[S14-2] Blue Early-Type Galaxies in the Deep Universe

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We have investigated the photometric and structural properties of Blue Early-type Galaxies (BEGs hereafter) at, $0.5 < z < 1.5$ which were selected based on their morphology and color index. BEGs are early type galaxies with bluer integrated colors than those of normal early type galaxies. Many BEGs were found in the deep universe from the recent observation data of HST/ACS for GOODS project.
A large fraction of BEGs were found to have complex nuclei structures and show inverse color gradients (i.e., blue at the core, red in the outer part) implying their interaction/merger histories. However, there were also some BEGs with flat color profile and without any multiple nuclei.
From these results, we suggest that most BEGs are products of galaxy mergers/interactions, while a couple of them are AGN host galaxies. On the other hand, more thorough observational and theoretical researches should be preceded for a concrete conclusion about the relationship between BEGs and normal early-type galaxies.

[S14-3] Constraining Velocity Dispersion Function of Early-type Galaxies Using Strong Gravitational Lensing

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The statistical properties of strong gravitational lensing (in particular, the distribution of image separations) are correlated with the statistical properties of galaxy populations (in particular, their dynamical properties). In this work, we consider constraining the velocity dispersion function of early-type galaxies, not only its characteristic velocity dispersion and shape but also its normalization (i.e., the number density), using both relative and absolute multiple-imaging probabilities based on current radio-selected sample of lensed systems. We find that the lensing-based results on the characteristic velocity dispersion and the shape are in good agreement with the Sloan Digital Sky Survey (SDSS) stellar velocity dispersion function; however, the lensing-based normalization of the function is significantly higher than that by the SDSS suggesting that the SDSS galaxy classification process may have significantly underestimated the abundance of morphologically early-type galaxies.