A (partially implemented) hydrodynamics code

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1 Overivew

Here, I describe some of the structure of the code here, and since the program is heavy on the equations, I also note the critical equations. See the README.md file for a description of how to excecute the program.

A note about Julia (since I am not sure how much you have used/seen the language).

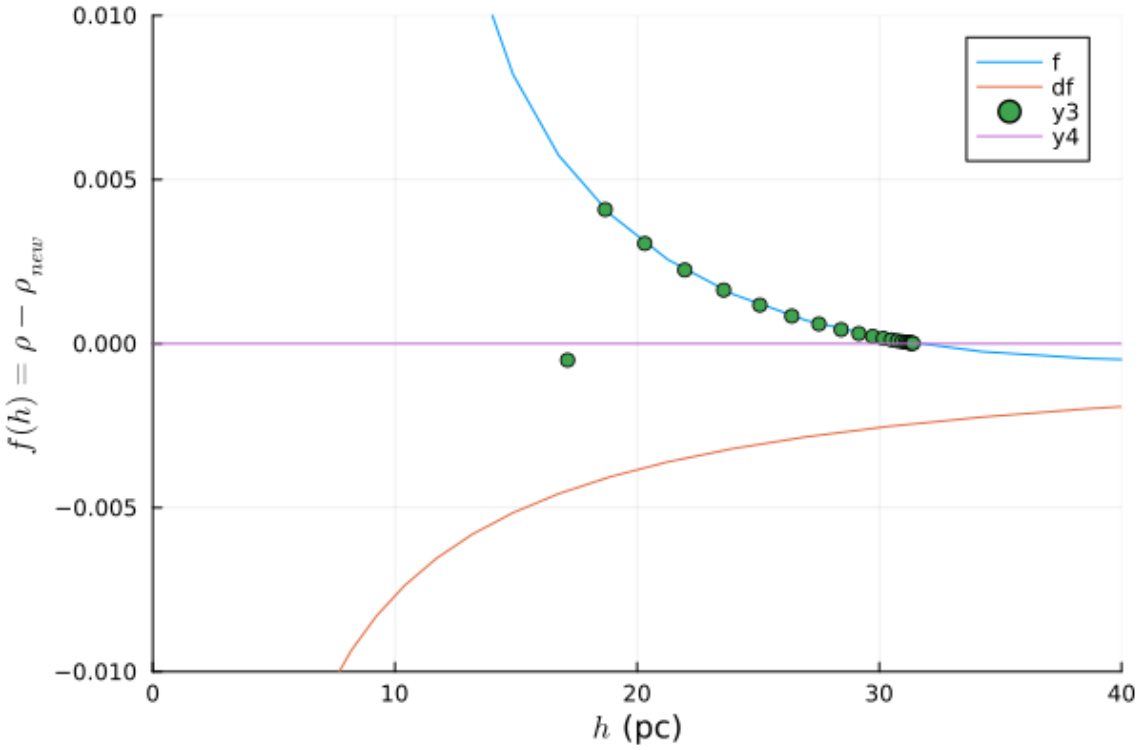
2 Structure

The main body of the code is in the `src/` directory. This directory includes the files

- `GalaxySim.jl`. This just imports and exports other pieces of the project.
- `evolve.jl` contains the main loop of the simulation, including the leapfrog integration scheme and time-step criteria
- `gal_files.jl` writes the simulation outputs to files. (Unfortunantly, other io to files for testing are scattered through the project)
- `density.jl` contains routines for density estimation.
- `gravity.jl` calculates the gravity
- `physics.jl` all the rest of the physics (hydrodynaics, viscosity, etc.)

(Monaghan, 1992)

3 Validation



4 Bibliography

Monaghan, J. J. 1992, ARA&A, 30, 543, doi: 10.1146/annurev.aa.30.090192.002551