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1Based on observations collected at the European Southern Observatory, Chile (169.A-0458).
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abstract

We present deep VLT spectra of early type galaxies at $z \approx 1$ in the Chandra Deep Field South, from which we derive velocity dispersions. Together with structural parameters from Hubble Space Telescope imaging, we can study the Fundamental Plane for field early type galaxies at that epoch. We determine accurate mass-to-light ratios and colors for four field early type galaxies in the redshift range $0.96 < z < 1.14$, and two with $0.65 < z < 0.70$.

The galaxies were selected by color and morphology, and have generally red colors. Their velocity dispersions show, however, that they have a considerable spread in mass-to-light ratios (factor of 3). We find that the colors and directly measured mass-to-light ratios correlate well, demonstrating that the spread in mass-to-light ratios is real and reflects variations in stellar populations.

The most massive galaxies have mass-to-light ratios comparable to massive cluster galaxies at similar redshift, and therefore have stellar populations which formed at high redshift ($z > 2$). The lower mass galaxies at $z \approx 1$ have a lower average mass-to-light ratio, and one is a genuine 'E+A' galaxy. The mass-to-light ratios indicate that their luminosity weighted ages are a factor of three younger at the epoch of observation, due to either a late formation redshift, or due to late bursts of star formation contributing 20 - 30% of the mass.