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Correction to: Strong CO absorption features in massive ETGs

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This is a correction to the paper 'Strong CO absorption features in massive ETGs' that was published in Monthly Notices of the Royal Astronomical Society, Volume 512, Issue 1, May 2022, Pages 378–400, https://doi.org/10.1093/mnras/stac471.

In the originally published version of this manuscript, the Conroy et al. (2018) model files used to generate the behaviour of CO indices with age in figs 2 and 3 were obtained with synthetic spectra from theoretical stellar atmosphere models while we meant to use simple stellar populations made from empirical stellar spectra. To this effect, we need to update figs 2 and 3, and some sentences in sections 4.2.1, 4.2.2, 4.2.5, and 4.3, respectively. The updated figures are included at the end of this article.

4.2.1 D_{CO} versus age

On journal page 384, the last sentence of section 4.2.1, 'C18 models predict the lowest values for D_{CO} and cannot match any data points.', should be removed.

4.2.2 D_{CO} versus metallicity

On journal page 384, in section 4.2.2, the second sentence from the last should be changed from 'Also, notice that although C18 models are based on a stellar library with better coverage in metallicity, they predict the lowest values for D_{CO}, hampering the discrepancy to the observed data points.' to 'Also, notice that although C18 models are based on a stellar library with better coverage in metallicity, they are not able to match the data too.'

4.2.5 Other K-band CO indices

On journal page 385, in the first paragraph of section 4.2.5, the sentence 'Also, C18 models with solar metallicity (solid purple line) have smaller difference with M05 models than E-MILES ones for ages older than 3 Gyr and their trend is very similar to E-MILES and M05 models, in contrast to CvD12.' should be changed to 'Also, the trend of C18 models with solar metallicity (solid purple line) is

very similar to E-MILES models, in contrast to CvD12'. In the same paragraph, the sentence 'Moreover, although increasing the overall metallicity of C18 by 0.2 dex leads to an increase of ∼1 Å, the C18 models predict the lowest values for CO2.30 and cannot match the data.' should be changed to 'Moreover, although increasing the overall metallicity of C18 by 0.2 dex leads to an increase of ∼1 Å, still the C18 models cannot match the data.'.

4.3 *H*-band CO indices

On journal page 387, the following sentences in the third paragraph should be changed:

- The last part of the first sentence, i.e. 'and in case of CO1.58 it even matches with the E-MILES (dotted pink and violet line).' should be removed.

- The following statement should be added to the sentence 'For CO1.56 and CO1.64, C18 models with [Z/H] = 0.2 dex predict the highest values among all models but still they cannot match the median values of galaxies.': '(except in the case of F19 galaxies for CO1.64)'.

- The sentence 'The mean value of CO1.66 index in the B18 sample is well fitted by a solar metallicity C18 SSP and interestingly, a C18 SSP with supersolar metallicity matches the CO1.66 index value of stacked XSGs well.' should be changed to 'The mean value of CO1.66 index in the B18 sample is well fitted by a solar metallicity C18 SSP and interestingly, a C18 SSP with supersolar metallicity matches the median value of CO1.66 in F19 galaxies as well as the CO1.66 value of some XSGs'.

- The sentence 'In the CO1.68 panel, surprisingly, C18 models overpredict the line-strengths of the XSGs.' should be changed to 'In the CO1.68 panel, C18 models match the line-strengths of the XSGs.'

On the same page, in the fourth paragraph, the content of the parenthesis should be changed from 'except for CO1.66 in which the supersolar metallicity C18 model matches the stacked spectrum and for CO1.68 in which C18 models overpredict the line-strengths of the XSGs' to 'except for CO1.66 and CO1.68 where C18 models match the observed line-strengths.'

