 7.1 (1st Feb. 1965), pp. 78–90.
DOI: 10.1007/BF01397975.
- [Bul69] R. Bulirsch. ‘Numerical Calculation of Elliptic Integrals and Elliptic Functions. III’. In: *Numerische Mathematik* 13.4 (Aug. 1969), pp. 305–315.
DOI: 10.1007/BF02165405.
- [Cap12] M. Capderou. *Satellites : de Kepler au GPS*. Springer-Verlag France, 2012.
- [CFSZo7] E. Celledoni, F. Fassò, N. Säfström and A. Zanna. ‘The exact computation of the free rigid body motion and its use in splitting methods’. Preprint at <https://www.math.unipd.it/~fasso/research/papers/norway.pdf>. Oct. 2007.
- [CFSZo8] E. Celledoni, F. Fassò, N. Säfström and A. Zanna. ‘The exact computation of the free rigid body motion and its use in splitting methods’. In: *SIAM J. Scientific Computing* 30 (May 2008), pp. 2084–2112.
- [CGMo8] M. P. Calvo, S. González-Pinto and J. I. Montijano. ‘Global error estimation based on the tolerance proportionality for some adaptive Runge–Kutta codes’. In: *Journal of Computational and Applied Mathematics* 218.2 (2008). The Proceedings of the Twelfth International Congress on Computational and Applied Mathematics, pp. 329–341.
DOI: 10.1016/j.cam.2007.02.034.
- [Cha73] J. F. Chandler. ‘Determination of the Dynamical Properties of the Jovian System by Numerical Analysis’. PhD thesis. Massachusetts Institute of Technology, 1973.
eprint: <http://hdl.handle.net/1721.1/51410>.

- [Cha95] J. Chapront. ‘Representation of planetary ephemerides by frequency analysis. Applications to the five outer planets’. In: *Astronomy & Astrophysics – Supplement Series* 109 (Jan. 1995), pp. 181–192.
- [Chi97] S. A. Chin. ‘Symplectic integrators from composite operator factorizations’. In: *Physics Letters A* 226.6 (1997), pp. 344–348.
DOI: 10.1016/S0375-9601(97)00003-0.
- [CHMR96] M. P. Calvo, D. J. Higham, J. I. Montijano and L. Rández. ‘Global error estimation with adaptive explicit Runge–Kutta methods’. In: *IMA Journal of Numerical Analysis* 16.1 (1996), pp. 47–63.
DOI: 10.1093/imanum/16.1.47.
- [CHO73] C. J. Cohen, E. C. Hubbard and C. Oesterwinter. *Astronomical Papers Prepared for the Use of the American Ephemeris and Nautical Almanac – Elements of the Outer Planets for One Million Years*. Vol. XXII. I. United States Government Printing Office, 1973.
- [CK00] S. A. Chin and D. W. Kidwell. ‘Higher-order force gradient symplectic algorithms’. In: *Physical Review E* 62 (Dec. 2000), p. 8746.
DOI: 10.1103/PhysRevE.62.8746.
eprint: <http://arxiv.org/abs/physics/0006082>.
- [CR91] J. Candy and W. Rozmus. ‘A symplectic integration algorithm for separable Hamiltonian functions’. In: *Journal of Computational Physics* 92.1 (Jan. 1991), pp. 230–256.
DOI: 10.1016/0021-9991(91)90299-Z.
- [CS93a] M. P. Calvo and J. M. Sanz-Serna. ‘High-Order Symplectic Runge–Kutta–Nyström Methods’. In: *SIAM Journal on Scientific Computing* 14.5 (1993), pp. 1237–1252.
DOI: 10.1137/0914073.
- [CS93b] M. P. Calvo and J. M. Sanz-Serna. ‘The Development of Variable-step Symplectic Integrators with Application to the Two-body Problem’. In: *SIAM Journal on Scientific Computing* 14.4 (July 1993), pp. 936–952.
DOI: 10.1137/0914057.
- [CV84] J. Chapront and D. T. Vu. ‘A new compact representation of ephemerides: application to the motion of Pluto, the Sun and the Galilean satellites of Jupiter’. In: *Astronomy & Astrophysics* 141 (1984), pp. 131–143.
- [Del90] J.-B. Delambre. ‘De l’usage du calcul différentiel dans la construction des tables astronomiques’. In: *Mémoires de l’Académie Royale des Sciences de Turin* V (1790), pp. 143–180.
eprint: <https://www.biodiversitylibrary.org/item/32318#page/699/mode/1up>.
