References-Books

- Hut, P.; McMillan, S.L.W. (eds.): The Use of Supercomputers in Stellar Dynamics, Proceedings of a Workshop Held at the Institute for Advanced Study, Princeton, USA, June 2-4, 1986, VI, 240 pp.. Springer-Verlag Berlin Heidelberg New York. Also Lecture Notes in Physics, volume 267 (Earliest reference for Hermite scheme and hierarchical block steps)
- Aarseth, S.J.: Gravitational N-Body Simulations, by Sverre J. Aarseth, pp. 430. ISBN 0521432723. Cambridge, UK: Cambridge University Press, November 2003. New Edition January 2010.
- Binney, J., Tremaine, S.: Galactic Dynamics, Princeton, N.J.: Princeton University Press, 1987. 2nd edition 2008.
- Fridman, A. M.; Polyachenko, V. L.; (Translators: Aries, A. B.; Poliakoff, I. N.): Physics of gravitating systems. Vol. I: Equilibrium and stability. Vol. II. Nonlinear collective processes: nonlinear waves, solitons, collisionless shocks, turbulence. Astrophysical applications. Springer-Verlag, New York Berlin Heidelberg Tokyo.
- Goodman, J., Hut, P. (eds.): Dynamics of Star Clusters, Proceedings of the 113th International Astronomical Union (IAU) Symposium, held in Princeton, USA, May 29 - June 1, 1984, Dordrecht: Reidel, 1985. With seminal articles by Heggie, Cohn, Bettwieser, Hénon, Stodołkiewicz, Aarseth, Antonov, Shapiro, Spitzer, Ambartsumian, Ostriker, King, Wielen, Bahcall, Mikkola, McMillan, ...
- Heggie, D.C., Hut, P.: The Gravitational Million-Body Problem: A Multidisciplinary Approach to Star Cluster Dynamics, by Douglas Heggie and Piet Hut. Cambridge University Press, 2003, 372 pp.
- Ogorodnikov, K.F.: Dynamics of Stellar Systems, Oxford: Pergamon, 1965, edited by Beer, Arthur
- Spitzer, L.: Dynamical Evolution of Globular Clusters Princeton, N.J.: Princeton University Press, 1987.

References-Papers

Aarseth, S.J. [1972], 'Direct integration methods for the N-body problem', in *Gravitational N-Body Problem* ed. M. Lecar (D. Reidel), 373–87.

Aarseth, S.J. [1985], 'Direct methods for N-body simulations', in *Multiple Time Scales* ed. J.U. Brackbill & B.I. Cohen (Academic Press), 377–418.

Aarseth, S.J. [1999a], 'From NBODY1 to NBODY6: the growth of an industry', *Publ. Astron. Soc. Pac.*, **111**, 1333–46.

Aarseth, S.J. [1999b], 'Star Cluster Simulations: the State of the Art', Cel. Mech. Dyn. Ast. 73, 127.

Aarseth, S.J. [2001a], 'NBODY2: a direct N-body integration code', New Astron. 6, 277–91.

Aarseth, S.J. [2001b], 'Regularization methods for the N-body problem', in *The Restless Universe*, ed. B.A. Steves & A.J. Maciejewski (Inst. Phys. Publ.), 93–108.

Aarseth, S.J. [2003], Gravitational N-Body Simulations (Cambridge University Press).

Aarseth, S.J., Tout, C.A. & Mardling, R.A. [2008], 'The Cambridge N-Body Lectures', http://ads.bao.ac.cn/abs/2008LNP...760.....A, with 17 lectures by many authors, all around N-Body.

Aarseth, S.J. & Zare, K. [1974], 'A regularization of the three-body problem', *Celes. Mech.* **10**, 185–205.

Ahmad, A. & Cohen, L. [1973], 'A numerical integration scheme for the N-body gravitational problem', J. Comput. Phys. 12, 389–402.

Glaschke, P., Amaro-Seoane, P. & Spurzem, R. [2011], 'Hybrid methods in planetesimal dynamics (I): Description of a new composite algorithm', subm. to MNRAS, eprint http://cn.arxiv.org/pdf/1105.6094v1

Bulirsch, R. & Stoer, J. [1966], 'Numerical treatment of ordinary differential equations by extrapolation methods', *Num. Math.* 8, 1–13.

