

The VLT LEGA-C Spectroscopic Survey: Dissecting the stellar population of galaxies at a lookback time of 7 Gyr

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The LEGA-C survey is an ongoing, 4-year ESO public survey with the 8m Very Large Telescope. The survey will obtain spectra of ~ 3000 K-band selected galaxies of $M_{\text{star}} > 10^{10} M_{\text{sun}}$ at redshift $0.6 < z < 1.0$, with typical signal-to-noise ratio comparable to SDSS spectra at $z \sim 0.1$. These deep, high-resolution slit spectra provide very detailed data of stellar continua for galaxies ~ 7 Gyrs ago and are able to characterize fundamental properties of stellar populations: stellar ages, metallicities, stellar velocity dispersion, dynamical masses, as well as stellar rotation. These are keys for the study of galaxy evolution, but so far only available for representative galaxy samples in the nearby universe, at lookback time approximately 1 Gyr.

The sample size and quality of LEGA-C spectra enable for the first time several studies of key questions in galaxy evolution on long cosmological time scales, especially for early-type galaxies: mass assembly, dynamical evolution, and the quenching mechanisms. I will give an overview of the observing campaign: the design, current status, and the first results. We will present the evolution of the underlying stellar population in galaxies from ~ 7 Gyrs ago to present day. Combining LEGA-C deep spectra and ancillary multi-wavelength data and high-resolution imaging, we give our insight on quenching and maintaining the quiescence in today's early-type galaxies.