- [DEP87a] J. R. Dormand, M. E. A. El-Mikkawy and P. J. Prince. ‘Families of Runge–Kutta–Nyström Formulae’. In: *IMA Journal of Numerical Analysis* 7.2 (1987), pp. 235–250.
DOI: 10.1093/imanum/7.2.235.
- [DEP87b] J. R. Dormand, M. E. A. El-Mikkawy and P. J. Prince. ‘High-Order Embedded Runge–Kutta–Nyström Formulae’. In: *IMA Journal of Numerical Analysis* 7.4 (1987), pp. 423–430.
DOI: 10.1093/imanum/7.4.423.
- [DL42] G. C. Danielson and C. Lánzos. ‘Some improvements in practical Fourier analysis and their application to x-ray scattering from liquids’. In: *Journal of the Franklin Institute* 233.4 (1942), pp. 365–380.
DOI: 10.1016/S0016-0032(42)90767-1.
- [DM11] F. Diele and C. Marangi. ‘Explicit symplectic partitioned Runge–Kutta–Nyström methods for non-autonomous dynamics’. In: *Applied Numerical Mathematics* 61.7 (2011), pp. 832–843.
DOI: 10.1016/j.apnum.2011.02.003.
- [Dor96] J. R. Dormand. *Numerical Methods for Differential Equations – A Computational Approach*. CRC Press, 1996.
- [Eme07] V. V. Emel’yanenko. ‘A method of symplectic integrations with adaptive time-steps for individual Hamiltonians in the planetary N -body problem’. In: *Celestial Mechanics and Dynamical Astronomy* 98.3 (2007), pp. 191–202.
DOI: 10.1007/s10569-007-9077-6.

- [ERo3] M. El-Mikkawy and E. D. Rahmo. ‘A new optimized non-FSAL embedded Runge–Kutta–Nyström algorithm of orders 6 and 4 in six stages’. In: *Applied Mathematics and Computation* 145.1 (2003), pp. 33–43.
DOI: 10.1016/S0096-3003(02)00436-8.
- [Eve85] E. Everhart. ‘An Efficient Integrator that Uses Gauss-Radau Spacings’. In: *Dynamics of Comets: Their Origin and Evolution*. 83rd Colloquium of the International Astronomical Union (Rome, Italy, 11th–15th June 1984). Ed. by A. Carusi and G. B. Valsecchi. Astrophysics and Space Science Library 115. International Astronomical Union. Springer Netherlands, 1985, pp. 185–202.
DOI: 10.1007/978-94-009-5400-7_17.
- [Fan91a] T. Fantet de Lagny. ‘Nouvelle methode de Mr. T. F. de Lagny pour l’approximation des Racines cubiques’. In: *Le Journal des sçavans* 1691.17 (14th May 1691), pp. 200–203.
eprint: <https://gallica.bnf.fr/ark:/12148/bpt6k56538h/f202.double>.
- [Fan91b] T. Fantet de Lagny. *Méthode nouvelle, infiniment générale et infiniment abrégée, Pour l’Extraction des Racines quarrées, cubiques, &c. & pour l’Approximation des mêmes Racines à l’infini dans toutes sortes d’égalitez. Proposée à examiner aux Mathématiciens de l’Europe*. De l’Imprimerie d’Antoine Lambin, ruë S. Jacques, au Miroir, 1691.
eprint: <https://gallica.bnf.fr/ark:/12148/bpt6k1039787>.
- [Fan92] T. Fantet de Lagny. *Methodes nouvelles et abregées pour l’extraction et l’approximation des racines. Et pour resoudre par le cercle et la ligne droite, plusieurs problèmes solides & sursolides; comme la duplication du cube, l’invention de deux & de quatre moyennes proportionnelles, &c. dans toute la précision possible, & d’une maniere praticable. Avec une dissertation sur les methodes d’arithmetique & d’analyse; où l’on établit des principes generaux pour en juger*. De l’Imprimerie de Jean Cusson, ruë saint Jacques, à l’Image de saint Jean Baptiste, 1692.
eprint: <https://nubis.univ-paris1.fr/ark:/15733/3415>.
- [Far+13] A. Farrés, J. Laskar, S. Blanes, F. Casas, J. Makazaga and A. Murua. ‘High precision symplectic integrators for the Solar System’. In: *Celestial Mechanics and Dynamical Astronomy* 116.2 (2013), pp. 141–174.
