

Reaching the earliest star formation epochs in nearby dwarf galaxies with ELTs. (Francesca Annibali)

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In the Lambda CDM scenario, the smallest dark matter haloes are the first to collapse, and therefore we expect dwarf galaxies to be the sites of the earliest star formation activity in the Universe. Resolved stellar population studies of nearby dwarf galaxies are extremely valuable for probing the early Universe, since they allow us to reconstruct the dwarfs' star formation histories with great details back to the most ancient lookback times. However, current instrumentation permit to probe the earliest star formation epochs in a limited number of systems, typically within ~ 1 Mpc distance. This unfortunately excludes the most relevant to cosmology, i.e. the most metal-poor and the most active ones. I will discuss how the combination of imaging and spectroscopic facilities mounted on ELTs will provide real progress in this field, allowing us to reconstruct the star formation and the chemical enrichment histories in a large number of nearby dwarf galaxies outside the Local Group back to the most ancient epochs.

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