Bulletin of the AAS • Vol. 53, Issue 1 (AAS237 abstracts)

Interstellar extinction in the direction of the open cluster King 7 and the new parameters of the cluster

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Published on: Jan 11, 2021

The 13×13 arcmin area in the direction of open cluster King 7, located at the Perseus and Camelopardalis border, is investigated applying two-dimensional photometric classification of 985 stars observed in the Vilnius seven-color photometric system down to V = 20 mag. The cluster members (about 300 stars) are identified applying their coordinates, proper motions and parallaxes taken from the Gaia DR2 catalog. New parameters of the cluster (distance, interstellar reddening and age) are obtained. Physically the cluster is located in the Perseus spiral arm at d = 2.95 kpc, and its age is 200-300 Myr, the earliest stars are of spectral class B8. The average interstellar extinction A_V = 4.3 mag. The extinction in the surrounding 1.5x1.5 deg area is investigated applying two-dimensional classification of about 1200 stars down to V = 16 mag based on the Vilnius photometry and the Gaia DR2 distances. The photometric data are obtained with the 1.8 m VATT telescope on Mt. Graham, Arizona and the 35/50 cm Maksutov-type telescope at the Moletai Observatory in Lithuania.