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A photometric and spectroscopic study of the Hickson Compact Group 44

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Abstract. We present a photometric and spectroscopic study of the galaxies originally considered as members of HCG 44, based on Gemini-GMOS images and Sloan Digital Sky Survey and NASA/IPAC Extragalactic Database archival spectra. We analyze the globular cluster systems, show the colour maps of the galaxies, and present results obtained from the stellar population synthesis code STARLIGHT.

1. Galaxy content of HCG 44 and results

HCG 44, at a distance of ~ 19 Mpc, was classified by Hickson (1982) as a compact group with four galaxy members: an Sa galaxy (NGC 3189/3190 or HCG44a), an E2 galaxy (NGC 3193 or HCG44b), an SBc galaxy (NGC 3185 or HCG44c) and an Sd galaxy (NGC 3187 or HCG44d). Williams et al. (1991) identified a dwarf-like galaxy ([WMv91]1015+2203) at the same redshift of the group, increasing to five the number of confirmed members. However, Tonry et al. (2001) obtained a surface brightness fluctuation distance of ~ 35 Mpc for NGC 3193, reducing the number of group members to four (see also Aguerri et al. 2006).

From our photometric analysis, we have identified a globular cluster population belonging to HCG 44 that seems to trace the interactions among the bright members. Our results are consistent with those of previous studies about NGC 3193 which revealed that it is a background galaxy. We have detected a new early-type galaxy candidate in our fields, as well as several ultra compact dwarf candidates. From our spectroscopic analysis of the three brightest members of the group, we have found that NGC 3185 displays active galactic nucleus / low-ionization nuclear emission-line region features, NGC 3187 is a star-forming galaxy, and NGC 3189/3190 shows a typical spectrum of an early-type, passive galaxy.

References

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