Introduction (of referee report)

"The results of the paper clearly demonstrate that the technique of simulating stellar clusters in cosmological hydrodynamical simulations by tagging stellar particles based on their ages does not reproduce key properties of observed GC systems in the Milky Way and M31. However, the authors do not state this conclusion anywhere".

We feel that our conclusion would be too strongly phrased if we would generalise our results obtained using the Auriga simulations to cosmological simulations in general. Indeed, we do find that age-selected stellar particles do not reproduce key properties of observed GC systems in the Milky Way and M31. However, our results might reflect characteristics that are specific to Auriga, e.g. that the galaxy formation model overmixes metals at early times. Therefore we did add a final bulletpoint to our conclusion to clarify the above, but we limit the scope to the Auriga simulations.

General comments about style

- Numerical quantities are now described in arabic numbers, not words.
- TODO: parenthesis
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- We replaced 'Sec.' by 'Section' to refer to sections in the present work. Moreover, we changed 'Sec.' to 'section' to refer to a section in one of the references.
- All acronyms are introduced the first time they appear in the text (MW, M31, GC, GCS, YMC, ISM, SN, AGB, DM, and Au). The subset thereof that appears in the abstract is also introduced the first time it appears.
- The colour palette has been updated to improve colourblind-friendliness.
- We no longer use blue and red to prevent confusion because they are typically used for metal-poor and metal-rich populations.

Major comments and concerns

- Item

Additional major comments

- We normalise the Auriga simulations by the virial radius of the dark matter halo to compensate for scatter between different simulation runs. We deliberately chose for r_{vir} because there are several stellar length scales

that could be used (e.g. the effective radius of the bulge, the radial scale-length or vertical scaleheight of the disk, the optical radius, the extent of the stellar halo, etc). The simulations show a wide variety between properties of the Auriga galaxies with little correlation between these different stellar length scales. The mean virial radius of Auriga L4 is 299.67 $\pm$ 19.41 kpc.

- Item

Comments for each section

Introduction

- Item

Sect. 2 -

- Item

Sect. 3 -

- Item

Sect. 4 -

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- Figure 4 - now has a vertical line to indicate the metallicity cut between metal-poor and metal-rich GC subpopulations in the Milky Way.

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- Figure 6: no changes were made for rescaling the galaxies (i.e. we still use the virial radius)

- Figure 5 and 7: shaded regions now show the 25-75th percentiles.

- Figure 9: The values are removed from the masked upper right corner bins.

- Figure 2,8,9: The values of the upper and right axes have been removed from Figure 2 and 9 (observations) for clarity (rather than the suggestion to add axis labels and units). However, we did not mask these bins for Figure 8 (Auriga) because it illustrates our finding that the simulations produce a considerable amount of mass in GC candidates with low metallicities at large radii.

Sect. 5 -

- Item

Minor comments

- We clarified that 'blue' GC subpopulation means metal-poor with [Fe/H] < 1
- The units of mass-to-light ratio have been corrected.
- The indicated typos have been corrected.
- 'missing error bars and references for the virial radii' $\rightarrow$ The reference was given in a footnote, but is now moved to the main text.
- 4.1: 'which model do the authors refer to?' $\rightarrow$ added 'star formation'.
- 4.1: 'The top half of the left figure' $\rightarrow$ 'The top panel of Figure 3'.