These changes do not affect any conclusions of the paper and all other results in the published paper remain unchanged.
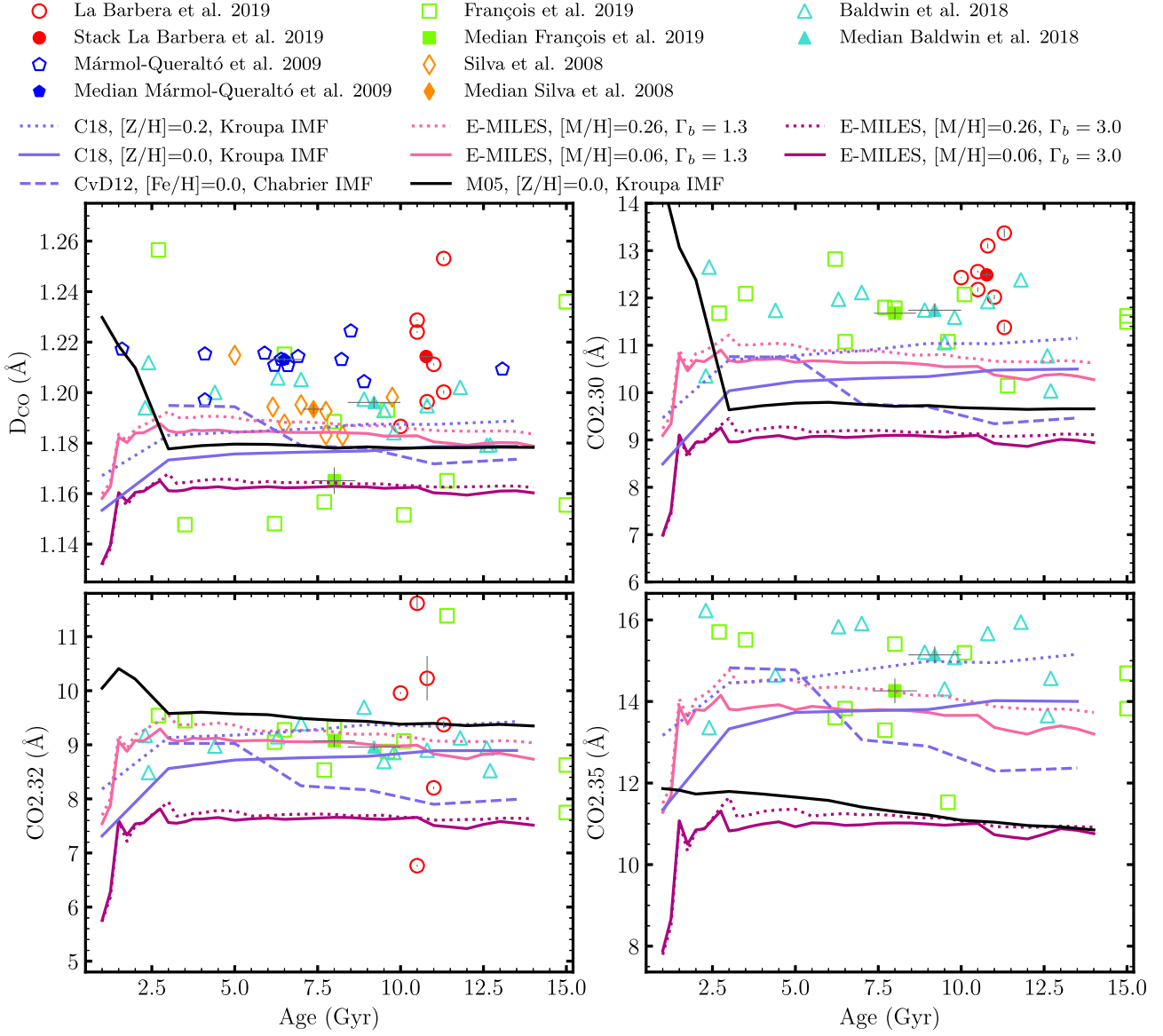
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Figure 1. Updated version of fig. 2.

