

# Did brightest cluster galaxies experience more than one star formation epoch?

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**Abstract.** We use the full spectrum fitting ability of *ULySS*, with the Pegase.HR stellar population model to fit the observed spectra of 40 brightest cluster galaxies in order to determine whether a single or a composite stellar population provided the most probable representation of the star formation history (SFH). We find that some galaxies in the sample have more complex SFHs.

**Keywords.** galaxies: evolution, galaxies: general – galaxies: stellar content.

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## 1. Introduction

Recent literature, i.e. Loubser (2009) refer to brightest cluster galaxies (BCGs) as the central, dominant galaxy in a cluster with a typical mass of  $\sim 10^{13} M_{\odot}$  (Katayama *et al.* 2003). It has been widely expected that BCGs are dormant elliptical galaxies with a red photometric color, implying that old stellar populations are present. However, Liu, Mao & Meng (2012) have found that some BCGs have the presence of blue cores and UV excess which implies that star formation recently took place.

## 2. Results and Conclusions

We use the full spectrum fitting software package *ULySS* with the Pegase.HR stellar population model to fit this model against the observed spectra of 40 galaxies from Loubser (2009), to determine whether a simple or composite stellar population were a more probable representation of the star formation histories (SFHs). We found that 22 galaxies could be represented by a single stellar population (SSP) and the remaining 18 by composite stellar populations.

Our findings suggest that although 55% of the sample could be represented by an SSP, the remaining 18 galaxies experienced more than one star formation event. Hence, some BCGs have a more complex SFH than first assumed.

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## References

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