

## Studies on the corona of open clusters

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### Abstract

High quality proper motions on an extended area of a selection of Open Clusters (OCs) will let us study their coronas with unprecedented accuracy. We are in the process of obtaining astrometry with the Meridian Circles of San Fernando CMAF at El Leoncito (Argentina) and the CTA at La Palma of an area few times the known radius (from Webda) of a selection of OCs. We will make use of Strömberg wide-field photometry to complement their characterization. We have already analysed the old open cluster M67, deriving properties for 2738 stars fainter and, in a wider area, than any previous precise survey in the cluster region. With new data from the CMAF we have covered an area of about  $2^\circ \times 1.4^\circ$  and down to 17 magnitude in  $r'$ . Proper motions are then used to determine the membership probabilities of stars in the region, applying parametric and non-parametric approaches to cluster/field segregation. Adding photometric criteria, we obtained a preliminary list of 665 probable member stars, up to a distance  $0.96^\circ$  from the cluster centre. These are preliminary results on our work that will lead us to the most complete study of its structure, dynamics and mass segregation up to date. We have already obtained proper motions for NGC 1817, NGC 2264 and NGC 2509 that are now being processed.

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