DOI: 10.1007/s10569-013-9479-6.
- [Fin87] J. M. Fine. ‘Low order practical Runge–Kutta–Nyström methods’. In: *Computing* 38.4 (1987), pp. 281–297.
DOI: 10.1007/BF02278707.
- [FMLGo8] A. Fienga, H. Manche, J. Laskar and M. Gastineau. ‘INPOPo6: a new numerical planetary ephemeris’. In: *Astronomy & Astrophysics* 477.1 (2008), pp. 315–327.
DOI: 10.1051/0004-6361:20066607.
- [Fol+14] W. M. Folkner, J. G. Williams, D. H. Boggs, R. S. Park and P. Kuchynka. ‘The Planetary and Lunar Ephemerides DE430 and DE431’. In: *Interplanetary Network Progress Report* 42.196 (2014).
eprint: <http://ilrs.gsfc.nasa.gov/docs/2014/196C.pdf>.
- [FR90] E. Forest and R. D. Ruth. ‘Fourth-order symplectic integration’. In: *Physica D: Nonlinear Phenomena* 43.1 (May 1990), pp. 105–117.
DOI: 10.1016/0167-2789(90)90019-L.
- [Fuko9a] T. Fukushima. ‘Fast computation of complete elliptic integrals and Jacobian elliptic functions’. In: *Celestial Mechanics and Dynamical Astronomy* 105.4 (25th Oct. 2009), pp. 305–328.
DOI: 10.1007/s10569-009-9228-z.
- [Fuko9b] T. Fukushima. ‘Fast computation of Jacobian elliptic functions and incomplete elliptic integrals for constant values of elliptic parameter and elliptic characteristic’. In: *Celestial Mechanics and Dynamical Astronomy* 105.1 (Oct. 2009), pp. 245–260.
DOI: 10.1007/s10569-008-9177-y.
- [Fuk11a] T. Fukushima. ‘Precise and fast computation of the general complete elliptic integral of the second kind’. In: *Mathematics of Computation* 80 (Feb. 2011), pp. 1725–1743.
DOI: 10.1090/S0025-5718-2011-02455-5.

- [Fuk11b] T. Fukushima. ‘Precise and fast computation of a general incomplete elliptic integral of second kind by half and double argument transformations’. In: *Journal of Computational and Applied Mathematics* 235.14 (May 2011), pp. 4140–4148. DOI: 10.1016/j.cam.2011.03.004.
- [Fuk12a] T. Fukushima. *xgscd.txt (Fortran program package to compute the Jacobian elliptic functions, $sn(u|m)$, $cn(u|m)$, $dn(u|m)$)*. Dec. 2012.
- [Fuk12b] T. Fukushima. ‘Precise and fast computation of a general incomplete elliptic integral of third kind by half and double argument transformations’. In: *Journal of Computational and Applied Mathematics* 236.7 (Jan. 2012), pp. 1961–1975. DOI: 10.1016/j.cam.2011.11.007.
- [Fuk18] T. Fukushima. *xelbdj.txt: Fortran test driver for “elbdj”/“relbdj”, subroutines to compute the double/single precision general incomplete elliptic integrals of all three kinds*. Software. Jan. 2018. DOI: 10.13140/RG.2.2.11113.80489.
- [Gen72a] W. M. Gentleman. ‘Algorithm 424: Clenshaw-Curtis quadrature [D1]’. In: *Communications of the ACM* 15.5 (May 1972), pp. 353–355. DOI: 10.1145/355602.355603.
- [Gen72b] W. M. Gentleman. ‘Implementing Clenshaw-Curtis quadrature, I methodology and experience’. In: *Communications of the ACM* 15.5 (May 1972), pp. 337–342. DOI: 10.1145/355602.361310.
- [Gen72c] W. M. Gentleman. ‘Implementing Clenshaw-Curtis quadrature, II computing the cosine transformation’. In: *Communications of the ACM* 15.5 (May 1972), pp. 343–346. DOI: 10.1145/355602.361311.
- [GMPS16] K. Goździewski, C. Migaszewski, F. Panichi and E. Szuszkiewicz. ‘The Laplace resonance in the Kepler-60 planetary system’. In: *Monthly Notices of the Royal Astronomical Society: Letters* 455.1 (1st Jan. 2016), pp. L104–L108. DOI: 10.1093/mnrasl/slv156.
