

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

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Large model grids of massive stars in the Small Magellanic Cloud

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The massive stars in the SMC, due to their strong deficiency in heavy elements, provide the nearest examples of their counterparts in high redshift galaxies, and of the metal-poor progenitors of gamma-ray bursts, superluminous supernovae, and black hole mergers found by Ligo/Virgo. To study them allows to constrain the large effects of uncertain internal mixing processes and binary evolution. We explore these uncertainties by computing a large number of detailed stellar evolution model grids with MESA, from which we derive synthetic populations. We can exclude part of the parameter space with current observational data; however, we strongly advocate future observations to further refine these important mixing processes and identify.