Cohn, H. and Kulsrud, R.M. [1978], 'The stellar distribution around a black hole: numerical integration of the Fokker-Planck equation.', *The Astrophysical Journal*, **226**, 1087-1108.

Cohn, H. [1979], 'Numerical integration of the Fokker-Planck equation and the evolution of star clusters', *The Astrophysical Journal*, **234**, 1036-1053.

Cohn, H. [1980], 'Late core collapse in star clusters and the gravothermal instability', *The Astrophysical Journal*, **242**, 765-771.

Dorband, E.N., Hemsendorf, M., Merritt, D. [2003], 'Systolic and hyper-systolic algorithms for the gravitational N-body problem, with an application to Brownian motion', *J. Comput. Phys.* **185**, 484–511.

Einsel, C. and Spurzem, R. [1999], 'Dynamical evolution of rotating stellar systems - I. Pre-collapse, equal-mass system', *Monthly Notices of the Royal Astronomical Society*, **302**, 81-95.

Eggleton, P.P., Fitchett, M.J. & Tout, C.A. [1989], 'The distribution of visual binaries with two bright components', *Astrophys. J.* **347**, 998-1012. (Also see Errata in *Astrophys. J.* **354**, 387.)

Glaschke, P. [2006], 'Studying the Formation of Protoplanets: A new Hybrid Code for Planetesimal Dynamics', Promotion Univ. Heidelberg,

http://www.ub.uni-heidelberg.de/archiv/6553.

Hansen, B.M.S. & Phinney, E.S. [1997], 'The pulsar kick velocity distribution', *Mon. Not. R. Astron. Soc.* **291**, 569–77.

Harfst, S., Gualandris, A., Merritt, D., Spurzem, R., Portegies Zwart, S., Berczik, P. [2006], 'Performance Analysis of Direct N-body Algorithms on Special-Purpose Supercomputers', *New Astron.*, **12**, 357.

Heggie, D.C. [1974], 'A global regularisation of the gravitational N-body problem', *Celes. Mech.* **10**, 217–41.

Heggie, D.C. & Ramamani, N. [1995], 'Approximate self-consistent models for tidally truncated star clusters', Mon. Not. R. Astron. Soc. 272, 317–22.

von Hoerner, S. [1960], 'Die numerische Integration des n-Körper-Problemes für Sternhaufen', Zs. f. Astroph., **50**, 184–214.

von Hoerner, S. [1963], 'Die numerische Integration des n-Körper-Problemes für Sternhaufeni II', Zs. f. Astroph., 57, 47–82.

von Hoerner, S. [2001], 'How it all started'. In: Dynamics of Star Clusters and the Milky Way, ASP Conference Series, Vol. 228. Edited by S. Deiters, B. Fuchs, R. Spurzem, A. Just, and R. Wielen. San Francisco: Astronomical Society of the Pacific. p.11.

Hurley, J.R., Pols, O.R. & Tout, C.A. [2000], 'Comprehensive analytical formulae for stellar evolution as a function of mass and metallicity', *Mon. Not. R. Astron. Soc.* **315**, 543–69.

Khalisi, E., Spurzem, R.. [2006] 'NBODY6++ - Features of the computer code', ftp://ftp.ari.uni-heidelberg.de/pub/staff/spurzem/nb6mpi/nb6++manual-new.pdf

Khalisi, E., Omarov, C., Spurzem, R., Giersz, M., Lin, D., [2003] 'Collisional dynamics of black holes, star clusters and galactic nuclei'. In:Krause, E., Jaeger, W., Resch, M. (Eds.), High Performance Computing in Science and Engineering'03. Springer Verlag, pp. 71-87.

Kokubo, E., Makino, J. [2004], 'A Modified Hermite Integrator for Planetary Dynamics', *Publ. Astron. Soc. Japan* **56**, 861.

Kustaanheimo, P. & Stiefel, E. [1965], 'Perturbation theory of Kepler motion based on spinor regularization', *J. Reine Angew. Math.* **218**, 204–19.

Kroupa, P., Tout, C.A. & Gilmore, G. [1993], 'The distribution of low-mass stars in the Galactic disc', Mon. Not. R. Astron. Soc. 262, 545–87.

Kroupa, P., Aarseth, S.J. & Hurley, J. [2001], 'The formation of a bound star cluster: from the Orion Cluster to the Pleiades', Mon. Not. R. Astron. Soc. **321**, 699–712.

