

## Q42a Photometric Estimation of Supernova Progenitor Masses in OB Associations in the LMC

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Understanding the progenitor masses of supernova remnants (SNRs) is essential to constraining the evolutionary history and feedback effects of massive stars. We investigate five SNRs in the Large Magellanic Cloud (LMC) that are spatially associated with OB associations. Using multi-wavelength data including X-ray, optical, and radio imaging, we identify OB associations overlapping with the X-ray emission and analyze their stellar populations. Color-magnitude diagrams (CMDs) are constructed using photometric data from the Magellanic Clouds Photometric Survey (MCPS) and Gaia. By comparing the observed stars with theoretical evolutionary tracks, we estimate upper limits for progenitor masses.

We used N63A, a well-studied SNR with available spectroscopic mass estimates, as a benchmark to validate the CMD method. The comparison suggests that MCPS photometry, particularly in short-wavelength bands, provides better constraints on high-mass stars than Gaia data alone. For the remaining four SNRs, we applied the same method consistently and demonstrated that CMD-based estimates can serve as useful alternatives in the absence of spectroscopic data. Our study highlights the value of stellar population analysis in assessing progenitor properties of SNRs in diverse interstellar environments.