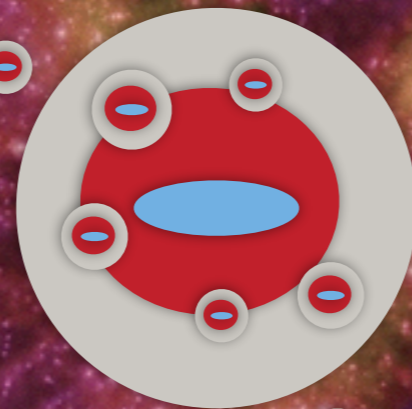


Modifying L-Galaxies



Modifying L-Galaxies

Run different pre-defined models, G11/13 & Hen13 are available. Sec3.1 “running the model” (http://galformod.mpa-garching.mpg.de/public/LGalaxies/running_the_model.php)



3.1 Input files for different models:

If you are running the model for the first time jump to point 4 below. After you are familiar with running the Henriques2015 version of L-Galaxies you can try other versions by using a pre-defined selection of input files and MAKEFILE options. A number of input files for different models are available in /input/, with the following naming convention:

input_“ModelName_Simulation”_“OriginalCosmology”_“TargetCosmology”.par

- ./input/input_Henriques15_MR_W1_PLANCK.par: input file for the Henriques2015a model for the Millennium Simulation.
- ./input/input_Henriques15_MRll_W1_PLANCK.par: input file for the Henriques2015a model for the MillenniumII Simulation (requires OPT += -DMRll in My_Makefile_options).

Inputs for previous versions of the model:

- ./input/LegacyModels_inputs/input_Henriques13_MR_W1_W7.par: input file for the Henriques2013 model for the Millennium Simulation (requires OPT += -DHENRIQUES13 in My_Makefile_options).
- ./input/LegacyModels_inputs/input_Henriques13_MRll_W1_W7.par: input file for the Henriques2015a model for the MillenniumII Simulation (requires OPT += -DHENRIQUES13 and OPT += -DMRll in My_Makefile_options).
- ./input/LegacyModels_inputs/input_Guo13_MR_W1_W7.par: input file for the Guo2013 model for the Millennium Simulation (requires OPT += -DGuo13 in My_Makefile_options).
- ./input/LegacyModels_inputs/input_Guo13_MRll_W1_W7.par: input file for the Guo2013 model for the MillenniumII Simulation (requires OPT += -DGuo13 and OPT += -DMRll in My_Makefile_options).
- ./input/LegacyModels_inputs/input_Guo11_MR_W1_W1.par: input file for the Guo2011 model for the Millennium Simulation (requires OPT += -DGuo11 in My_Makefile_options).
- ./input/LegacyModels_inputs/input_Guo11_MRll_W1_W1.par: input file for the Guo2011 model for the MillenniumII Simulation (requires OPT += -DGuo11 and OPT += -DMRll in My_Makefile_options).

A range of files without a model name are available for new model development: ./input/input_MR_W1_PLANCK.par and ./input/input_MRll_W1_PLANCK.par (PLANCK year1 cosmology), ./input/input_MR_W1_W7.par and ./input/input_MRll_W1_W7.par (WMAP7 cosmology), ./input/input_MR_W1_W1.par and ./input/input_MRll_W1_W1.par (WMAP1 cosmology)

Running different models will likely change the output structure. Always make sure you are trying to read the correct LGalaxies struct in your plotting routines. If the new models have different cosmologies you will also need to adjust the Volume and Hubble_h used in plots.



Modifying L-Galaxies

Key options in Makefile and input:

http://galformod.mpa-garching.mpg.de/public/LGalaxies/makefile_input.php



Max-Planck-Institut für Astrophysik

L-Galaxies, Munich Galaxy Formation Model

Makefile & Input options

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1. Overview of Makefile and input options

A number of useful options are available in the makefile and input files. These range from running a completely different version of the galaxy formation model, changing the stellar populations used to compute photometric properties, use a different dark matter simulation, or simply changing the number of output snapshots or output properties. Below is a quick overview of a few key options:

- run different dark matter sub-volumes: change FirstFile and LastFile in input***.par.
- change the output snapshots: OPT += -DNOUT changes the number and the list is in FileWithOutputRedshifts defined in the input***.par.
- use different implementations of physical modules: different treatments of some processes are available as input options. These are listed under "Switches for different physical models" in input***.par.
- change the model parameters: a variety of parameters can be changed under "Parameters of physical model" in input***.par
- change stellar population models: choose between OPT += -DM05, OPT += -DBC03 and OPT += -DCB07 and change PhotPrefix and SpecPhotIMF in input***.par accordingly.
- photometry: there are makefile options that control if rest-frame (OPT += -DOUTPUT_REST_MAGS) or observed-frame magnitudes (OPT += -DCOMPUTE_OBS_MAGS+OPT += -DOUTPUT_OBS_MAGS) are outputted. The number of bands written to the output file is controlled by OPT += -DNMAG=40 (40 bands written by default). The list of bands is in FileWithFilterNames, defined in the input***.par.
- use a different dark matter simulation: makefile options are available to run the code on MRll or PHOENIX. These must be used with the appropriate input***.par files (with the corresponding prefix on the name). Input files for other simulations can be created by changing the input variables under the "Simulation" and "Cosmological parameters" headers and the value for MAXSNAPS in allvars.h (number of snapshots of the dark matter simulation).

Modifying L-Galaxies

full description of Makefile and input options in:

http://galformod.mpa-garching.mpg.de/public/LGalaxies/makefile_input.php

- ⇒ Include a new option for SN feedback
- ⇒ Include a new option for AGN feedback
- ⇒ Change the star formation model
- ⇒ Change the dust model