Simulation of large scale structure

Fourth presentation for the Scientific Modelling Computer Lab

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Running the simulation

Large scale structure simulation $\Rightarrow$ cosmological parameters.

The simulation:

- making glass with Gadget-2
- creating initial conditions with N-GenIC
- running the simulation
- fault: the boxsize parameter was not the same in the parameterfiles

Parameters

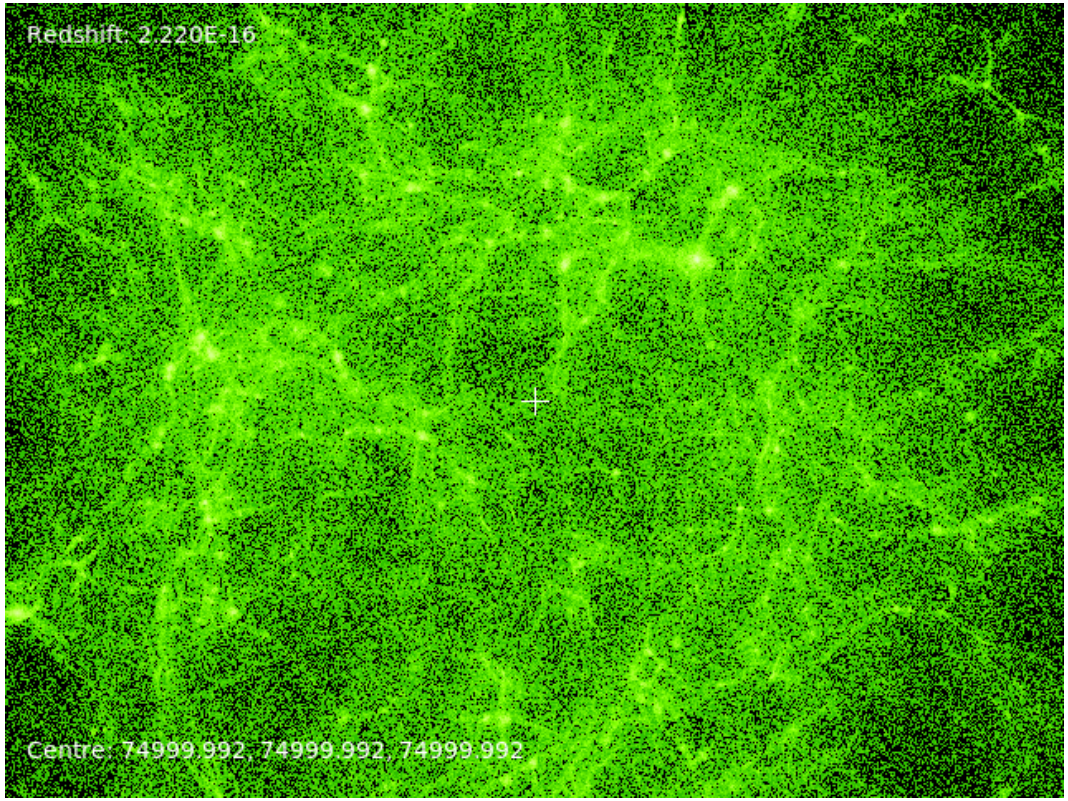
In the parameterfile of Gadget-2:

- TimeBegin 0.0008975124
- TimeMax 1.0
- BoxSize 150000.0

in the parameterfile of N-GenIC:

