

## Studying the Outskirts of NGC 2682 (M 67) open cluster

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### Abstract

The combination of deep and wide astrometry study together with the best set of Strömgren photometry ever obtained for the open cluster NGC 2682 (M 67) let us study the physical properties of the stars in the cluster area and analyse its outskirts. The astrometric study covers an area of about  $2^\circ \times 1.4^\circ$  and down to  $r' \approx 17$  while our INT-WFC CCD intermediate-band  $uvby - H\beta$  photometry covers an area of about  $45' \times 45'$  down to  $V \approx 18$ . The stars selected as cluster members are classified into photometric regions and their physical parameters determined, using  $uvby - H\beta$  photometry and standard relations among colour indices for each of the photometric regions of the colour-magnitude diagram. That allows us to determine reddening, distances, absolute magnitudes, spectral types, effective temperatures, gravities and metallicities in the wider area ever studied, thus providing an astrophysical characterization of the stars in the cluster outskirts. We found stars compatible with astrometric and photometric membership up to  $33'$  from the cluster centre, so meaning 2.6 times the radius quoted in Dias et al (2012), and also found members up to  $1.2^\circ$  with only astrometric criteria. These data will allow us to perform the most complete study of the cluster structure, dynamics and mass segregation up to date.

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