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# The Brightest Stars in the Universe as Extragalactic Probes of Cosmic Abundances and Distances.

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## Abstract

The determination of chemical composition and distance is crucial for investigating the formation and evolution of star forming galaxies. Stellar absorption line studies based on quantitative spectroscopy provide an attractive alternative to the standard techniques using the strong emission lines of HII regions for chemical composition or stellar photometric methods for distances. I will introduce a number of newly developed methods:

- multi-object spectroscopy of individual blue and red supergiant stars, the brightest stars in the universe at visual and NIR wavelengths,
  - NIR spectroscopy of super star clusters,
  - optical spectroscopy of the integrated light of stellar populations in the disks of star forming galaxies,
  - the flux-weighted gravity luminosity relationship for distance determinations
- and present results accumulated in the last two years. I will then discuss the scientific perspectives and potential of these methods for the use of ELTs.

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