



On the SFR- M_* main sequence archetypal star-formation history and analytical models

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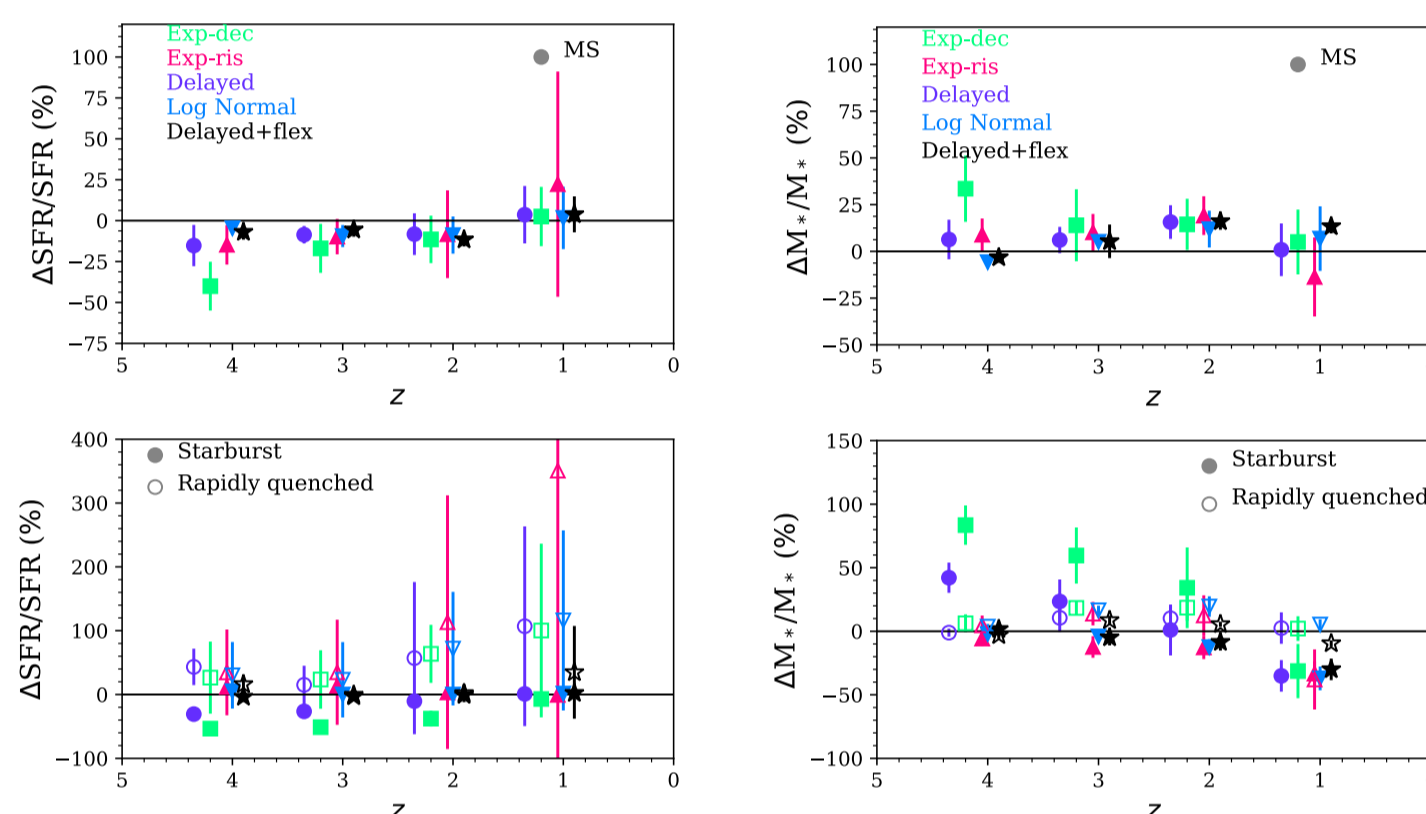
What is the typical SFH of a MS galaxy?

How well analytical SFH assumptions manage to recover the SFR and mass of galaxies?

