

## Investigation of the dwarf galaxy population in Hickson Compact Groups

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Hickson Compact Groups (HCGs) are excellent laboratories for the study of the influence of the environment on member galaxies. We identified dwarf galaxies in the outer regions of HCGs with the intention to investigate if the groups are physically bound systems or chance configurations of individual galaxies using dwarf galaxies as a tracer. In order to establish the dwarf galaxy content of such groups, we observed a sample of five HCGs (16, 19, 30, 31, 42) with the WFI (0.54  $\times$  0.57 degrees) at the ESO/MPIA 2.2-m telescope at La Silla and found more than 2000 new dwarf galaxy candidates in each group. In order to determine dwarf elliptical (dE) galaxies belonging to the CGs we used the red sequence of the Color Magnitude Diagram and additionally morphology, radial light profile, and the surface brightness of the candidate galaxies. From the analysis it is possible to draw the conclusion that the CGs of our sample are not chance configurations but physically bound systems where dE galaxies have evolved due to the influence of their surroundings. The density distribution of these galaxies decreases from the center to the limits of our mosaic data. In all of our HCGs the dwarf galaxy members extend far beyond the density centers of catalogued CGs. Using velocity information of a subsample we calculated the radius of the zero-velocity-surface which is of the order of 2 Mpc indicating sizes similar to large galaxy groups. The determined Luminosity Function (LF) of HCGs matches best with the predicted LF of Cold Dark Matter models of dense environments.

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