Makino, J. [1991], 'Optimal order and time-step criterion for Aarseth-type N-body integrators', Astrophys. J. 369, 200–12.

Makino, J. [1991], 'A Modified Aarseth Code for GRAPE and Vector Processors', *Publ. Astron. Soc. Japan*, **43**, 859.

Makino, J. & Aarseth, S.J. [1992], 'On a Hermite integrator with Ahmad-Cohen scheme for gravitational many-body problems', *Publ. Astron. Soc. Japan* 44, 141–51.

Makino, J. & Hut, P. [1988], 'Performance Analysis of direct N-body calculations', $Astrophys.\ J.\ Suppl.$, **68**, 833.

Makino, J. & Hut, P., Kaplan, M., Saygın, H. [2006], 'A time-symmetric block time-step algorithm for N-body simulations', *New Astron.* **12**, 124–133.

Makino, J. & Taiji, M. [1998], 'Scientific Simulations with Special Purpose Computers', Wiley, Chichester.

Mardling, R.A. [2003], 'A new three-body formalism', in preparation.

Mardling, R.A. & Aarseth, S.J. [1999], 'Dynamics and stability of three-body systems', in *The Dynamics of Small Bodies in the Solar System*, ed. B.A. Steves & A. Roy (Kluwer), 385–92.

Mardling, R.A. & Aarseth, S.J. [2001], 'Tidal interactions in star cluster simulations', Mon. Not. R. Astron. Soc. **321**, 398–420.

Mikkola, S. [1985], 'A practical and regular formulation of the N-body equations', Mon. Not. R. Astron. Soc. 215, 171–7.

Mikkola, S. and Aarseth, S.J. [1990], 'A chain regularization method for the few-body problem', Celes. Mech. Dyn. Ast. 47, 375–90.

Mikkola, S. & Aarseth, S.J. [1993], 'An implementation of N-body chain regularization', Celes. Mech. Dyn. Ast. 57, 439–59.

Mikkola, S. & Aarseth, S.J. [1996], 'A slow-down treatment for close binaries', Celes. Mech. Dyn. Ast. 64, 197–208.

Mikkola, S. & Aarseth, S.J. [1998], 'An efficient integration method for binaries in N-body simulations', New Astron. 3, 309–20.

Mikkola, S. & Aarseth, S.J. [2001], 'A time transformed leap-frog scheme', Cel. Mech. Dyn. Ast. 84, 343–354.

Miller, R.H. [1964], 'Irreversibility in Small Stellar Dynamical Systems.', *The Astrophysical Journal*, **140**, 250.

Miyamoto, M. & Nagai, R. [1975], 'Three-dimensional models for the distribution of mass in galaxies', *Publ. Astron. Soc. Japan* 27, 533–43.

Nitadori, K., Makino, J., Hut, P. [2006], 'Performance Tuning of N-Body Codes on Modern Microprocessors: I. Direct Integration with a Hermite Scheme on x86_64 architecture', New Astron., 12, 169.

Quinlan, G.D. and Tremaine, S. [1992], 'On the reliability of gravitational N-body integrations', Monthly Notices of the Royal Astronomical Society, 259, 505-518.

Spurzem, R. [1999], 'Direct N-body simulations', Journ. Comp. Appl. Math., 109, 407–432.

Spurzem, R., Baumgardt, H. & Ibold, N. [2001], 'A parallel implementation of an N-body integrator on general and special-purpose computers', unfinished preprint at

ftp.ari.uni-heidelberg.de/pub/staff/spurzem/edinpaper.ps.gz

Spurzem, R., Berczik, P., Berentzen, I., Ge, W., Wang, X., Schive, H., Nitadori, K., Hamada, T., & Fiestas, J. 2011, Large-Scale Computing Techniques for Complex System Simulations (Wiley Series on Parallel and Distributed Computing), eds. Werner Dubitzky, Krzysztof Kurowski, Bernard Schott, Wiley-IEEE Computer Society Pr; 1 edition (November 22, 2011)

Takahashi, K. and Lee, H.M. [2000], 'Evolution of multimass globular clusters in the Galactic tidal field with the effects of velocity anisotropy', *Monthly Notices of the Royal Astronomical Society*, **316**, 671-683.

Tout, C.A., Aarseth, S.J., Pols, O. & Eggleton, P. [1997], 'Rapid binary star evolution for N-body simulations and population synthesis', Mon. Not. R. Astron. Soc. 291, 732–48.