- [GV13] G. H. Golub and C. F. Van Loan. *Matrix Computations (4th Edition)*. Johns Hopkins University Press, 15th Feb. 2013.
- [Hal09] E. Halley. ‘A new, exact, and easy Method of finding the Roots of any Equations generally, and that without any previous Reduction’. In: *The Philosophical Transactions of the Royal Society of London, from their commencement, in 1665, to the year 1800; Abridged, with notes and biographic illustrations*. Ed. by C. Hutton, G. Shaw and R. Pearson. Vol. III from 1683 to 1694. Translated from the Latin [Hal94]. 1809, pp. 640–649.
- [Hal94] E. Halley. ‘Methodus Nova Accurata & Facilis Inveniendi Radices Aequationum quarumcumque generaliter, sine prævia Reductione’. In: *Philosophical Transactions of the Royal Society* 18.210 (May 1694), pp. 136–148. DOI: 10.1098/rstl.1694.0029.
- [Higo2] N. J. Higham. *Accuracy and Stability of Numerical Algorithms*. Society for Industrial and Applied Mathematics, 2002.
- [HLBo8] Y. Hida, X. S. Li and D. H. Bailey. ‘Library for Double-Double and Quad-Double Arithmetic’. Preprint at <https://www.davidhbailey.com/dhbpapers/qd.pdf>. 8th May 2008.
- [HLWo3] E. Hairer, C. Lubich and G. Wanner. ‘Geometric numerical integration illustrated by the Störmer–Verlet method’. In: *Acta Numerica* (May 2003), pp. 399–450. DOI: 10.1017/S0962492902000144.
- [HMRo8] E. Hairer, R. I. McLachlan and A. Razakarivony. ‘Achieving Brouwer’s law with implicit Runge–Kutta methods’. In: *BIT Numerical Mathematics* 48.2 (2008), pp. 231–243. DOI: 10.1007/s10543-008-0170-3.
- [HMSo9] E. Hairer, R. I. McLachlan and R. D. Skeel. ‘On energy conservation of the simplified Takahashi–Imada method’. In: *Mathematical Modelling and Numerical Analysis* 43.4 (2009). ID: unige:5211, pp. 631–644.

- [HO09] D. Huybrechs and S. Olver. ‘Highly oscillatory quadrature’. In: *Highly Oscillatory Problems*. Ed. by B. Engquist, A. Fokas and E. Hairer. Cambridge University Press, 2009, pp. 25–50.
DOI: 10.1017/CB09781139107136.
- [HS05] E. Hairer and G. Söderlind. ‘Explicit, Time Reversible, Adaptive Step Size Control’. In: *SIAM Journal on Scientific Computing* 26.6 (2005), pp. 1838–1851.
DOI: 10.1137/040606995.
- [INO06] A. Iserles, S. P. Nørsett and S. Olver. ‘Highly Oscillatory Quadrature: The Story so Far’. In: *Numerical Mathematics and Advanced Applications*. Ed. by A. B. de Castro, D. Gómez, P. Quintela and P. Salgado. Springer Berlin Heidelberg, 2006, pp. 97–118.
DOI: 10.1007/978-3-540-34288-5_6.
- [JA12] B. A. Jones and R. L. Anderson. ‘A Survey of Symplectic and Collocation Integration Methods for Orbit Propagation’. In: *22nd AAS/ALAA Spaceflight Mechanics Meeting* (Charleston, South Carolina, 29th Jan.–2nd Feb. 2012). Advances in the Astronautical Sciences 143. AAS 12-214. American Astronautical Society. Univelt, 2012.
eprint: <http://hdl.handle.net/2014/42453>.
- [JE33] E. Jahnke and F. Emde. *Funktionentafeln mit Formeln und Kurven—Tables of functions with formulæ and curves*. Teubner, 1933.
- [JE38] E. Jahnke and F. Emde. *Funktionentafeln mit Formeln und Kurven—Tables of functions with formulæ and curves*. Teubner, 1938.
- [JEL60] E. Jahnke, F. Emde and F. Lösch. *Tafeln Höherer Funktionen—Tables of higher functions*. Teubner, 1960.
