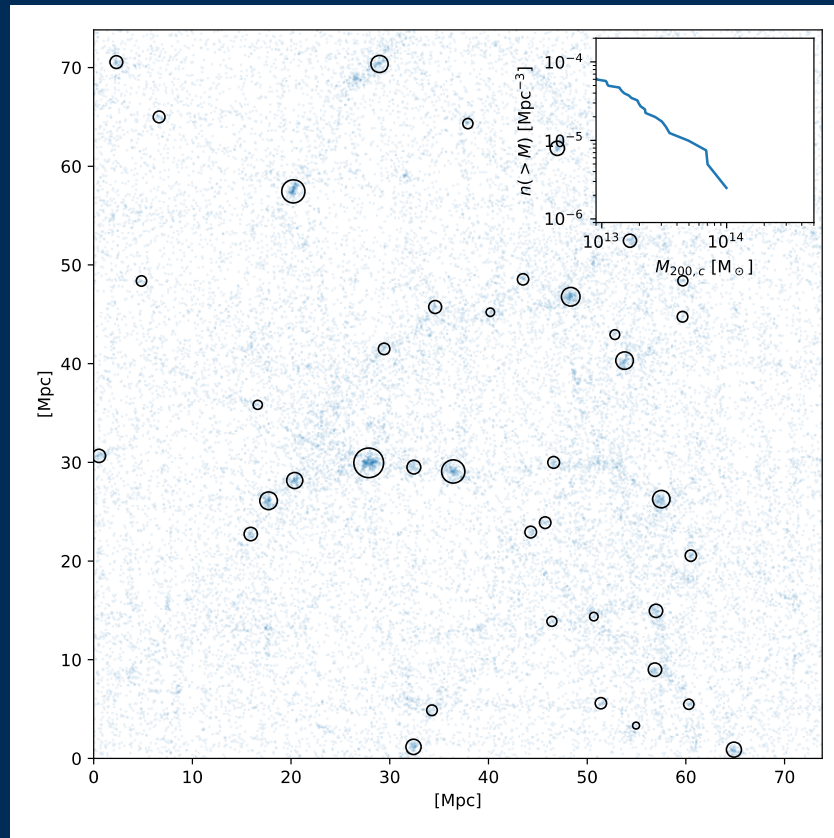
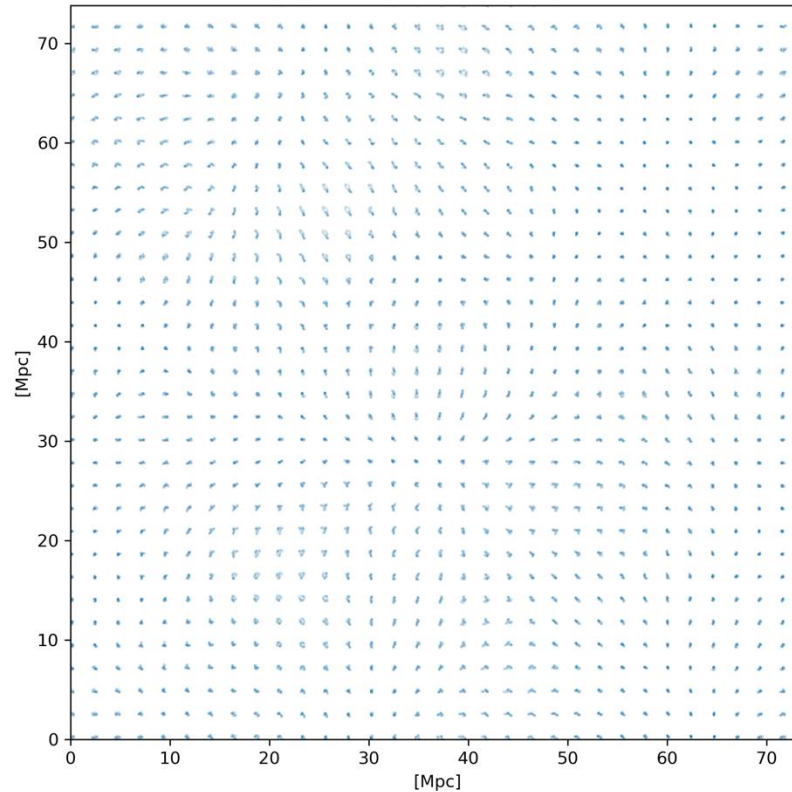


Cosmological simulation of structure formation

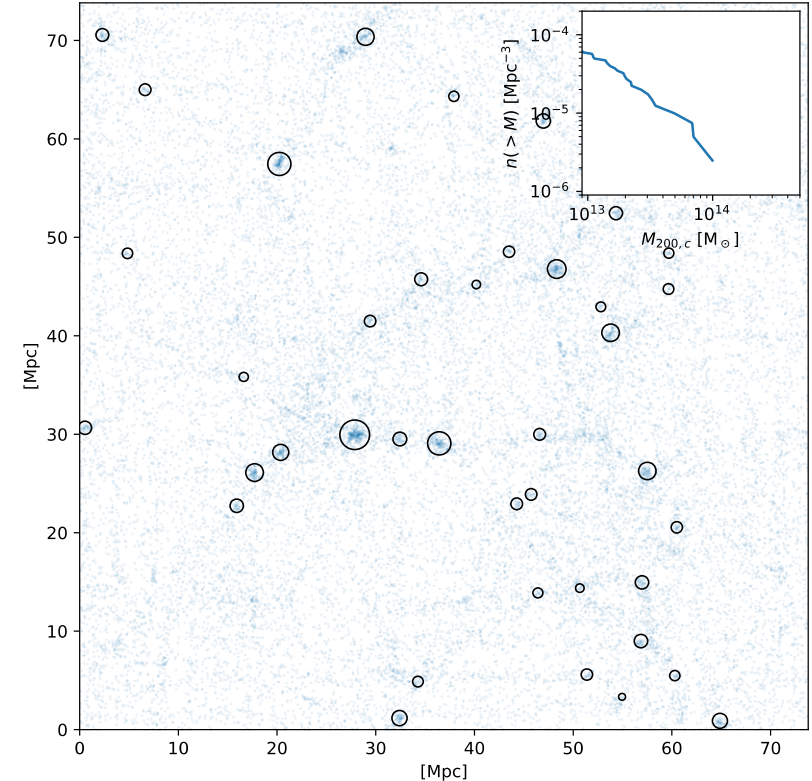


Halos in the cosmological structure formation simulation



Halos in the cosmological structure formation simulation

- Cosmological initial conditions
 - Create gas and dark matter at startup
 - Represented via particles of different “type” 0 (gas) and 1 (dark matter)
- Formation of structure
 - On the fly halo finder
- N-body & hydrodynamics simulation done with the Arepo code
 - Weinberger, Springel & Pakmor (2020)
 - www.arepo-code.org



Steps for running the simulation

1. Log in to Newton cluster
 - `ssh [username]@141.33.4.144`
 - [type in password]
2. Go to directory on parallel file system
 - `cd /lustre/[username]/`
3. Update git repository
 - `cd /CosmoComputingSchool`
 - `git pull`
 - `cd ..`
4. Open/display instructions in subdirectory cosmobox
 - `cat ./CosmoComputingSchool/cosmobox/instructions.sh`
 - Follow the steps there line by line (e.g. open a second terminal to do this)
5. Download movie
 - `rsync [username]@141.33.4.144:/lustre/[username]/cosmo_box_sim/output/movie_cosmobox.mp4 ./`
6. Bonus if there is time: create a scatter plot of the specific internal energy vs. density (let me know if you need help)