

Observational Predictions of the High-Redshift Universe using the Munich semi-analytic model

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Abstract

Semi-analytical models (SAMs) combine dark-matter only simulations of structure formation with analytical prescriptions of the various physical processes responsible for shaping the formation and evolution of galaxies. The latest version of the Munich model, presented by Bruno Henriques, has been shown to successfully reproduce various observational properties, including the stellar mass, and luminosity function, both in the local Universe but also to $z=3$. However, this model has not been extensively tested at higher redshift ($z>3$), in part due to previously poor observational constraints.

We present our latest results for the predictions of the galaxy stellar mass function, star formation rate distribution function, UV luminosity function and investigate the relationship between the specific star formation rates and stellar masses out to high redshifts ($z=4-7$) and compare them to the latest observational data. While we generally find good agreement between the model predictions and observational constraints, there are some notable discrepancies.