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FAINT DWARF GALAXIES IN HICKSON COMPACT GROUP 90

Yasna Ordenes-Briceño¹, Matthew A. Taylor¹, Thomas H. Puzia¹, and Roberto P. Muñoz¹

We report the discovery of a very diverse set of five low-surface brightness (LSB) dwarf galaxy candidates in Hickson Compact Group 90 (HCG 90) detected in deep U - and I -band images obtained with VLT/VIMOS. These are the first LSB dwarf galaxy candidates found in a compact group of galaxies, which share properties with dwarf galaxies found throughout the Local Volume and in nearby galaxy clusters such as Fornax. Among them, we find a pair of candidates with ~ 2 kpc projected separation and a nucleated dwarf candidate, with nucleus size of $r_{\text{eff}} \simeq 46 - 63$ pc.

We have deep images of the HCG 90 central region for which their final stack images in U and I bands were visually inspected for diffuse sources

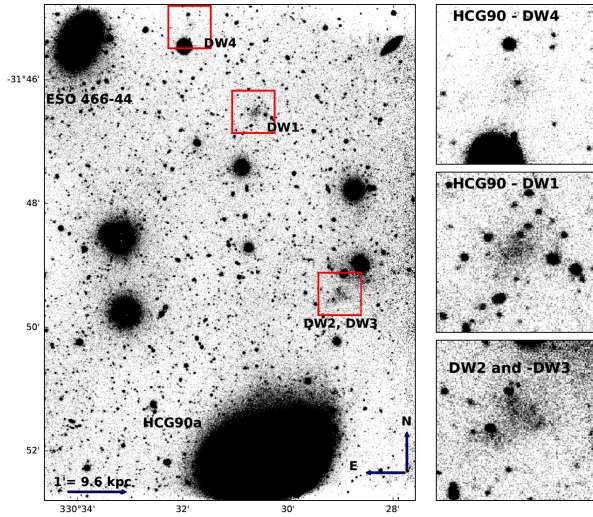


Fig. 1. U -band VLT/VIMOS images of the new dwarf candidates, marked by red boxes. Postage-stamp cutouts of the individual dwarf candidates are shown alongside. Top-cutout is the HCG90-DW4, a nucleated dwarf candidate. Bottom-cutout are DW2 and DW3 which seems to be a binary dwarf candidate.

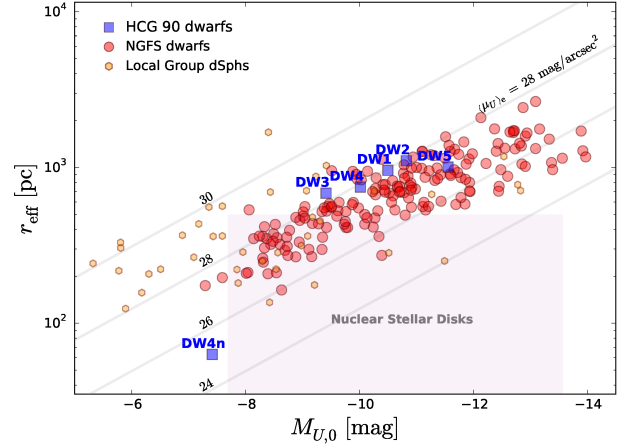


Fig. 2. Size-luminosity relation in U -band. Blue squares are HCG90 dwarf candidates and in red circles are Fornax candidates from NGFS (Muñoz et al. 2015).

characteristic of dwarf galaxies, revealing five potential candidates (See Fig. 1). The structural parameters for each dwarf candidate are determined using GALFIT. We measure spheroid half-light radii in the range $0.7 \lesssim r_{\text{eff}}/\text{kpc} \lesssim 1.5$ with luminosities of $-11.65 \lesssim M_U \lesssim -9.42$ and $-12.79 \lesssim M_I \lesssim -10.58$ mag, a color range of $(U - I)_0 \simeq 1.1 - 2.2$ mag and surface brightness levels of $\mu_U \simeq 28.1$ mag/arcsec² and $\mu_I \simeq 27.4$ mag/arcsec² (See Fig.2). More details can be found in (Ordenes-Briceño et al. 2016)

REFERENCES

- Ordenes-Briceño, Y., Taylor, M. A., Puzia, T. H., et al. 2016, MNRAS, 463, 1284
 Muñoz, R. P., Eigenthaler, P., Puzia, T. H., et al. 2015, ApJ, 813, L15

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