What are the errors on the derived parameters?

Are there any bias?

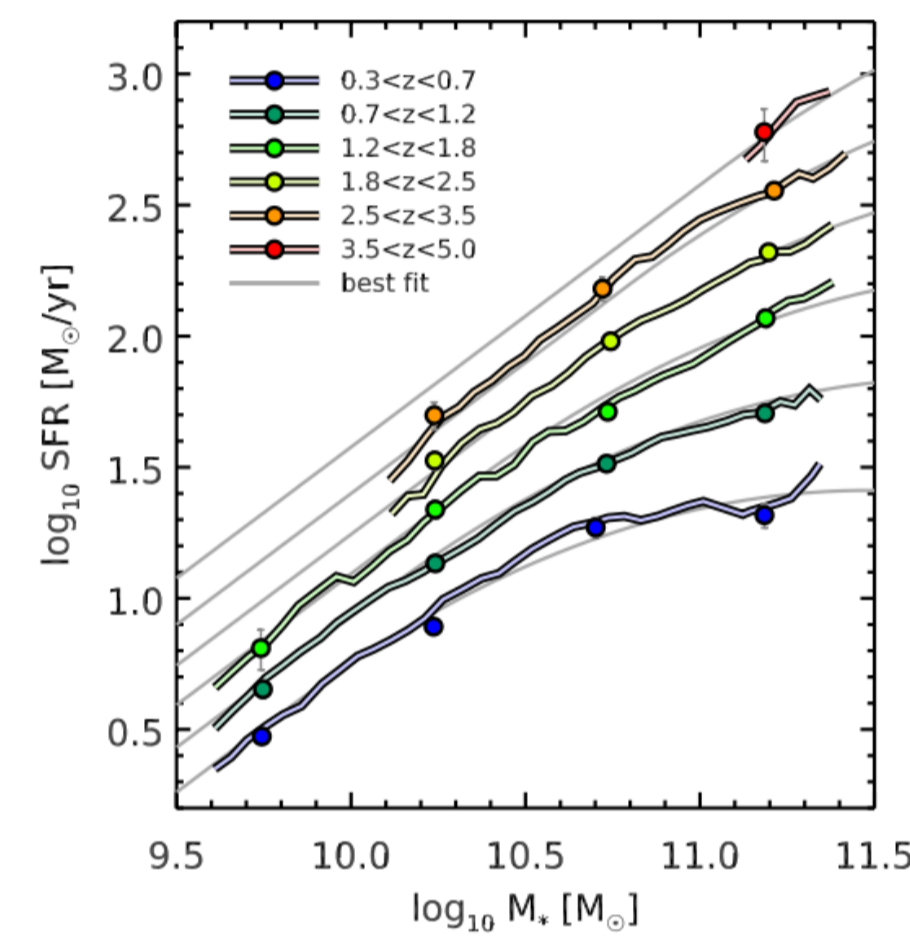
Errors on SFR and M_* from typical analytical SFHs



Globally all SFH assumptions recover relatively well the SFR and mass of MS galaxies, but it becomes complicated for SB and rapidly quenched galaxies with a dependency on redshift.

Assumption:

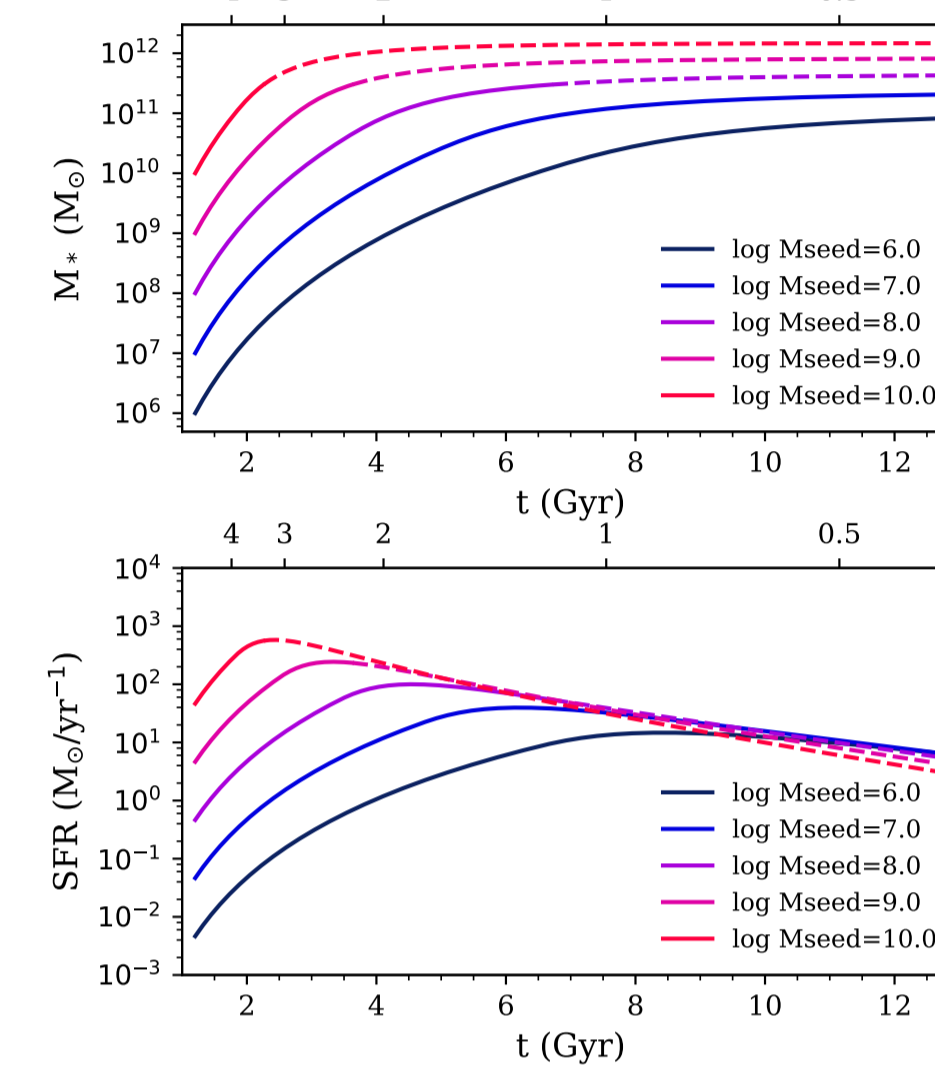
The evolution of the normalization and slope of the MS