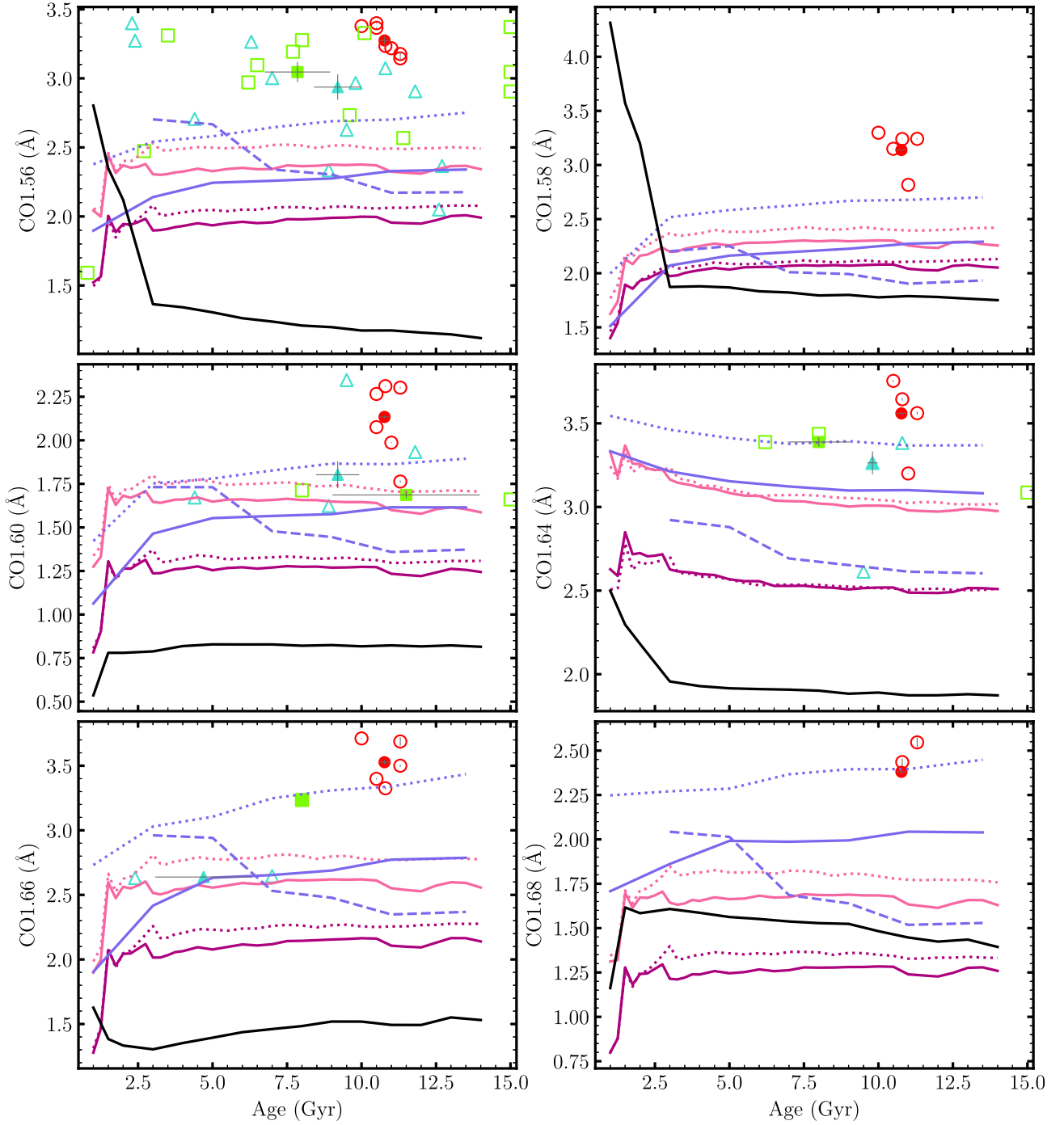**Figure 2.** Updated version of fig. 3.

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