X47a　$z \sim 1$ と 0 の銀河団における早期型銀河の等面輝度形状について

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We compare the isophote shape parameter a_4 of early-type galaxies (ETGs) between $z \sim 1$ and 0 as a proxy for dynamics. We create cluster ETG samples with spectroscopic redshifts from the *Hubble Space Telescope* Cluster Supernova Survey for $z \sim 1$ and the *Sloan Digital Sky Survey* for $z \sim 0$. We have developed an isophote shape analysis code which can be used for high-redshift galaxies and applied the same method for both the $z \sim 1$ and 0 samples. We find similar dependence of the a_4 parameter on the mass and size at $z \sim 1$ and 0; the main population of ETGs changes from disky to boxy at a critical stellar mass of $\log(M_*/M_\odot) \sim 11.5$ with the massive end dominated by boxy. The similar critical mass between these redshifts is consistent with a scenario that the mass quenching is the origin of massive boxy ETGs. The disky ETG fraction decreases with increasing stellar mass both at $z \sim 1$ and 0, and the fraction is consistent between these redshifts in all stellar mass bins. Although uncertainties are large, the results suggest that the isophote shapes and probably dynamical properties of ETGs in massive clusters are already in place at $z > 1$. The constant disky fraction favors less violent processes than mergers as main cause of the size and morphological evolution of intermediate mass ETGs in $z < 1$.