- [Jon12] B. Jones. ‘Orbit Propagation Using Gauss-Legendre Collocation’. In: *AIAA/AAS Astrodynamics Specialist Conference* (Minneapolis, Minnesota, 13th–16th Aug. 2012). Vol. 2. Guidance, Navigation, and Control and Co-located Conferences. AIAA 2012-4967. American Institute of Aeronautics and Astronautics. Curran, 2012, pp. 1570–1585.
DOI: 10.2514/6.2012-4967.
- [Kah06] W. Kahan. ‘How Futile are Mindless Assessments of Roundoff in Floating-Point Computation?’ Rant at <https://people.eecs.berkeley.edu/~wkahan/Mindless.pdf>. 11th Jan. 2006.
- [KB01] W. Kahan and D. Bindel. ‘Computing a Real Cube Root’. 2001 retypesetting by Bindel of a purported 1991 version by Kahan, at <https://cscclub.uwaterloo.ca/~pbarfuss/qbrt.pdf>. 21st Apr. 2001.
- [KM13] A. Krishnamoorthy and D. Menon. ‘Matrix Inversion Using Cholesky Decomposition’. In: *Signal Processing: Algorithms, Architectures, Arrangements, and Applications* (Poznań, Poland, 26th–28th Sept. 2013). IEEE, 2013, pp. 70–72.
- [Kud07] S. M. Kudryavtsev. ‘Long-term harmonic development of lunar ephemeris’. In: *Astronomy & Astrophysics* 471 (2007), pp. 1069–1075.
DOI: 10.1051/0004-6361:20077568.
- [LDV04] V. Lainey, L. Duriez and A. Vienne. ‘New accurate ephemerides for the Galilean satellites of Jupiter’. In: *Astronomy & Astrophysics* 420.3 (2004), pp. 1171–1183.
DOI: 10.1051/0004-6361:20034565.
- [Lea86] W. M. Lear. *The Gravitational Acceleration Equations*. Internal Note 86-FM-15. NASA Johnson Space Center, Apr. 1986.
- [Lea87] W. M. Lear. *The Programs TRA71 and TRA72*. Internal Note 87-FM-4. NASA Johnson Space Center, Apr. 1987.
- [Lin81] S. Linnainmaa. ‘Software for Doubled-Precision Floating-Point Computations’. In: *ACM Transactions on Mathematical Software* 7.3 (Sept. 1981), pp. 272–283.
DOI: 10.1145/355958.355960.
- [LJVF89] A. C. Long, J. J. O. Cappellari, C. E. Velez and A. J. Fuchs. *Goddard Trajectory Determination System (GTDS) Mathematical Theory Revision 1*. Tech. rep. FDD/552-89/001 CSC/TR-89/6001. Computer Sciences Corporation, National Aeronautics and Space Administration/Goddard Space Flight Center, July 1989.

- [LLL12] 李松明, 李岩 and 李劲东. ‘“天绘一号” 传输型摄影测量与遥感卫星—Mapping Satellite-1 transmission type photogrammetric and remote sensing satellite’. In: 遥感学报—*Journal of Remote Sensing* 16.S1 (2012), pp. 10–16.
DOI: 10.11834/jrs.20120003.
CNKI: YGXB2012S1005.
- [MA92] R. I. McLachlan and P. Atela. ‘The Accuracy of Symplectic Integrators’. In: *Nonlinearity* 5 (1992), pp. 541–562.
DOI: 10.1088/0951-7715/5/2/011.
- [McLo2] R. I. McLachlan. ‘Families of High-Order Composition Methods’. In: *Numerical Algorithms* 31.1-4 (2002), pp. 233–246.
DOI: 10.1023/A:1021195019574.
- [McLo7] R. I. McLachlan. ‘A New Implementation of Symplectic Runge–Kutta Methods’. In: *SIAM Journal on Scientific Computing* 29.4 (2007), pp. 1637–1649.
DOI: 10.1137/06065338X.
- [McL93] R. I. McLachlan. ‘Symplectic integration of Hamiltonian wave equations’. In: *Numerische Mathematik* 66.1 (1993), pp. 465–492.
DOI: 10.1007/BF01385708.
- [McL95] R. I. McLachlan. ‘On the Numerical Integration of Ordinary Differential Equations by Symmetric Composition Methods’. In: *SIAM Journal on Scientific Computing* 16.1 (Jan. 1995), pp. 151–168.
DOI: 10.1137/0916010.
- [Mon92] O. Montenbruck. ‘Numerical integration methods for orbital motion’. In: *Celestial Mechanics and Dynamical Astronomy* 53.1 (1992), pp. 59–69.
