

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

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**Dissecting the Large Magellanic
Cloud: a high spatial resolution map
of its star formation history**

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Detailed studies of nearby Local Group galaxies offer an unique window to understanding galaxy formation and evolution. The analysis of Colour-Magnitude Diagrams reaching the oldest main sequence turnoffs to determine their star formation histories ('CMD fitting') has revolutionised our understanding on how these galaxies work. In particular, the Large Magellanic Cloud (LMC), prototype of the so-called Barred Magellanic Spirals, is of special interest. Considered the closest example of interacting system, its morphology - dominated by a single spiral arm and a strong bar - challenges current spiral structure and bar formation theories. In this work we exploit the DECam data coming from the Survey of the MAGellanic Stellar History (SMASH) to fully map the star formation history (via CMD fitting) of the main body of the LMC with unprecedented detail (spatial resolution of ~ 300 pc). Spatial variations of the stellar ages and metallicities of different components (bar, spiral arm, and interarm region) are highlighted, together with azimuthal and radial trends. These precise and detailed spatially resolved studies are of the utmost importance to unravel the complex build up of the LMC.