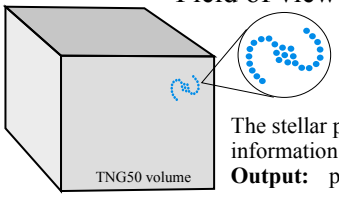
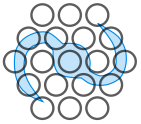
Field of view definition (Sect. 3.1)

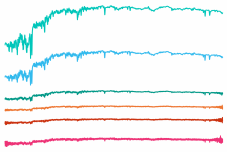


The stellar particles' and gas cells' information is saved for a given galaxy.
Output: particle file.

From particles to light (Sect. 3.2)



The stellar particles and gas cells are projected on the sky and randomly shifted to mimic the atmospheric seeing (FWHM=1.43").

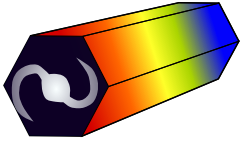


Each stellar particle is associated to a synthetic spectrum from the `MaStar_sLOG` template (see Sánchez+ 2022) and linearly combined to form the fiber spectrum. A simple screen model accounts for dust attenuation (Ibarra-Medel+ 2019).
Output: RSS file.

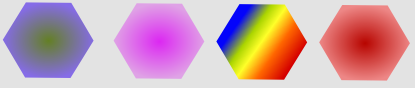
Control

For control, the intrinsic values of the stellar particles in the FOV of the fibers are saved as an extension of the RSS file.

Building MaNGA-like datacubes (Sect. 3.3)



Gaussian noise is added per fiber spectrum. The fiber spectra are recombined to form MaNGA's spatial grid.
Output: 3D datacube.



The values per fiber are recombined to form the maps with the intrinsic stellar particles' information.
Output: intrinsic and assigned 2D maps.

From spectra to stellar population maps (Sect. 3.4)

The cubes are analyzed with the `pyPIPE3D` (Sánchez+ 2016 a, Sánchez+ 2016 b, Lacerda+ 2022), using the `MaStar_sLOG` template.
Output: maps of age, metallicity and kinematics comparable to those derived from the MaNGA observed galaxies (Sánchez+ 2022).

x 10,000 simulated galaxies