- Nmesh 100
- Nsample 100
- Box 150000.0
- TileFac 2
- Redshift 1000

Results



https://github.com/MariaPalfi/Scientific-modelling-lab/blob/master/lss_evol.gif

Pygadgetreader

https://bitbucket.org/rthompson/pygadgetreader/src/default/

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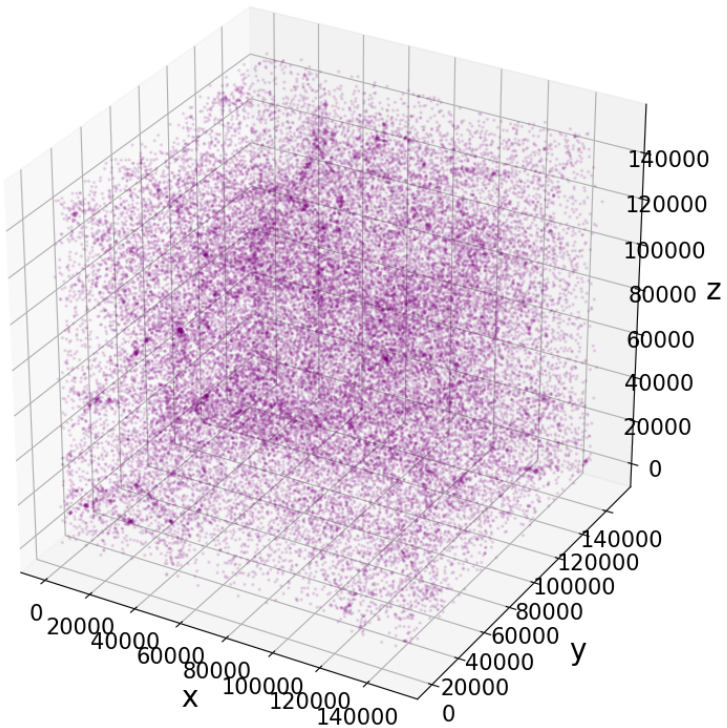
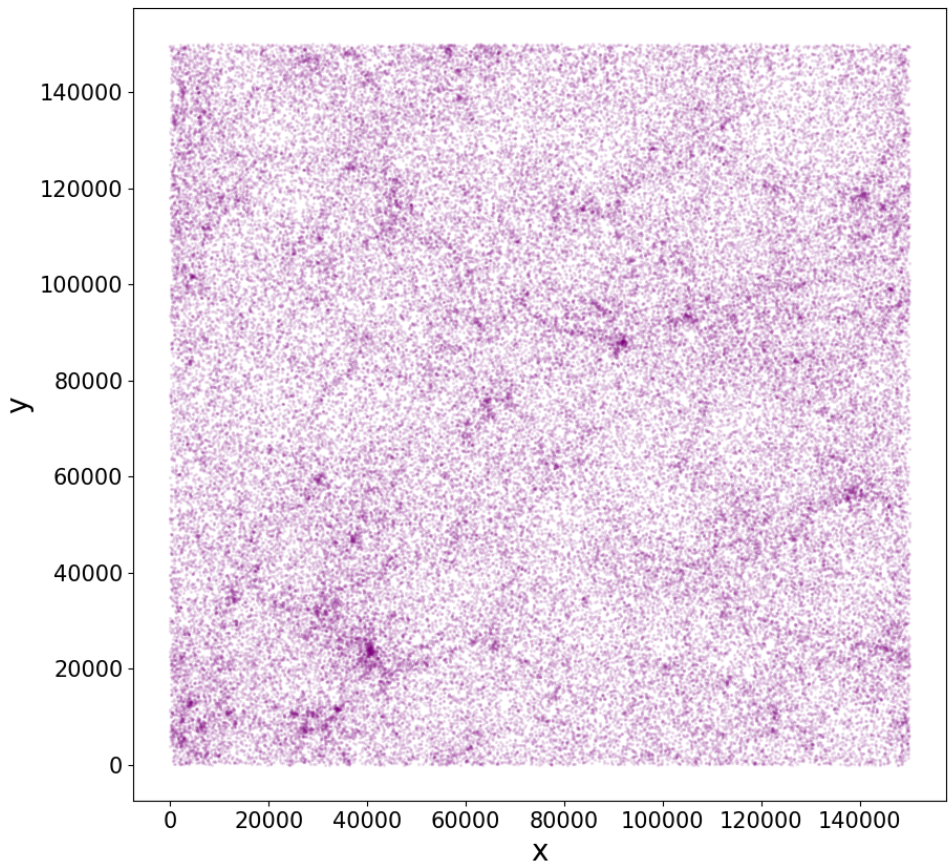
matplotlib.pyplot and mpl_toolkits.mplot3d

