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Title: Stellar Population MIR Spectroscopy in the E-ELT era

Abstract: *In this talk we will discuss the impact of the first-light ELT instruments on the stellar population studies.*

A focus will be given to what we can learn by observing asymptotic giant branch stars (AGBs) with mid-infrared high spectral resolution.

These objects play a crucial role in the cosmic-matter cycle, and they are tracers of stellar population in the external galaxies.

We will undertake a journey through the mid-infrared spectrum of AGBs, populated by ionised gas, many rotation-vibrational bands of abundant molecules (CO, OH, SiO, C₃, C₂H₂, HCN, CS,...),

and prominent bands with amorphous and crystalline silicates. We will discuss how the various molecular, dust, and gaseous features can be used (i) to derive stellar parameters; (ii) for kinematic studies;

(iii) and to investigate the mass-loss process, one of the most important event during the life-time of a star.