The intriguing properties of local compact massive galaxies: What are they?

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Abstract. Studying the properties of the few compact massive galaxies that exist in the local Universe (Trujillo *et al.* 2009) might provide a closer look to the nature of their high redshift (z $\geqslant$ 1.0) massive counterparts. By this means we have characterized their main kinematics, structural properties, stellar populations and star formation histories with a set of new high quality spectroscopic and imaging data (Ferré-Mateu *et al.* 2012 and Trujillo *et al.* 2012). These galaxies seem to be truly unique, as they do not follow the characteristic kinematics, stellar surface mass density profiles and stellar population patterns of present-day massive ellipticals or spirals of similar mass. They are, instead, more alike their high-z analogs.

Summarizing, local compact massive galaxies are rare, unique and the perfect laboratory to study their high redshift counterparts.

Keywords. galaxies: evolution, galaxies: formation, galaxies: fundamental parameters, galaxies: kinematics and dynamics, galaxies: stellar content
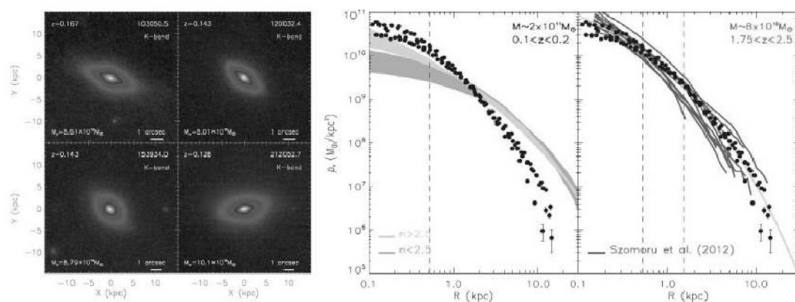
Figure 1. *Left* K-band high resolution imaging of four nearby massive compact galaxies with galaxy stellar mass, spectroscopic redshift, and the equivalent $1''$ angular size (solid line). *Right* Stellar surface mass density profiles of the local compact massive galaxies (black points) *(i)* compared with the stellar mass density profiles of SDSS DR7 $M_* \geqslant 2 \times 10^{11} M_{sun}$ and $0.1 < z < 0.2$ disk-like galaxies (n < 2.5) and spheroid-like (n > 2.5) galaxies. *(ii)* compared with z ~ 2 massive compact galaxies of same stellar mass (Szomoru *et al.* 2012).

References

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