

which mean coordinates $(\bar{\alpha}, \bar{\delta}) = (110.8^\circ, -32.0^\circ)$, a radius of about $12'$ and mean proper motion components $(\bar{\mu}_\alpha \cos \delta, \bar{\mu}_\delta) = (9, 4)$ mas/yr were obtained, in good agreement with the literature. The other two possible clusters have members fainter than magnitude 10.0 and they are not found in the literature. Related to Collinder 132, the low density of the data used in the area did not allow to detect it.

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ΔA OBSERVATIONS OF THREE GLOBULAR CLUSTERS: NGC 104, NGC 6205, AND NGC 7099

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Globular clusters are main astrophysical laboratories to test and modify evolutionary models. Thought to be rather homogeneous in their local elemental distribution of members, new results suggest a wide variety of chemical peculiarities. The preselection of apparent peculiar stars for a detailed spectroscopic analysis is very important for globular cluster fields. Most regions are very dense and the target stars are, normally, very faint. Photometry could be one way out of the dilemma since it is very efficient. Up to now, only observations in the Johnson $UBV(RI)$ and Strömberg $wvby\beta$ systems are able. The tool of Δa photometry is employed in order to detect chemically peculiar Population II stars. This three filter narrow band system measures the flux distribution in the region from 4900 to 5600 Å in order to find any peculiarities around 5200 Å. The first Δa observations for 3 globular clusters: NGC 104, NGC 6205 and NGC 7099, give very promising results, which will serve as a solid basis for follow-up observations including photometric as well as spectroscopic studies.

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GALACTIC EMBEDDED CLUSTERS WITH 2MASS INFRARED PHOTOMETRY

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Star clusters and associations are born in general embedded within giant molecular clouds. Because of this, during their formation and early evolution they are often only visible at infrared wavelengths, being heavily obscured by dust. In this work we employed the 2MASS photometric database together with WISE (NASA) images to analyze, for the first time, 10 Galactic embedded cluster candidates. WISE is fundamental owing to its sensitivity to dust emission, especially in the 12 μm and 22 μm bands. We followed the revised list of Dolidze clusters by M. Kronberger which was communicated to the DAML02 database (Dias et al. 2002). We selected interesting Dolidze objects from this list with additional inspections by one of us (E. B.). In the present study we show results for 4 candidates in view of determining their astrophysical parameters. We produced colour-magnitude diagrams (CMDs) and radial density profiles (RDPs). We employed the field decontamination method by Bonatto & Bica (2007, 2010) to obtain clean CMDs. We fit isochrones from PARSEC models (Bressan et al. 2012). This method has been systematically used in our publications and have shown how effective it is. All objects present a central concentration and extensions in RDPs. In certain cases, e.g. Dolidze 25, the profile distribution and central density are significant. The RDPs were important to define the extraction regions for the objects and their field decontamination areas. The isochrone fittings for Dolidze 5 show a clear Main Sequence (MS), while for Dolidze 25 a MS and Pre Main Sequence (PMS) are present. Dolidze 5 and Dolidze 25 appear to be physical systems, considering only the photometric data, while Dolidze 47 and Dolidze 55 resulted as field fluctuation.

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GALACTIC DYNAMICS: ORIGIN, HISTORY, PRESENT AND PROSPECT

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I present a travel through the history and main contributions to astrophysical development of the galac-