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ERRATUM: "THE INFLUENCE OF MASS AND ENVIRONMENT ON THE EVOLUTION OF EARLY-TYPE GALAXIES" (ApJ, 647, L99 [2006])

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We report about the changes to the above-mentioned Letter due to an error in the calibration of the galaxy luminosities used by Jørgensen et al. (2006). To correct for this error, the photometry for the two clusters should be offset to brighter luminosities with a factor $(1 + z)$. Correcting for this error corresponds to an offset in $\log L$ to brighter luminosities with $\log (1 + z)$, which is 0.26 and 0.28 for RX J0152.7–1357 ($z = 0.835$) and RX J1226.9+3332 ($z = 0.892$), respectively. As a consequence, Figures 1, 2, 3, and 4 are changed as far as the two clusters are concerned, and the correct versions are given here. As can be clearly seen in Figures 1 and 2, the claimed difference in the fundamental plane (FP) and in the $\mathcal{M}/L_B$ ratio between the clusters and the field environment is not present any more, and the behavior of the $z \sim 1$ early-type galaxies (ETGs) is remarkably similar in both environments, as claimed earlier by di Serego Alighieri et al. (2005). Therefore, the estimated formation epoch of ETGs does not depend on the environment but only on the galaxy mass (see Fig. 3). Quantitatively, the mean age difference between clusters and the field in each mass bin is smaller than 5% and is well within the standard deviation due to galaxy-to-galaxy variations (Fig. 4). Clearly it is now no longer relevant to study this age difference as a function of galaxy mass, and so Figure 4 is modified accordingly.

Our correct results are therefore in even larger contrast to the most recent incarnation of the hierarchical models of galaxy formation and evolution, which foresee a marked difference in the formation epoch of ETGs with environment (De Lucia et al. 2006).

Online material: color figures

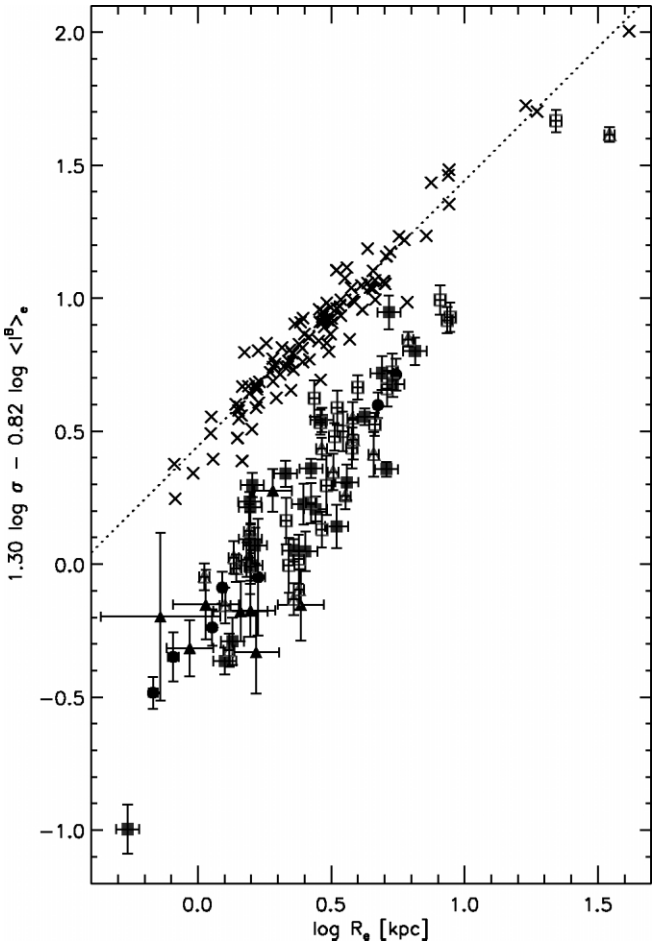

FIG. 1.—FP seen edge–on for local ETGs in the Coma Cluster (Jørgensen et al. 2006) (*crosses*), for field ETGs at $z \sim 1$ from the K20 survey (di Serego Alighieri et al. 2005) both for the CDFS field (*filled circles*) and for the Q0055 field (*filled triangles*), for field ETGs at $z \sim 1$ in the GOODS area (Treu et al. 2005) (*filled squares*), and for the ETGs in two clusters (Jørgensen et al. 2006) at $z = 0.835$ (*open squares*) and at $z = 0.892$ (*open triangles*). The dashed line is the best-fit plane to the Coma Cluster galaxies. Compared to the local one, the FP at high redshift is offset and rotated in all environments. [*See the electronic edition of the Journal for a color version of this figure.*]

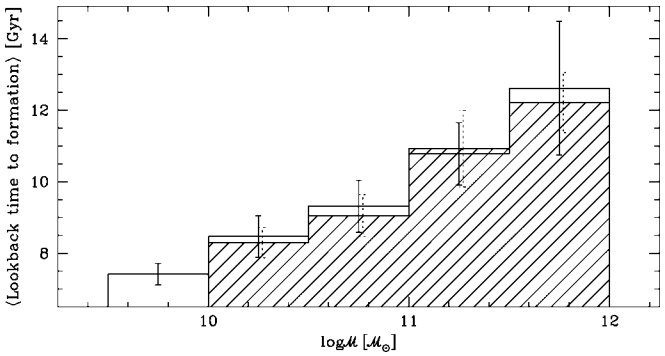

FIG. 4.—Histogram of the average look-back time to formation per mass bin for the high-redshift ETGs in the field and in the clusters (*hatched histogram*). The error bars (dotted for the clusters) show the standard deviation due to the galaxy-to-galaxy variations in each mass bin.

