The intriguing life of massive galaxies
Proceedings IAU Symposium No. 295, 2012
D. Thomas, A. Pasquali & I. Ferreras, eds.

doi:10.1017/S1743921313004316

Galaxies in most dense environments at redshift 1.4

V. Strazzullo

[1]Irfu/SAp, CEA-Saclay, Orme des Merisiers, 91191 Gif sur Yvette, France
email: veronica.strazzullo@cea.fr

Abstract. At a cosmic time when galaxy clusters start showing evidence of a still active galaxy population, the X-ray luminous, massive cluster XMMU J2235-2557 at $z = 1.39$, already hosts massive, quiescent, early-type galaxies on a tight red sequence dominating the cluster core. XMMU J2235-2557 is among the most massive of the very distant clusters, which may explain the evolved status of the system itself, and of its host galaxy populations. It remains a unique laboratory to observe environment-biased galaxy evolution already 9 billion years ago.

Keywords. Galaxies: clusters, Galaxies: evolution, Galaxies: high-redshift

---

The massive cluster XMMU J2235-2557 at $z = 1.39$ already hosts evolved galaxy populations, with star formation effectively suppressed in massive galaxies, and confined outside of the cluster core. The luminosity/stellar mass functions suggest a stellar mass distribution similar to that of cluster galaxies at lower redshifts. A tight red sequence is already in place, its color and slope in agreement with passive evolution predictions with a formation redshift $z \sim 3$. The red sequence is mainly populated by massive galaxies with no evidence of star formation and early-type morphologies. The smaller sizes of these seemingly passively evolving objects compared to their z=0 counterparts might leave room for later evolution, but its actual relevance for individual galaxies remains unclear due to uncertainties and biases in the masses, sizes, local mass-size relation, and in the comparison of samples at different cosmic epochs (see Strazzullo *et al.* 2010).

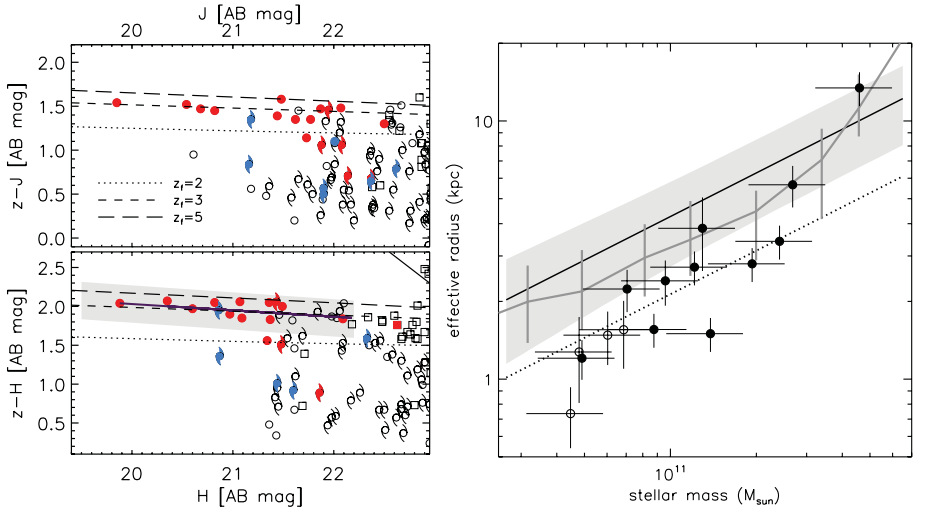

Figure 1. The red sequence (left), and stellar mass vs size relation for early-types (right), in the galaxy cluster XMMU J2235-2557 at z=1.39 (from Strazzullo *et al.* 2010).