DOI: 10.1007/BF00049361.
- [MQo2] R. I. McLachlan and G. R. W. Quispel. ‘Splitting methods’. In: *Acta Numerica* 11 (Jan. 2002), pp. 341–434.
DOI: 10.1017/S0962492902000053.
- [MQo6] R. I. McLachlan and G. R. W. Quispel. ‘Geometric Integrators for ODEs’. In: *Journal of Physics A* 39 (2006), pp. 5251–5285.
DOI: 10.1088/0305-4470/39/19/S01.
- [Mur98] A. Murua. ‘Runge-Kutta-Nyström methods for general second order ODEs with application to multi-body systems’. In: *Applied Numerical Mathematics* 28.2-4 (Oct. 1998), pp. 387–399.
DOI: 10.1016/S0168-9274(98)00055-5.
- [Myro7] V. Myrnyy. ‘A Simple and Efficient FFT Implementation in C++’. In: *Dr. Dobbs’s* (2007). eprint: <https://drdobbs.com/cpp/a-simple-and-efficient-fft-implementation/199500857>.
- [New87] I. Newton. *Philosophiæ naturalis principia mathematica*. Facsimile at <https://cudl.lib.cam.ac.uk/view/PR-ADV-B-00039-00001/1>. Jussu Societatis Regiæ ac Typis Joseph Streater, 1687.
- [New89] X. X. Newhall. ‘Numerical Representation of Planetary Ephemerides’. In: *Celestial Mechanics* 45 (1989), pp. 305–310.
eprint: <http://adsabs.harvard.edu/full/1989CeMec..45..305N>.
- [NW86] A. M. Nobili and C. M. Will. ‘The real value of Mercury’s perihelion advance’. In: *Nature* 320 (6th Mar. 1986), pp. 39–41.
DOI: 10.1038/320039a0.
- [OLBC10] F. Olver, D. Lozier, R. Boisvert and C. Clark. *NIST Handbook of Mathematical Functions*. Cambridge University Press, 2010.
- [OS94] D. I. Okunbor and R. D. Skeel. ‘Canonical Runge–Kutta–Nyström methods of orders five and six’. In: *Journal of Computational and Applied Mathematics* 51.3 (1994), pp. 375–382.
DOI: 10.1016/0377-0427(92)00119-T.

- [Ove65] K. J. Overholt. ‘An Instability in the Fibonacci and Golden Section Search Methods’. In: *BIT* 5.4 (1965). Merged with the preceding article (starting p. 282) on the journal website, pp. 284–286.
DOI: 10.1007/BF01937508.
- [PL10] G. Petit and B. Luzum. *IERS Conventions (2010)*. IERS Technical Note 36. International Earth Rotation and Reference Systems Service Convention Centre, 2010.
eprint: <http://www.iers.org/IERS/EN/Publications/TechnicalNotes/tn36.html>.
- [PR14] E. Pellegrini and R. P. Russell. ‘F and G Taylor Series Solutions to the Circular Restricted Three Body Problem’. In: *24th AAS/AIAA Spaceflight Mechanics Meeting* (Santa Fe, New Mexico, 26th–30th Jan. 2014). Advances in the Astronautical Sciences 152. AAS 14-237. American Astronautical Society. Univelt, 2014.
- [QT90] G. D. Quinlan and S. Tremaine. ‘Symmetric multistep methods for the numerical integration of planetary orbits’. In: *Astronomical Journal* 100 (Nov. 1990), pp. 1694–1700.
- [Qui99] G. D. Quinlan. ‘Resonances and instabilities in symmetric multistep methods’. Preprint at <https://arxiv.org/pdf/astro-ph/9901136.pdf>. 12th Jan. 1999.
- [QZJo8] 曲宏松, 张叶 and 金光. ‘基于 Q 值选取的太阳同步回归轨道设计算法—Repeat sun-synchronous orbit design method based on Q value selection’. In: *光学精密工程—Optics and Precision Engineering* 16.9 (Sept. 2008), pp. 1688–1694.
CNKI: GXJM200809026.
- [Rie+16] J. Ries, S. Bettadpur, R. Eanes, Z. Kang, U. Ko, C. McCullough, P. Nagel, N. Pie, S. Poole, H. Save and B. Tapley. *The Combination Global Gravity Model GGM05C*. Technical Memorandum CSR-TM-16-01. Center for Space Research at the University of Texas at Austin, Jan. 2016.
eprint: ftp://ftp.csr.utexas.edu/pub/grace/GGM05/README_GGM05C.pdf.
