Star clusters: basic galactic building blocks
Proceedings IAU Symposium No. 266, 2009
R. de Grijs & J. R. D. Lépine, eds.

doi:10.1017/S1743921309991992

Refining the true parameters of the open cluster NGC 4852

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Abstract. NGC 4852 is a moderately compact cluster centered at $\alpha_{2000} = 13:00:09; \delta = -59:36:48$, located near the center of an Hα superring. This cluster forms part of an extended region including young stellar aggregates inside a circle with a radius of 3 degrees, where many show an abundance of emission line stars. In the field of this cluster, two stars of known type exist: Wray 15−1039 (emission-line object) and CD −58:4845 (emission-line star). We do not yet know whether the Be phase is transient or whether it is just what randomly happens in some hot stars. It appears that Be star may be found even in clusters as old as 70 Myr with a high occurrence rate in clusters of 25–27 Myr old. A recent photometric survey in NGC 4852 down to $V = 22 - 23$ mag established that NGC 4852 is about $200 - 250$ Myr old, located at 1.1 kpc from the Sun and with a mean $E(B-V) = 0.45$ mag. Since the presence of potential Be-type stars in the cluster area suggests it may be a very young object instead of moderately old, we decided to carry out spectroscopy for 33 selected stars and CCD $UBVI$ photometry for the bright objects in the cluster area. This way, we attempt to clarify their evolutionary state and include them in the framework of emission-line stars and open clusters. From our analysis, we agree with the cluster distance and reddening determined by earlier studies, but we derive that the age of NGC 4852 is younger than 40 Myr.

Keywords. stars: fundamental parameters, open clusters and associations: individual (NGC 4852)

The full poster (in pdf format) is available at
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