

The Star Formation History of read and dead galaxies at $z = [1.0–1.5]$

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Abstract

We analyse the star formation histories (SFH) of $M > 10^{10} M_{\odot}$ read and dead galaxies at intermediate redshift ($z = 1.0–1.5$). Current hierarchical models of galaxy formation predict many less massive high- z systems than observed. By combining SHARDS deep spectro-photometric optical data (25 contiguous OSIRIS/GTC medium band filters with $R \sim 50$ at 4500–900 nm) with HST-WFC3 grism in the NIR (G141, 1.1–1.6 μm) and broadband photometry (from FUV to FIR) we construct well-sampled optical SEDs with up to 150 photometric points and sufficient spectral resolution to obtain reliable stellar population parameters such as ages, star formation timescales, dust extinctions and metallicities. We define a complete and uncontaminated sample of red & dead galaxies by combining the color-color UVJ selection with a cut in sSFR (SFR/Mass). We check the robustness of the results depending on different stellar population models (Bruzual & Charlot 2003, Maraston 2005), SED fitting-codes (`synthesizer`, `FAST`) or star formation histories ($\exp -t/\tau$, $t \exp -t/\tau$). Finally, the dependence of the SFH with the galaxy stellar mass will be studied, to actually measure if more massive galaxies are formed earlier and more rapidly as downsizing suggests.

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