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

doi:10.1017/S174392130600593X

K-band Evolution of Elliptical Galaxies in the Cluster Abell 2390 at z = 0.23

M. Alizadeh, A. Fritz, C. Da Rocha, and B. L. Ziegler

[1]Institut für Astrophysik, Friedrich-Hund-Platz 1, 37077 Göttingen, Germany
email: bziegler@astro.physik.uni-goettingen.de

Abstract. We investigate the near-infrared K-band evolution of early-type galaxies in the cluster of galaxies Abell 2390 at $z = 0.23$. Using the Omega-Prime camera at the 3.5-m Calar Alto telescope deep imaging ($t_{\rm exp} = 53$ min) over a $6' \times 6'$ field has been obtained. The measured K-band magnitudes of 28 galaxies are combined with the spectroscopic and morphological data of Fritz *et al.* (2005) to construct the Faber-Jackson and Fundamental Plane relations in the NIR. By comparing our distant galaxies to a local sample of cluster ellipticals (Pahre 1999), we find on average a mild luminosity evolution for both scaling relations ($\Delta M_K \sim 0.6 - 0.7$ mag) compatible with passive evolution of the stellar populations.

Keywords. galaxies: evolution, galaxies: elliptical and lenticular, cD

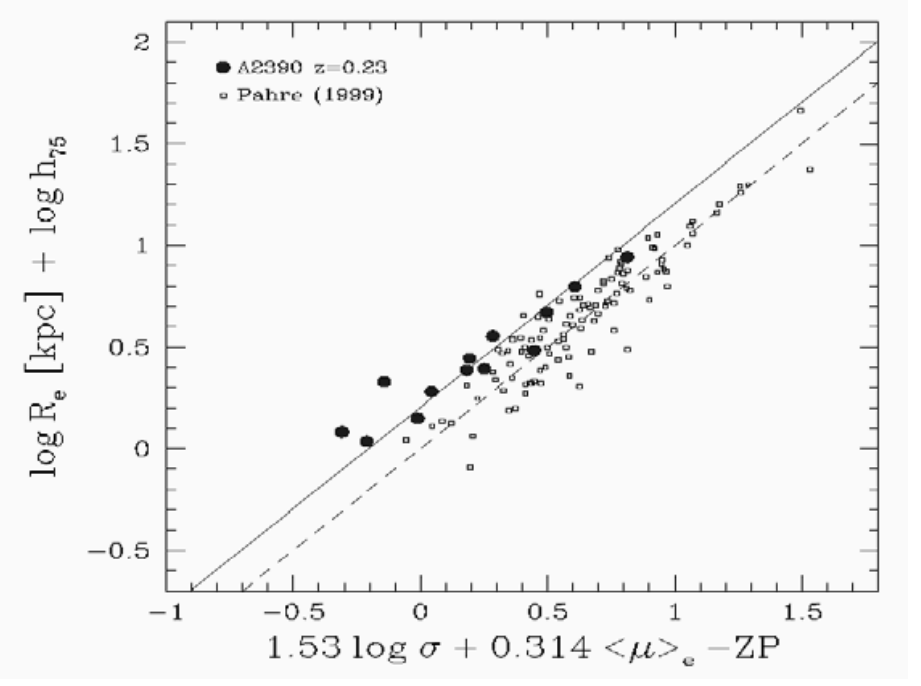

Figure 1. The Fundamental Plane in the K-band. Comparing local cluster ellipticals from Pahre 1999 (open squares, dashed fit line), with distant galaxies in A2390 (filled circles, solid fit line), we deduce a K-band luminosity evolution of ~ 0.7 mag assuming that the slope of the Fundamental Plane does not change with redshift.

References

Fritz *et al.* 2005, MNRAS, 358, 233.
Pahre, M. A., 1999, ApJS, 124, 127.