The intriguing life of massive galaxies
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Satellites of massive galaxies: the infalling pieces of the puzzle

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Abstract. Accretion of minor satellites has been postulated as the most likely mechanism to explain the significant size evolution of massive galaxies over cosmic time. A direct way of probing this scenario is to measure the frequency of satellites around massive galaxies at different redshifts. Here we present our study of satellites around massive galaxies ($M_{\rm star} \sim 10^{11}$ M$_\odot$) up to $z \sim 2$. We find (Fig. 1) that the fraction of massive galaxies with satellites down to 1:10 mass ratio is ∼15% (∼30% down to 1:100), not varying with redshift (Mármol-Queraltó *et al.* (2012)). We also find that our satellites are younger than their central galaxies at low z (Mármol-Queraltó *et al.*, 2013). Then, if minor merging is acting to form massive galaxies, their ourtskirts should be younger than their cores. The challenge to find this age gradient in nearby massive galaxies is opened.

Keywords. galaxies: massive galaxies, galaxies: evolution galaxies: high-redshift galaxies:formation

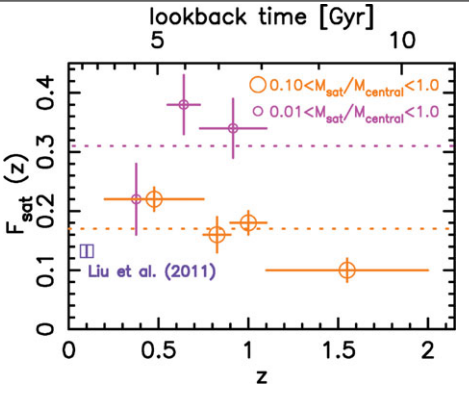

Figure 1. Fraction of massive galaxies with satellites within a projected distance of 100 kpc for different redshifts. The magenta small circles indicate the fraction of massive galaxies with satellites down to 1:100 mass ratio, and the orange big circles down to 1:10 mass ratio. The blue cross indicates the fraction of satellites around massive galaxies in the nearby universe (∼ 12%, Liu *et al.* (2011)), in agreement with our results at higher redshifts.

References

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