

A SYNOPTIC VIEW OF THE MAGELLANIC CLOUDS:
VMC, GAIA AND BEYOND

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**Unravelling the cosmic acceleration
with Magellanic Clouds Cepheids**

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One of the outstanding problems in modern physics is the origin of the accelerated expansion of the Universe. High-precision determinations of the Hubble parameter H_0 at different redshifts provide direct insight into the physics of the accelerating Universe. We re-investigate the distance ladder based on Cepheids and Supernovae type Ia by accurately assessing the effect of metallicity on it and the bias that are introduced. MCs represent a natural anchor for the ladder, due to their proximity and the well known geometric distance. Furthermore they span a wide metallicity range, necessary to investigate the Leavitt law metallicity dependence and to cover the abundances of the SNIa host galaxies. Accordingly we collected the larger spectroscopic sample of MCs cepheids, containing more than 300 stars and more than 1200 medium-high resolution spectra. To quantify the systematic arising during the abundance measurements, I tested the performance of the methodology (based on Equivalent Width and Curve Of Growth analysis) on a wide grid of synthetic spectra at different resolutions and generated with different LTE atmosphere models. I will present the current status of this analysis.