THE GALAXY POPULATIONS OF CLUSTERS AT HIGH REDSHIFTS: A "HUBBLE ATLAS"

S.C. TRAGER AND S.M. FABER
UCO/Lick Observatory, Santa Cruz, CA 95064 USA

A. DRESSLER
Carnegie Observatories, Pasadena, CA 91101 USA

AND

THE WF/PC-I INSTRUMENT DEFINITION TEAM

We present first results of a *Hubble Space Telescope* imaging and a Palomar and Keck Observatories spectroscopy program of distant, rich galaxy clusters in the form of a "Hubble Atlas" of morphological types at $z \geq 0.75$. Two clusters from the compilation of Gunn, Hoessel & Oke (1985) have been studied to date, Cl1322+3027 at $z \approx 0.76$ and Cl1603+4313 at $z \approx 0.90$.

(1) If the two clusters are combined, the 26 spectroscopically-confirmed cluster galaxies appear to be slightly distorted but recognizable, with the morphological content split approximately evenly between early and late types. This morphological ratio is much more similar to clusters at $z \sim 0.4$ than to nearby rich clusters like Coma (Dressler et al. 1994). (2) The red envelopes in both clusters are populated by early-type galaxies, primarily by ellipticals. (3) In both clusters, the brightest cluster members are early-type spirals (Sa/b), with luminosities approaching those of nearby cD galaxies. (4) Four "E+A" galaxies are found among the WFPC2-imaged members of the two clusters. Three are spiral galaxies (Sa/b–Sc/d), one of which is undergoing an interaction, and one is an early-type galaxy (E/S0). This morphological spread of E+A's is similar to the wide variety of types seen in clusters at $z \sim 0.3$–0.4 (Couch et al. 1994; Dressler et al. 1994; Wirth, Koo & Kron 1994).

References

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