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ABSTRACT

Key words: galaxies: clusters: general – galaxies: evolution – galaxies: groups: – galaxies: statistics

1 INTRODUCTION

2 DATA

2.1 Yang group catalogue

2.2 Field catalogue

2.3 Group dynamics

2.4 Matched data set

To ensure a fair comparison between galaxies in different environments (ie. field galaxies, galaxies in G groups, and galaxies in NG groups) we match our sample of G group galaxies and NG group galaxies by stellar mass, redshift, and halo mass. Additionally, we then match our sample of field galaxies by stellar mass and redshift ensuring that all of our galaxy samples are matched according to important galaxy properties. This is especially important when trying to elucidate information on the effect of group dynamics on galaxy SF and morphological properties for two main reasons:

First, stellar mass, redshift, and halo mass have all been shown to influence galaxy SF and morphology (REF); whereas the impact of group dynamics has been more difficult to pin down (REF) which is perhaps suggestive of a more modest role. Therefore, if one hopes to identify trends in galaxy SF and morphology with group dynamics it is crucial to properly control for these other effects.

Second, standard statistical normality tests, such as the AD test, are inherently biased in identifying non-Gaussian distributions when sample size is large. This is a result of the statistical power of the test increasing with sample size which subsequently allows the detection of more and more subtle departures from normality. These subtle departures from normality may not be physically relevant (in principle, no group is truly Gaussian anyways) and what really matters is whether galaxies in groups which show large departures from normality have different properties than galaxies in groups which show smaller departures from normality. Since group richness tends scales with halo mass, in the absence of any matching procedure, a sample of NG groups will be biased towards large halo masses compared to a similar sample of G groups – even though many high halo mass NG groups may have been identified on the basis of very small departures from normality. Ensuring that our G and NG samples have very similar halo mass distributions allows us to make a fairer comparison between the two samples.

3 RESULTS

3.1 Infalling region

3.2 Virialized region

4 DISCUSSION

5 SUMMARY & CONCLUSIONS

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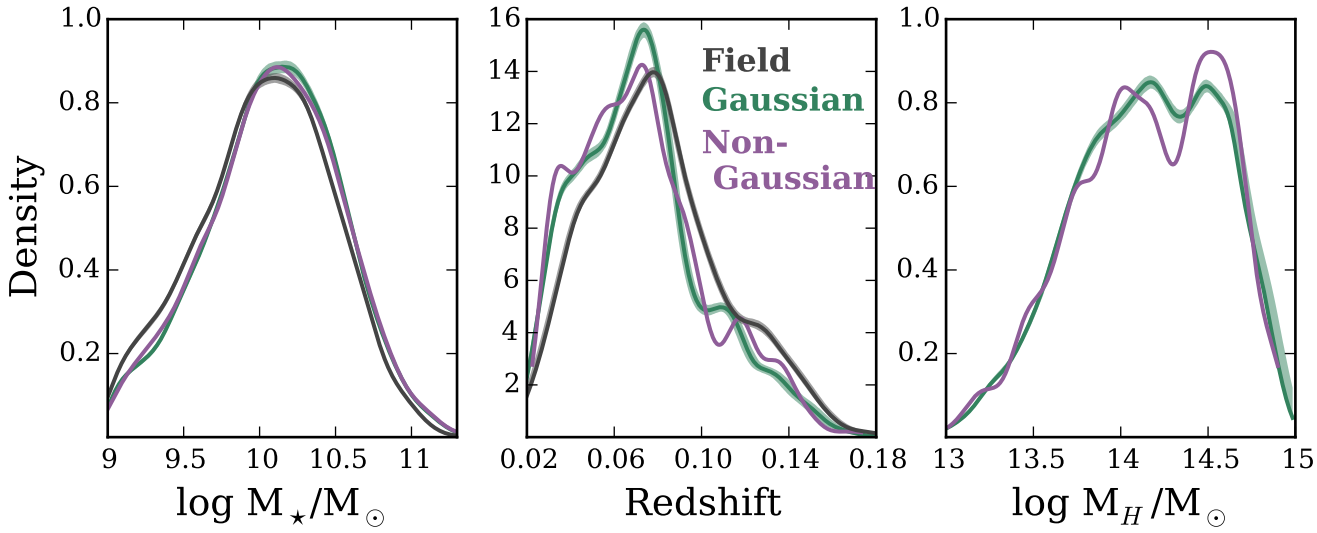

Figure 1.

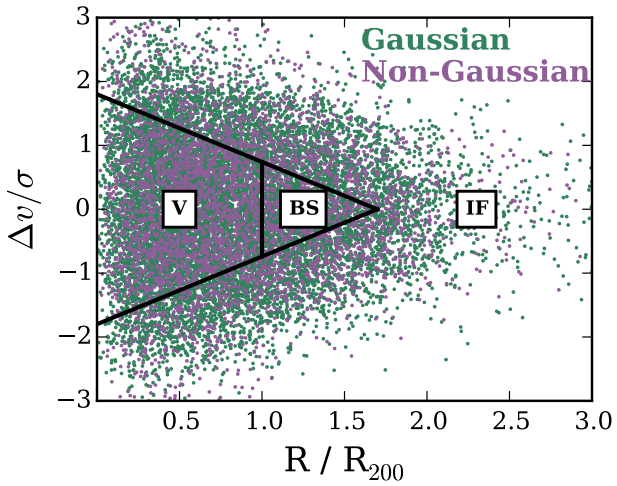

Figure 2.

