

The formation process of fossil groups (FGs) is still under debate, and due to their relative rarity, large samples of such objects are still missing. We extracted a sample of FG candidates and non-FGs from a large spectroscopic catalogue of haloes and galaxies and identified the brightest group galaxy (BGG) in each of these groups. We made a 2D photometric fit of the BGGs with images available in UNIONS, and analysed how the subtraction of the intracluster light contribution modifies the BGG properties. From their SDSS spectra, we extracted the properties of their stellar populations by model fitting.

FG and non-FG BGGs differ from one another in terms of their morphological properties and Kormendy relation, suggesting they have had different formation histories. FG BGGs appear to have evolved similarly to brightest cluster galaxies (BCGs), and non-FG BGGs have evolved differently from both FG BGGs and BCGs. Based on spectral fitting, the stellar populations of FG and non-FG BGGs do not differ significantly.