Schreiber+15

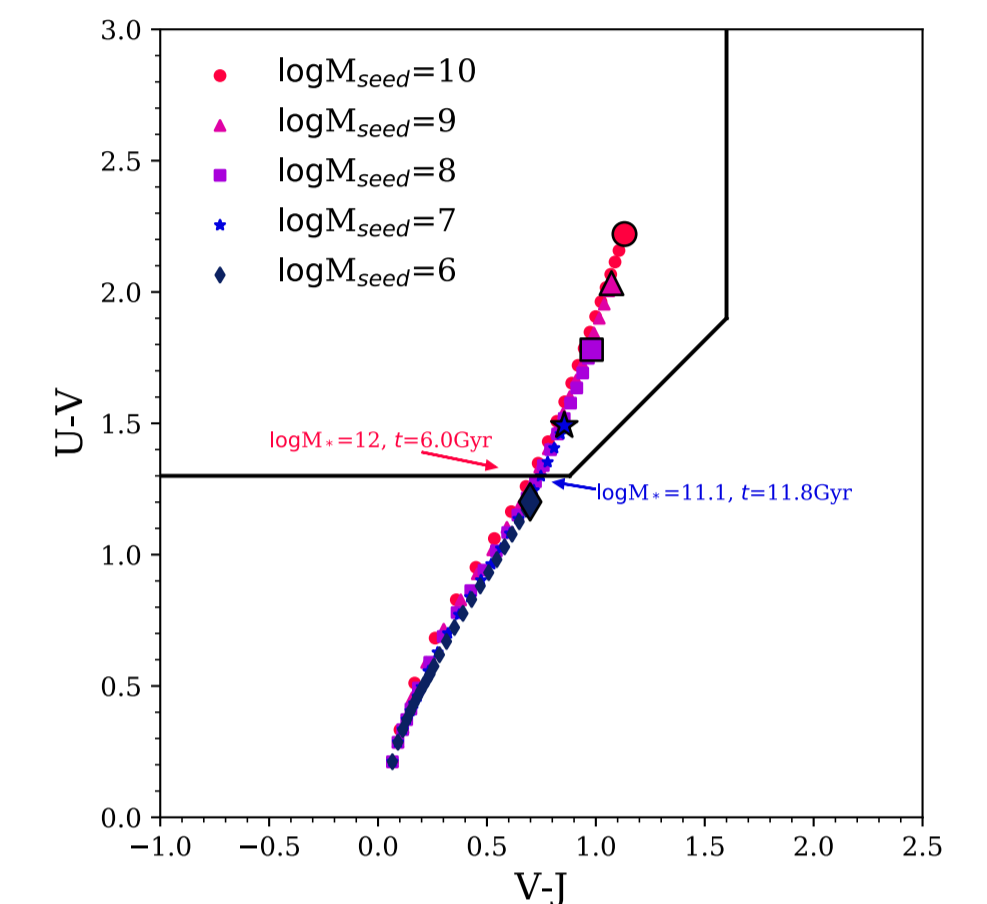
From the parameterization of Schreiber+15, we can compute the SFR and stellar mass of a galaxy following the main sequence

The archetypal SFH of MS galaxies



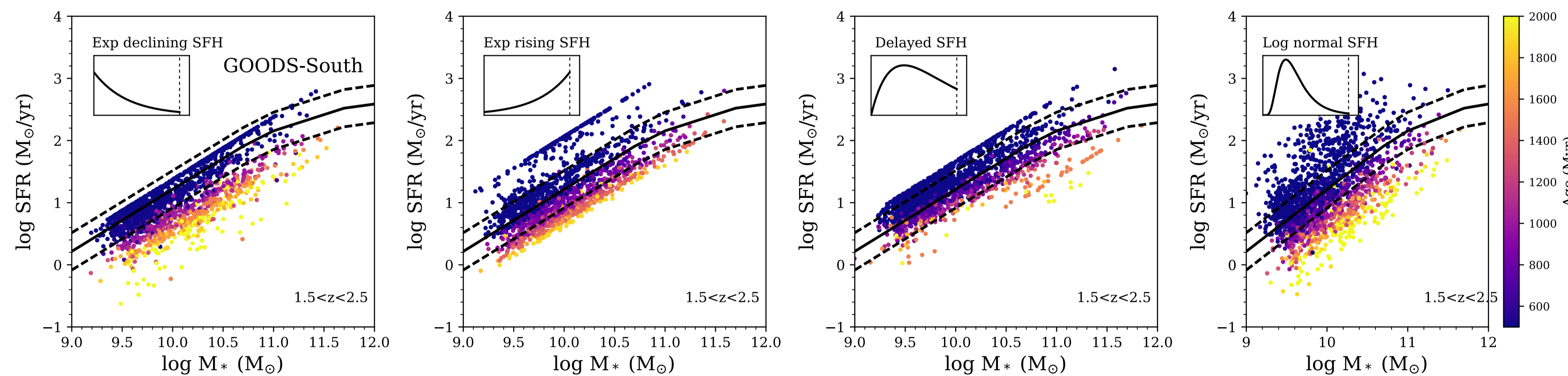
The resulting SFH and stellar mass growth are shown. They depend on both time and seed mass of the galaxy