- [RL06] R. P. Russell and M. Lara. ‘Repeat Ground Track Lunar Orbits in the Full-Potential Plus Third-Body Problem’. In: *A collection of technical papers*. AIAA/AAS Astrodynamics Specialist Conference and Exhibit (Keystone, Colorado, 21st–24th Aug. 2006). Vol. 3. Guidance, Navigation, and Control and Co-located Conferences. AIAA 2006-6750. American Institute of Aeronautics and Astronautics, 24th Aug. 2006, pp. 1935–1954.
DOI: 10.2514/6.2006-6750.
- [Rut83] R. Ruth. ‘A Canonical Integration Technique’. In: *Proceedings of the 1983 Particle Accelerator Conference (PAC 83)* (Santa Fe, New Mexico, 21st–23rd Mar. 1983). IEEE Transactions on Nuclear Science 30.4. Aug. 1983, pp. 2669–2671.
DOI: 10.1109/TNS.1983.4332919.
eprint: https://accelconf.web.cern.ch/accelconf/p83/PDF/PAC1983_2669.PDF.
- [Sat69] Saturn V Flight Evaluation Working Group. *Saturn V Launch Vehicle, Flight Evaluation Report AS-503, Apollo 8 Mission*. Tech. rep. MPR-SAT-FE-69-1. George C. Marshall Space Flight Center, Feb. 1969.
eprint: <http://hdl.handle.net/2060/19690015314>.
- [SM10] J. R. Scott and M. C. Martini. ‘High-Speed Solution of Spacecraft Trajectory Problems Using Taylor Series Integration’. In: *Journal of Spacecraft and Rockets* 47.1 (2010), pp. 199–202.
- [Smi61] O. K. Smith. ‘Eigenvalues of a Symmetric 3×3 Matrix’. In: *Communications of the ACM* 4.4 (Apr. 1961), p. 168.
DOI: 10.1145/355578.366316.
- [SN97] M. Sidlichovsky and D. Nesvorný. ‘Frequency modified Fourier transform and its application to asteroids’. In: *Celestial Mechanics and Dynamical Astronomy* 65 (1997), pp. 137–148.
- [Som93] B. P. Sommeijer. ‘Explicit, high-order Runge–Kutta–Nyström methods for parallel computers’. In: *Applied Numerical Mathematics* 13.1–3 (1993), pp. 221–240.
DOI: 10.1016/0168-9274(93)90145-H.
- [SQG13] P. W. Sharp, M. A. Qureshi and K. R. Grazier. ‘High order explicit Runge–Kutta Nyström pairs’. In: *Numerical Algorithms* 62.1 (2013), pp. 133–148.
DOI: 10.1007/s11075-012-9571-0.

- [SSo2] M. Sofroniou and G. Spaletta. ‘Symplectic Methods for Separable Hamiltonian Systems’. In: *Computational Science — ICCS 2002* (Amsterdam, The Netherlands, 21st–24th Apr. 2002). Ed. by P. M. A. Sloot, A. G. Hoekstra, C. J. K. Tan and J. J. Dongarra. Lecture Notes in Computer Science 3. International Conference on Computational Science. Springer, Berlin, Heidelberg, 10th Apr. 2002, pp. 506–515. DOI: 10.1007/3-540-47789-6_53.
- [Sta98] E. M. Standish. *JPL Planetary and Lunar Ephemerides, DE405/LE405*. Interoffice Memorandum IOM 312.F–98–048. Jet Propulsion Laboratory, Aug. 1998.
- [Ste74] P. H. Sterbenz. *Floating-point computation*. Prentice-Hall, 1974.
- [Stö12] C. Störmer. ‘Sur les trajectoires des corpuscules électrisés dans l’espace sous l’action du magnétisme terrestre, avec application aux aurores boréales’. In: *Radium* 9.11 (Nov. 1912), pp. 395–399. DOI: 10.1051/radium:01912009011039501.
- [Suz90] M. Suzuki. ‘Fractal decomposition of exponential operators with applications to many-body theories and Monte Carlo simulations’. In: *Physics Letters A* 146 (June 1990), pp. 319–323. DOI: 10.1016/0375-9601(90)90962-N.
