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From large spectroscopic surveys to the next generation of instruments for the study of resolved stellar populations

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The observations from the Gaia satellite and from the large spectroscopic surveys (Gaia-ESO, GALAH, APOGEE) during the last decade, have given a new perspective to the study of stellar populations in our Galaxy, shaping a quantitative approach to Galactic Archaeology.

The next few years will see a number of important projects, with instruments dedicated to spectroscopic surveys, such as WEAVE, MOONS and 4MOST.

The challenge of the future will be to go in new directions: with MAVIS, combining high spatial resolution with its spectroscopic capabilities, we will be able to explore crowded regions, reaching star clusters in nearby galaxies, while with the high-spectral resolution of HRMOS and the ability to observe hundreds of stars at a time, we will be able to go into the details of stellar physics, chemical tagging, and other and other unsolved problems of chemical and stellar evolution.

In this talk I will present some of the key results of the last few years based on the study of Galactic resolved stellar populations, and some of the scientific cases that have been proposed for the new instruments, MAVIS and HRMOS, both with European and Australian participation.

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