Galaxies enter the passive zone of the UVJ diagram while still on the MS



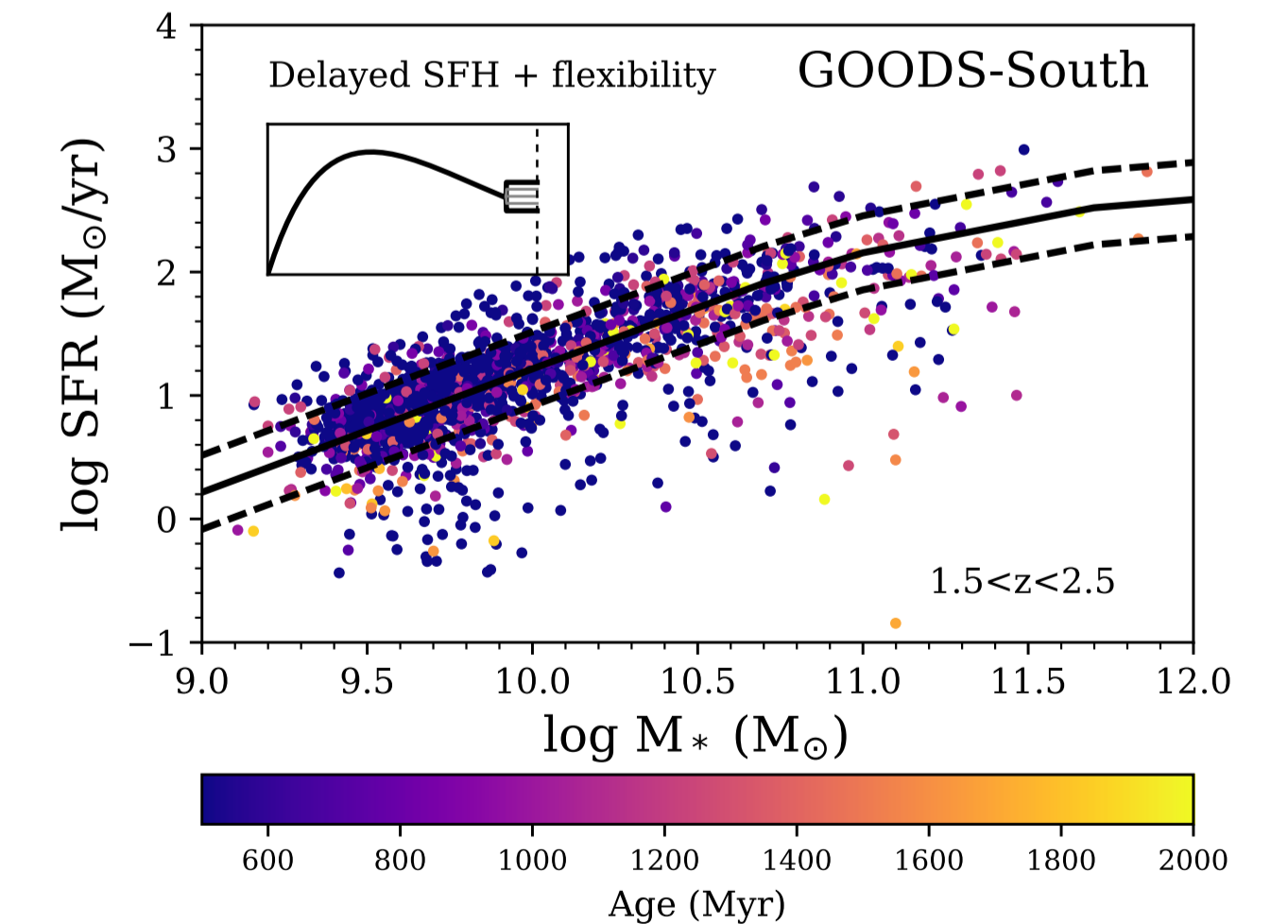
The derived archetypal SFH derived implies that galaxies, while still forming stars, can have colours red enough to place them in the passive region of the UVJ diagram

Impact on the choice of the SFH to retrieve galaxies main sequence



The choice of the analytical assumption directly impacts the resulting MS with artificial limits due to mathematical limitations. A strong age gradient, parallel to the MS appears.

Adding a flexibility in the recent SFH: strong age gradient disappear



Taking into account recent variations in the SFH of galaxies allows to better recover the properties and the strong age gradient disappear.