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Recent star formation in intermediate redshift (0.35< z <1.5) early−type galaxies

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Abstract. We measured the UV−optical−near-IR spectral energy distributions (SEDs) of redshift $z \sim 0.3-1.5$ early-type galaxies (ETGs) with the *Hubble Space Telescope* (HST) Wide Field Camera 3 (Rutkowski *et al.* 2012). We searched for young stellar populations and morphological signatures of the mechanisms driving recent star formation (RSF) in these ETGs in order to provide observational constraints on models of galaxy evolution.

Keywords. elliptical & lenticular galaxies; star formation; galaxy evolution

1. Analysis

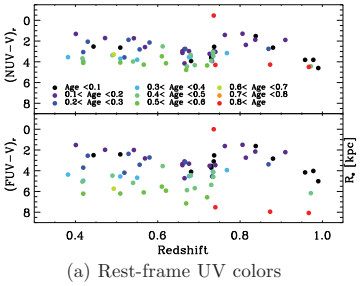
We measured the best-fit two-component ("young": t<1 Gyr; 'old': $t \gtrsim$4Gyr) stellar population model for the SED of each ETG and derive the mass fraction and age of the young stellar population (Figure a; Jeong *et al.* 2007). We also measured the Sérsic profile and characterized the visual morphology of each ETG (Figure b) and its local (d<100 kpc) environment.

2. Conclusions

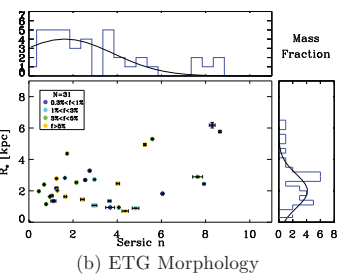
We determined the following:

- ∼40% of low redshift ($z < 1$) ETGs experienced RSF ($f \simeq 1-5\%$; $0.1 < t[Gyr] < 0.5$);
- ∼30% of low redshift ETGs that were identified with disturbed morphologies or galaxies were also found to host RSF.

The morphologies of the ETGs and their companions suggests that RSF in ETGs is not driven by a single, *dominant* process. Instead, RSF is likely motivated by a variety of secular and merger processes, in general agreement with observations at the local ($z < 0.1$) and high ($z \gtrsim 1.5$) redshift universe.



(a) Rest-frame UV colors



(b) ETG Morphology

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