Using the 3σ output, the velocity dispersion (σ_i) was estimated using the standard deviation by the use of a χ^2 test with 95% of confidence (assuming a Gaussian velocity distribution). To obtain the cluster's surface brightness we considering the fact that clusters are ellipsoids, and galaxies could be used as tracers of the cluster's luminosity. We estimated the centroids and ellipticities of the clusters and trace a concentric elliptical isopleths. The clusters size was parametrized using the Petrosian radius. An $\eta_r = 0.5$ magnitudes radius was used for all clusters. Then we proceed to estimate virial masses for every cluster. Total luminosities were estimated by integrating the light from all galaxy members corrected for incompleteness using the galaxy luminosity function for each cluster.

To explore the FP of Compact Groups (CGFP) we use the catalog of Hickson that have 100 CG. The SDSS have observations for 47 Hickson CG (HCG) in which only 44 have well know redshift measurements. The velocity dispersions reported by Hickson et al. (1992) were used instead of the 3σ. The membership criteria in this case was the selection of the red-sequence galaxies of the CMR. An $\eta_r = 0.5$ magnitudes was used, the masses and luminosities were generated with the same method used with groups.

We use data of Mateo (1998) for 29 dwarf galaxies of the local group. To get the value of the average surface brightness, we assumed that most of the light in dwarf galaxy comes is inside the core radius. Most of the photometric measurements are reported in the V band, we transformed them to the r band using the transformations in Jester et al. (2005), Smith et al. (2002) and Fukugita et al. (1996). The kinematics and the masses where taken from Mateo (1998).

In the case of globular cluster (GC), we found 12 GC in the SDSS RD7 imaging data. We used the SDSS direct imaging data to generate SB profiles. We used the SB data to generate the Petrosian radii and the total magnitudes for each globular cluster. To enlarge the sample of clusters for this study, we also used the data for 48 Milky Way GC from Harris (1997) for photometric measurements and Djorgovski & Meylan (1993) for kinematic measurements. GC Petrosian radii and total luminosity were generated from King's profile fits provided in Harris (1997).

2. RESULTS

We obtained the $\mathcal{M} - \mathcal{L}$ relations for each of the stellar and galaxy systems mentioned above, see Figure 1. We found changes in the slope of the FP along the different scales; however, we note a continuity across all the scales covered from CG up to clusters

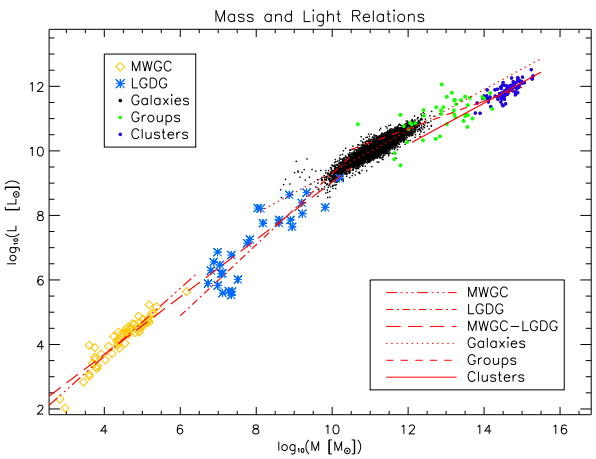

Fig. 1. The mass and light for all stellar systems.

of galaxies. We found that galaxies in clusters and clusters of galaxies have the same slope in $\mathcal{M} - \mathcal{L}$ plane; groups of galaxies seem to act as a bridge that connects these two scales (Kpc for galaxies and a few Mpc for clusters). While GC seem to be devoid of dark matter haloes, the haloes in the most massive structures seem to scale in the same fashion. The different histories of formation and evolution towards virialization for cluster galaxies and cluster of galaxies are reflected differences in the zero-point for each SR. The most disperse objects in Figure 1 are dwarf galaxies in the local group and groups of galaxies. These large dispersions are due to discrete distribution of tracers and observational errors. However, they could provide us with important clues about how dark matter haloes are occupied as dwarf galaxies and groups of galaxies merge into larger structures.

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