
YZiCS: On the Mass Segregation of Galaxies in Clusters

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Abstract

We have explored the mass segregation in galaxy clusters using YZiCS and deep optical observations of 14 Abell clusters (KYDISC) and found in some cases a hint of mass segregation inside the virial radius. The trend is more significant in the simulations than in the observations, and we look into the evolution of individual clusters simulated to find out the mechanisms working on mass segregation. We find that the mass segregation trend is visible only for low-mass clusters. We compare the masses of galaxies and their dark haloes at the time of infall and at the present epoch to quantify the amount of tidal stripping. We then conclude that satellites that get accreted at earlier epochs or galaxies in more massive clusters go through more tidal stripping. These effects in combination result in a correlation between the host halo mass and the degree of stellar mass segregation.

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