Mem. S.A.It. Vol. 77, 1178

Memorie della

Investigation of star clusters detected automatically in 2MASS Point Source Catalogue

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Abstract. We have developed a new method of an automatic search for star clusters in huge stellar catalogues based on the convolution with density functions and applied this method to 2MASS catalogue.
We also developed a method to verify whether detected stellar groups are real star clusters, which employs the fact that the members of clusters lying on the same isochrone on the colour-magnitude diagramme show the peak on the radial density distribution. By fitting the position of the isochrone, we simultaneously find the main physical parameters of a cluster: age, distance, colour excess.
At the initial stage, we fulfilled the detailed analisys of 88 overdensity peaks detected in the field of 16 by 16 degrees in the region of the Galactic anticenter. Physical and structural parameters were determined for 18 of 22 newly discovered clusters and for 9 yet-unstudied known open clusters. The parameters of well-known clusters determined using this method showed a good agreement with published data.

Key words. Galaxy: open clusters

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