- [Tao12] T. Tao. *A mathematical formalisation of dimensional analysis*. Blog post. University of California, Los Angeles, 29th Dec. 2012. eprint: <https://terrytao.wordpress.com/2012/12/29/a-mathematical-formalisation-of-dimensional-analysis/>.
- [TBS13] Y. Takahashi, M. W. Busch and D. J. Scheeres. ‘Spin state and moment of inertia characterization of 4179 Toutatis’. In: *The Astronomical Journal* 146.4 (Sept. 2013), pp. 95–104. DOI: 10.1088/0004-6256/146/4/95.
- [Tre10] L. N. Trefethen. ‘Householder triangularization of a quasimatrix’. In: *IMA Journal of Numerical Analysis* 30.4 (2010), pp. 887–897. DOI: 10.1093/imanum/drp018.
- [Ver67] L. Verlet. ‘Computer “Experiments” on Classical Fluids. I. Thermodynamical Properties of Lennard-Jones Molecules’. In: *Physical Review* 159.1 (5th July 1967), pp. 98–103. DOI: 10.1103/PhysRev.159.98.
- [Wal18] U. Walter. *Astronautics – The Physics of Space Flight – Third Edition*. Springer Nature Switzerland AG, 2018. DOI: 10.1007/978-3-319-74373-8.
- [War03] H. S. Warren Jr. *Hacker’s Delight*. Addison-Wesley, 2003.
- [Wes17] D. B. Westra. *Identites and properties for associated Legendre functions*. Personal note. Universität Wien, Sept. 2017. eprint: <https://www.mat.univie.ac.at/~westra/associatedlegendrefunctions.pdf>.
- [WG13] G. Wilkins and M. Gu. ‘A modified Brent’s method for finding zeros of functions’. In: *Numerische Mathematik* 123 (2013), pp. 177–188. DOI: 10.1007/s00211-012-0480-x.
- [WL17] 汪海洪 and 罗北. ‘计算测高卫星地面轨迹交叉点的快速数值算法—Fast Numerical Algorithm for the Calculation of Altimetric Crossovers from Satellite Ground Tracks’. In: *武汉大学学报 · 信息科学版—Geomatics and Information Science of Wuhan University* 42.3 (Mar. 2017), pp. 293–298. DOI: 10.13203/j.whugis20140866. CNKI: WHCH201703002.
- [WYZ15] 温生林, 闫野 and 张华. ‘低轨回归轨道卫星轨迹漂移特性分析与控制—Analysis and control of groundtrack drift for recursive low earth orbit satellites’. In: *系统工程与电子技术—Systems Engineering and Electronics* 37.3 (2015). The DOI is not registered; see <https://www.sys-ele.com/CN/10.3969/j.issn.1001-506X.2015.03.22>, pp. 613–619. DOI: 10.3969/j.issn.1001-506X.2015.03.22. CNKI: XTYD201503023.

- [XZLo9] 徐莹, 张有广 and 林明森. ‘卫星高度计轨道设计的因素分析—An Analysis on the Considerations of Satellite Altimeter Orbit Design’. In: *遥感技术与应用—Remote Sensing Technology and Application* 24.2 (2009), pp. 155–163.
DOI: 10.11873/j.issn.1004-0323.2009.2.155.
CNKI: YGJS200902005.
- [Yos90] H. Yoshida. ‘Construction of higher order symplectic integrators’. In: *Physics Letters A* 150.5–7 (1990), pp. 262–268.
DOI: 10.1016/0375-9601(90)90092-3.
- [Zha+15] Y. Zhao, J. Ji, J. Huang, S. Hu, X. Hou, Y. Li and W.-H. Ip. ‘Orientation and rotational parameters of asteroid 4179 Toutatis: new insights from Chang’e-2’s close flyby’. In: *Monthly Notices of the Royal Astronomical Society* 450.4 (May 2015), pp. 3620–3632.
DOI: 10.1093/mnras/stv792.
- [Zhō+12] 周飞, 李强, 信太林, 韦锡峰 and 张华. ‘空间辐射环境引起在轨卫星故障分析与加固对策—Analyses and countermeasures of in-orbit satellite failures caused by space radiation environment’. In: *航天器环境工程—Spacecraft Environment Engineering* 29.4 (2012), pp. 392–396.
DOI: 10.3969/j.issn.1673-1379.2012.04.006.
CNKI: HTHJ201204009.