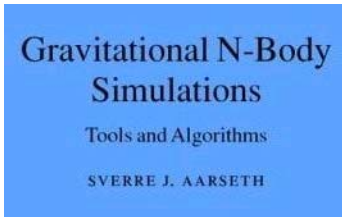


Now available on the web!

Sverre Aarseth's N-body simulation code NBODY4 powered by a GRAPE-6a workstation supercomputer

Demonstration site: www.NBodyLab.org See also www.sverre.com



For over 40 years, Sverre Aarseth of Cambridge University has pioneered the field of direct N-body simulations. His 2003 book, the work of a craftsman, describes a lifetime of research, his codes NBODY1 through NBODY6, and a history of N-body simulation techniques and scientific applications. His software with source code is freely available. NBODY4 has been tested and refined for over 10 years with GRAPE-family hardware.

The GRAPE-6a is an affordable (~ \$8,000) workstation supercomputer card that accelerates direct N-body simulations. It was created by astrophysicist Jun Makino and his team at the University of Tokyo, who have received numerous international awards for GRAPE (Gravity Pipeline) supercomputer designs. The card has a standard PCI interface and runs with Linux.



Try out this combination of leading N-body software and hardware using a convenient web interface at www.NBodyLab.org. Simulations are easy to run – you can generate data models or upload your own initial conditions – and explanations of parameters and quantities are provided. Plots and 3D animations complement the extensive diagnostics produced by NBODY4.

```

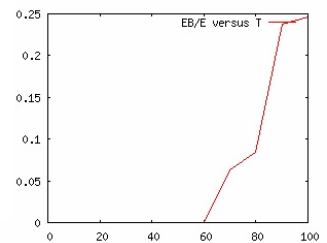
1 10.0 0
1000 1 5 50000 1
0.02 2.0 10.0 100.0 2.0D-05 1.0 0.5
0 0 1 0 1 0 5 0 0 0
0 0 0 1 1 1 0 0 3 0
1 0 2 0 1 0 0 0 0 2
0 0 0 0 0 1 0 0 0 0
1.0E-05 1.0D-04 0.2 1.0 1.0E-06 0.001
2.3 10.0 0.2 0 0.02 0.2 0
0.5 0 0 0

KSTART TCOMP GPID
N NFIX NCRIT NRAND NRUN
ETA DTADJ DELTAT TCRIT QE RBAR ZMBAR
KZ1 KZ2 KZ3 KZ4 KZ5 KZ6 KZ7 KZ8 KZ9 KZ10
KZ11 KZ12 KZ13 KZ14 KZ15 KZ16 KZ17 KZ18 KZ19 KZ20
KZ21 KZ22 KZ23 KZ24 KZ25 KZ26 KZ27 KZ28 KZ29 KZ30
KZ31 KZ32 KZ33 KZ34 KZ35 KZ36 KZ37 KZ38 KZ39 KZ40
DTMIN RMIN ETAU ECLDSE GMIN GMAX
ALPHA BODY1 BODYN NSINO ZMET unused unused
Q unused unused unused
    
```

Time scale for diagnostic plots

Axes length for N-body plots, or 'autoscale'

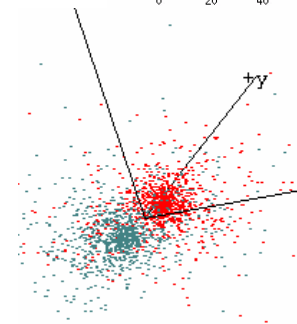
Experiment with mass functions, escaper removal, regularization and over 70 input parameters. Results include measures of energies in the system and binaries, tidal and core radius, cluster membership and plots of relevant quantities.



Running from T = 0 to TIME = 10.0 [Click here to halt calculation](#)

TIME	T Myr	<R> pc	N	NSTEPS	DE/E	E	EB/E
0.0	0.0	2.34	1000	0.00E+00	0.00E+00	-0.238214	0.0
2.0	6.3	2.41	1000	3.14E+05	1.01E-09	-0.238214	0.0
4.0	12.6	2.22	1000	6.36E+05	7.19E-08	-0.238214	0.0
6.0	18.9	2.46	1000	9.64E+05	-4.02E-08	-0.238214	0.0
8.0	25.2	2.58	1000	1.24E+06	1.12E-07	-0.238214	0.0
10.0	31.5	2.17	1000	1.51E+06	-2.55E-08	-0.238214	0.0

Elapsed real time (secs): 10



The NBodyLab.org website may help you justify acquisition of GRAPE-6a. NBODY4 running with a GRAPE-6a can significantly speed up your research and teaching. After exploring NBODY4 via the web, you can download NBODY6, read Sverre's book and start doing science. NBODY6, suitable for laptops and workstations, has been widely used to simulate realistic star clusters and is well documented in the code distribution and in his book Gravitational N-Body Simulations. Download NBODY6 from <http://www.ast.cam.ac.uk/~sverre/>

For more information, contact Sverre Aarseth (sverre@sverre.com) and Vicki Johnson, who developed the web interface (vlj@interconnect.com).