

## Ages and metallicities of M31 star clusters

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**Abstract.** We present recent analysis of star star clusters in M31

Recently, Jablonka, Alloin and Bica (1991) (hereafter JAB) aimed at studying the properties of M31's star clusters and at enlarging the data base of star cluster integrated properties (Bica and Alloin, 1987) at high metallicities, for population synthesis purpose.

We have obtained spectra for 9 clusters in M31, 7 globular clusters, G1, G78, G158, G170, G177, G219, G222 and 2 open clusters, C107 and C130. Those spectra cover a wide wavelength range (3500Å- 9800Å) which allows one to confidently disentangle age, metallicity and reddening effects.

Our main conclusions are the following:

1) We found evidence is found that the Galactic foreground reddening to M31 cannot be higher than  $E(B - V) = 0.04$  ( $A_B = 0.16$ ). The previous estimate of Burstein and Heiles (1984) ( $A_B = 0.32$ ) have probably arisen from a residual contribution of the M31 disc due to an overlapping of the HI velocity profiles.

2) The luminous open clusters C107 and C130 are younger than 30 Myr.

3) G219 is found to to be either an intermediate age cluster or an old globular cluster with an anomalous, extremely strong blue horizontal branch, contrary to the previous hypothesis of a very old and metal poor cluster.

4) The cluster G170 is comparable in absorption-line strength to the bulge clusters NGC6553 and NGC6528 in our Galaxy. These, in turn, exhibit spectra which are comparable to those observed in most galaxy nuclei.

5) The inner bulge clusters G158 and G177 in M31 present metallic features as strong as those observed in the strongest-lined galaxy nuclei ever observed: i.e. the semi stellar nucleus of M31 and the nuclei of giant ellipticals. Their observation is of major importance for composite population synthesis, metallicity calibration and for the interpretation of metal rich stellar systems.

### References

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