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Presentation ”The mystery of classical cepheids in globular clusters”

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Abstract: “In the paper ”Additional Galactic Cepheids from the OGLE Survey”from 2020 the authors showed four classical cepheids OGLE-BLG-CEP-034, OGLEBLG-CEP-068, OGLE-BLG-CEP-098 and OGLE-GD-CEP-1244 in the regions outlined by the tidal radii of globular clusters NGC 6355, Pal 6, NGC 6569 and GLIMPSE01. The research aims to check if those cepheids are located inside those globular clusters and whether they may have originated inside them. The age of both cepheids and clusters has been computed to check this. The cepheids were probably not formed during the formation of these clusters, as their ages are significantly different. Afterwards, the distances were determined by two methods, from the parallax and by analysing the magnitudes. From the first method obtained results d_034 = 6.74 ± 2.97 kpc, d_068 = 5.20 ± 8.02 kpc, d_098 = 17.67 ± 20.69 kpc, d_1244 = 6.51 ± 3.87 kpc. The distances in the second method will be calculated including two different interstellar extinction sources and then averaging the results obtained for the different light filters. Based on the literature review, distances to globular clusters were checked. Unfortunately, there are large differences between them depending on the source, which makes them not very reliable. Finally, brightness period relationships were examined for all the stars to ensure that the stars were correctly classified as classical cepheids. If the study confirms that these cepheids are not located within the clusters this will be consistent with current models of star formation. If it is shown that one of them is inside the cluster, it will be the first observation of the classical cepheid in the global cluster.”

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