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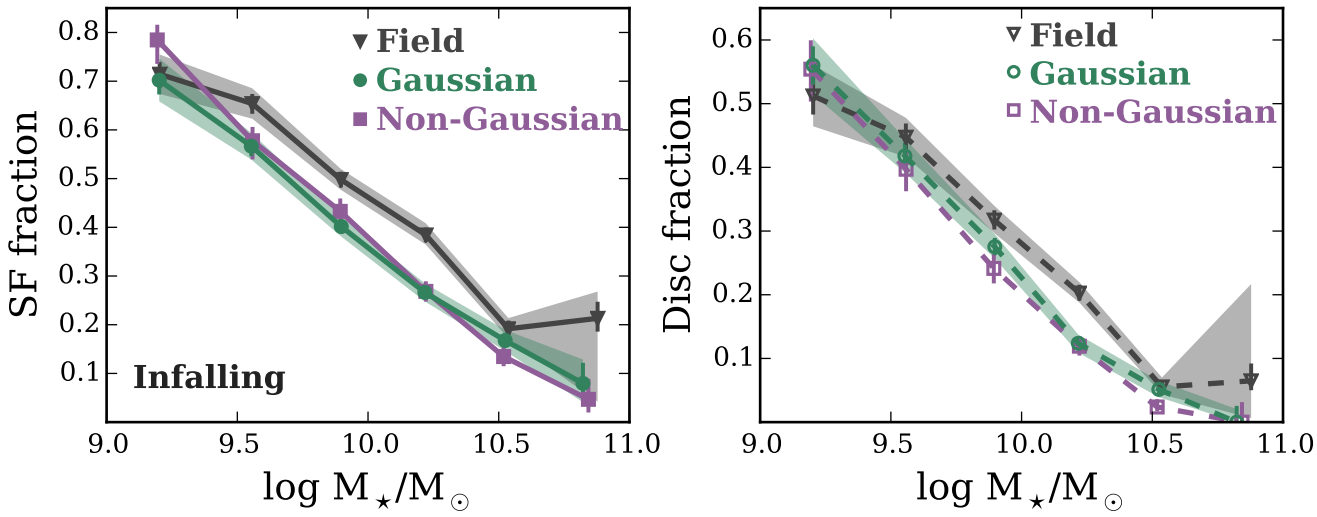

Figure 3.

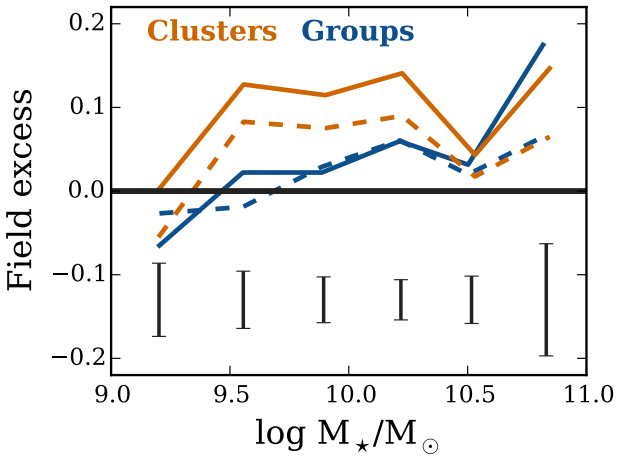

Figure 4.

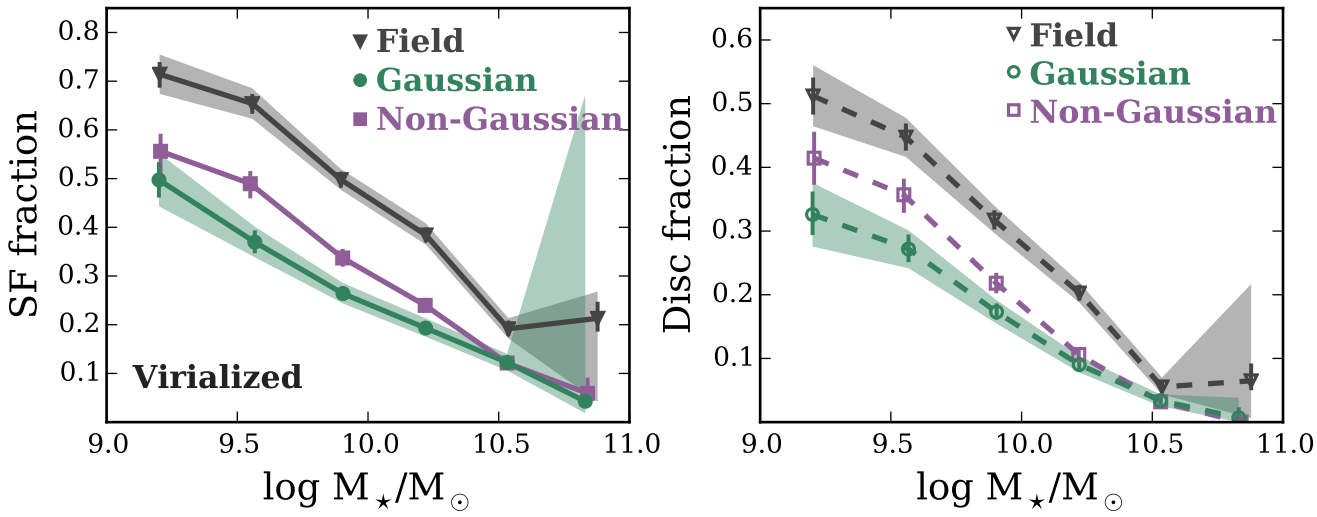
SF fraction
Field
Gaussian
Non-Gaussian
Virialized
log M$_\star$/M$_\odot$
Disc fraction
Field
Gaussian
Non-Gaussian
log M$_\star$/M$_\odot$

Figure 5.