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Photoelectric photometry of the open cluster NGC 1778

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Abstract. Photoelectric U, B, V magnitudes and colours for 48 stars in the open cluster NGC 1778 have been determined. The colour excess is $0^m.34$, distance to the cluster 1062 pc, and apparent diameter of the cluster 4·5 minutes of arc. The age is estimated at $1{\cdot}6 \times 10^8$ years.

Keywords. Open cluster; NGC 1778

1. Introduction

The galactic cluster NGC 1778 in Perseus ($\alpha_{1960{\cdot}0} = 05^h\ 05^m.4$, $\delta_{1960{\cdot}0} = +36^\circ\ 58'$; $l^{II} = 168^\circ.88$ and $b^{II} = -2^\circ.00$) has been assigned a class III 2p by Alter *et al.* (1970), while Barbon and Hassan (1973) assign it a class III 2m. The distance to the cluster as also its age have been determined by various authors and both show a widespread (Barbon and Hassan 1973). The latest values available are based on a photographic photometric colour magnitude study of this cluster by Barbon and Hassan. To our knowledge no extensive photoelectric study of this cluster has yet been carried out. We report here the results of such a study carried out by us.

2. Observations

The observations were carried out between November 1973 and January 1974 on the 104-cm telescope of the Uttar Pradesh State Observatory, using the UBV filters of the Johnson and Morgan system. An EMI 6094 B photomultiplier, thermo-electrically cooled to -20° C, was used as the radiation detector and the output from the photomultiplier, after amplification by an electrometer dc amplifier, was recorded on a chart recorder. For standardising the instrumental magnitudes, we used the photoelectric sequences employed by Hoag *et al.* (1961) and applied necessary corrections for nightly extinction.

The computed standard errors of our observations are $\pm 0^m.014$, $\pm 0^m.014$ and $\pm 0^m.016$ for V, $(B-V)$ and $(U-B)$ respectively.

3. Discussion and results

The magnitudes and colours of the stars are listed in table 1 and are plotted in figures 1 and 2. In the colour-magnitude diagram of the cluster (figure 2) a well-defined cluster main-sequence is seen.