Gravitational N-Body Simulations

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1 Abstract

2 Introduction to the N-body problem

3 Logbook

8.10.2014. Initialized git repo. Created files main.cpp, NBody_functions.cpp/h, ODESolver.cpp/h. Started shell implementation of ODESolver, helper functions and a possible main-functions. Spent time contemplating some major design issues.

4 TODO

Write python script that generates the following initial conditions (and more!)

- Sun-earth-moon system
- Solar system (with/without moons)
- Spaceship launch from the earth
- Halleys comet enters orbit
- randomly placed inside a disk with 'correct' orbital velocity
- randomly placed (weighted in the center) inside a disk with 'correct' orbital velocity
- randomly placed inside a sphere with tangential velocity/no velocity