Local stellar formation history from the 40pc white dwarf sample

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The stellar formation history is a major ingredient needed to understand the evolution of the disk and halo components of the Milky Way. This knowledge can then be applied more broadly to similar galaxies. White dwarfs have been previously utilised for this purpose, providing a beneficial alternative to main sequence stars. With the advent of *Gaia* and its numerous releases, the number of known white dwarfs has experienced a magnitude increase. Using *Gaia* McCleery et al. (2020) and O'Brien et al. (in prep) have curated a 40pc sample of white dwarfs with spectroscopic completeness of around 96%, making it the largest volume-complete sample to date. Having a complete sample brings advantages in terms of population synthesis models, as it removes the need to include complex bias corrections. Therefore, in this talk we aim to present the stellar formation history derived from the 40pc white dwarf sample, and contrast the findings with previous studies of both white dwarfs and main sequence stars.

References

[1] McCleery, J., Tremblay, P.-E., Gentile Fusillo, N. P., et al. 2020, MNRAS, 499, 1890.

[2] O'Brien W. M., et al., *in preparation*