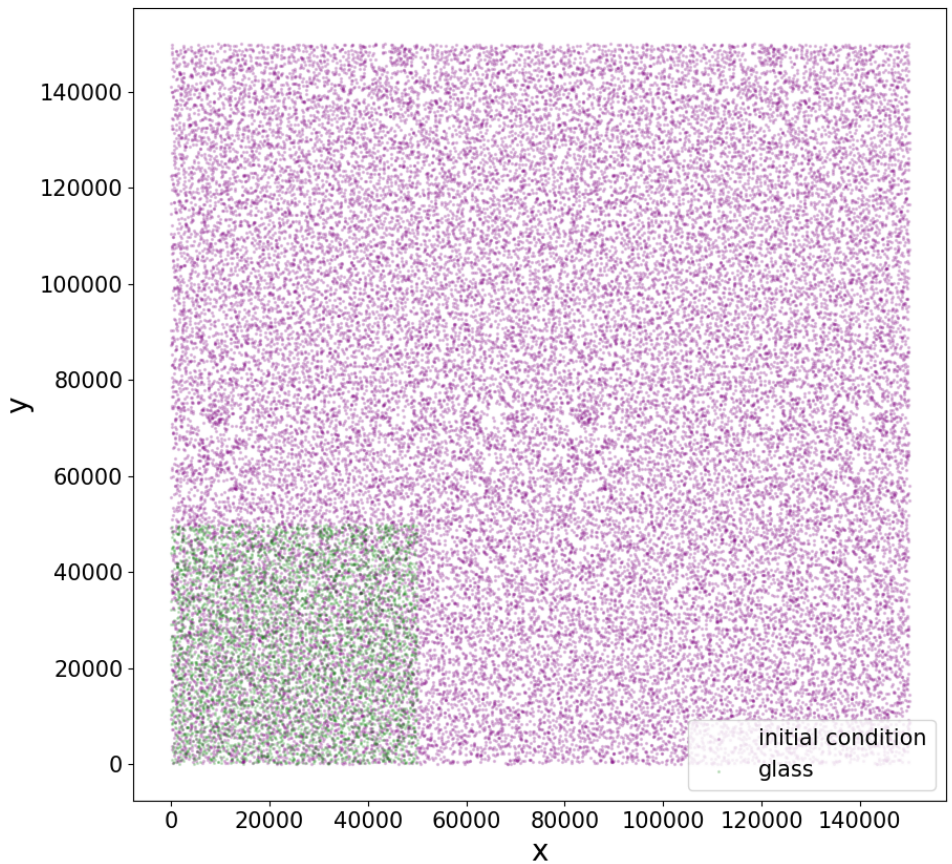
A 3D plot about the large scale structure with every 200th particles.



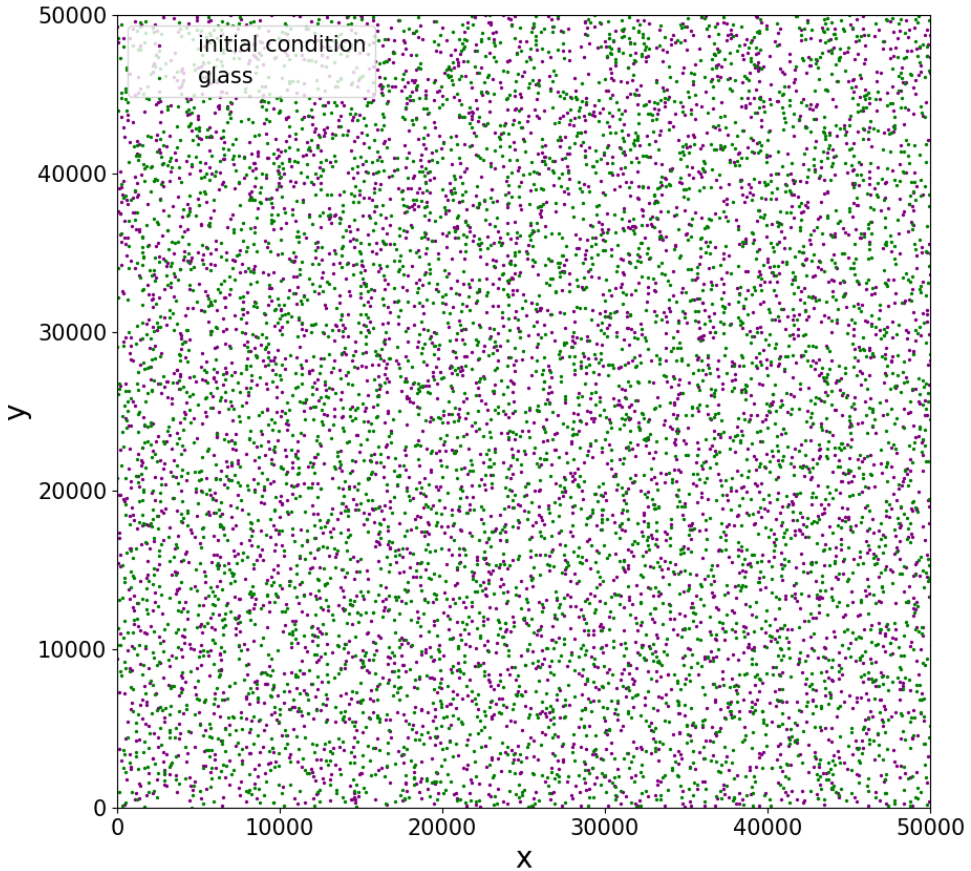
A 2D plot about the large scale structure with every 100th particles.



The position of the particles in the glass and in the initial condition with every 200th particles



The position of the particles in the glass and in the initial condition with every 200th particles for comparison



Summary, following steps

Progress of this week:

- running the large scale structure simulation
- installing the pygadgetreader
- making some simple plot

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Following steps:

- nicer plots
- plots about a slice of the snapshot
- compare the result with observations