We present results on the evolution in the last 6 Gyr of the structural parameters of two samples of brightest cluster galaxies (BCGs). The nearby sample of BCGs consist of 69 galaxies from the WINGS survey spanning a redshift range of 0.04<z<0.07. The intermediate redshift (0.3<z<0.6) sample is formed by 20 BCGs extracted from the Hubble Space Telescope archive. Both samples have similar spatial resolution and their host clusters have similar X-ray luminosities. We report an increase of a factor of 2 in the size of the BCGs from intermediate to local redshift. However, we do not detect any variation in the Sérsic shape parameter in both samples. These results are proved to be robust since the observed tendencies are model independent. We also obtain significant correlations between some of the BCGs parameters and the main properties of the host clusters. More luminous, larger and centrally located BCGs are located in more massive and dominant galaxy clusters. These facts indicate that the host galaxy clusters played an important role in the formation of their BCGs. We discuss the possible mechanisms that can explain the observed evolution of the structural parameters of the BCGs. We conclude that the main mechanisms that can explain the increase in size and the non-evolution in the Sérsic shape parameter of the BCGs in the last 6 Gyr are feedback processes. This result disagrees with semi-analytical simulation results supporting that merging processes are the main responsible for the evolution of the BCGs until the present epoch.

In the last 6 Gyr, the effective radius has not changed by \( r_e(z < 0)/r_e(z > 0.5) = 2.06 \pm 0.62 \) and the Sérsic parameter has not changed being \( n(z < 0)/n(z > 0.5) = 1.05 \pm 0.14 \). These results are robust enough since they do not depend either on the number of components fitted or on the model we use.

### CONCLUSIONS

Recently, it has been discovered than the Sérsic shape parameters of early-type galaxies has also evolved during the last Gyr, being larger for nearby galaxies (Virmam et al. 2009, Van Dokkum et al. 2010). Indeed, although the mass of massive early-type galaxies has grown from z=2 until today, this mass growth has been focused on their external regions (Van Dokkum et al. 2010). These results have been interpreted as an inside-out growth of the early-type galaxies, assembling their extended haloes in the last Gyr. There are several numerical simulations supporting those observed changes of the structural parameters of early-type galaxies. Thus, major or minor mergers produce a growth of the effective radius and Sérsic parameter of the galaxy (Aguerri et al. 2001, Hopkins et al. 2010).

### REFERENCES


