Galaxy Evolution across the Hubble Time
Proceedings IAU Symposium No. 235, 2006
F. Combes & J. Palouš, eds.

doi:10.1017/S1743921306005370

GEMS: The destiny of Blue Spheroidal Galaxies

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One of the key predictions of hierarchical galaxy formation models is that a significant fraction of elliptical galaxies form in late merging events. One of the most important diagnostics of such an assembly is the existence of blue spheroidal galaxies, which have spheroid-dominated morphologies and blue colors indicating recent star formation, as an intermediate step in the evolution of elliptical galaxies.

We present results from the GEMS (Rix *et al.* 2004) survey showing the properties of these galaxies derived from 2-D galaxy fitting using GALFIT (Peng *et al.* 2002) of the $\sim$ 8000 galaxies with photometric redshifts in the 28x28 HST mosaic. For the first time we were able to divide the observed population of blue spheroidal galaxies into sub-populations of different stellar masses.

We find that massive blue spheroidals are likely to be the progenitors of red sequence galaxies. In contrast, low-mass blue spheroidals have half-light radii considerably in excess of those measured for low-mass present day elliptical galaxies; instead, they have larger sizes similar to present-day disk-dominated systems with substantial bulges.

References

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