In this work we present new high-quality data for several compact massive galaxies in the nearby Universe from the Trujillo et al. (2009) (T09) sample: a) high-quality long slit WHT/ISIS spectra: Ferré-Mateu et al, in prep.; b) high-resolution imaging GEMINI/NIRI data: Trujillo, Carrasco & Ferré-Mateu, in prep.

We have performed a detailed morphological, kinematical and stellar populations analysis to fully characterize these intriguing objects. This work was initially aimed to test the hypothesis whether these objects were the relics from the high-z compact massive galaxies. Our results tend to contradict this view. We find that these local massive (\(M^* \approx 1.2 \times 10^{11} M_{\odot}\)) objects are very compact (\(R_e \approx 1.3 \) kpc), with disk-like morphologies but mostly fast rotators (\(n \geq 2.5\)). Most of the analyzed objects are fast rotators with rotational velocities as high as \(V_r = 200\) km/s and velocity dispersions around \(\sigma = 200\) km/s. A very detailed analysis of their stellar populations reveals young mean SSP-equivalent ages \(\leq 2\) Gyr and metallicities around solar (\(\left[Z/H\right] \approx 0\)). The Star Formation Histories (SFH) derived from STARLIGHT full spectrum-fitting approach (Cid Fernandes et al. 05) show surprisingly high mass-weighted contributions from young stellar populations, in some cases represent about 50% of the total mass. We also obtained the surface brightness profiles from adaptive optics imaging, confirming the compactness of these objects (\(R_e \approx 1.2\) kpc) and, more important, we find that they do not follow the local, normally-sized stellar surface brightness profiles.

To summarize, these objects are unique and rare and deviate from standard galaxy scaling relations.

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