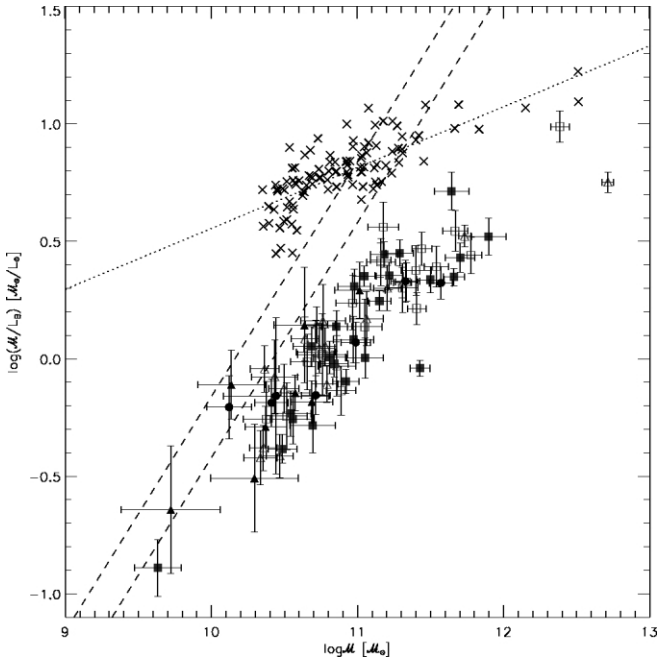

FIG. 2.—The $\mathcal{M}/L$ ratio in the B band as a function of galaxy mass for the ETG samples shown in Fig. 1 (*same symbols*). The dotted line is a fit to the Coma ETGs, while the upper and lower dashed lines represent the $M_B = -20.0$ and $M_B = -20.5$ magnitude limits of di Serego Alighieri et al. (2005) and of Jørgensen et al. (2006), respectively. The changes in $\mathcal{M}/L_B$ from high redshift to $z = 0$ decrease with galaxy mass in all environments and are similar in the field and in the clusters. [*See the electronic edition of the Journal for a color version of this figure.*]

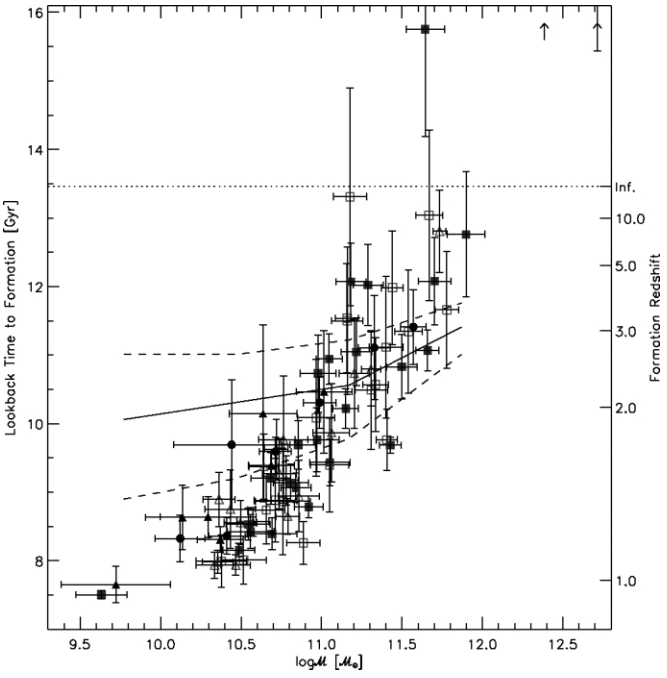

FIG. 3.—Formation epoch for the ETGs shown in Fig. 1 (*same symbols*), evaluated as explained in di Serego Alighieri et al. (2006). The two upward-pointing arrows indicate that the two most massive cluster ETGs are out of the figure (their ages amount to 16.4 and 23.4 Gyr). The continuous line shows the median model ages obtained by De Lucia et al. (2006) from a semianalytic model of hierarchical galaxy evolution, while the dashed lines are their upper and lower quartiles. More massive ETGs form earlier in all environments, and the ages are not influenced by the environment. [*See the electronic edition of the Journal for a color version of this figure.*]