

UBVI CCD PHOTOMETRY OF AN OLD OPEN CLUSTER AM-2

MYUNG GYOON LEE

*Department of Astronomy, Seoul National University
Seoul, 151-742, Korea; mglee@astrog.snu.ac.kr*

AM-2 is a sparse cluster located at low galactic latitude. It has been suspected to be a globular cluster. We present a study of AM-2 based on the deep *UBVI* CCD photometry obtained using the Las Campanas duPont 2.5m telescope. The color-magnitude diagrams of AM-2 show (a) a main-sequence extending up to $V \approx 19$ mag at $(B - V) \approx 1.1$ mag, (b) a small number of red giant clump giants, (c) the brightest red giant at $V \approx 16.1$ mag and $(B - V) \approx 1.9$ mag, and (d) a small group of mysterious blue stars at $V \approx 16.6$ mag and $(B - V) \approx 0.9$ mag. We have estimated the reddening using the color-color diagram, $E(B - V) = 0.56 \pm 0.04$. The metallicity of the main-sequence stars has been estimated from the ultraviolet excess, $\delta(U - B)_{0.6} = 0.09 \pm 0.04$, to be $[\text{Fe}/\text{H}] = -0.4 \pm 0.2$ dex. The distance to the cluster has been measured using the Zero-Age-Main-Sequence fitting method, $(m - M)_0 = 14.8 \pm 0.3$ ($d = 9.1 \pm 1.4$ kpc). Finally we have estimated the age of the cluster using the Revised Yale isochrones and the Morphological Age Ratio (MAR) method, obtaining a value of 5 ± 1 Gyrs (Fig. 1). This shows that AM-2 is not a globular cluster, but an old open cluster.

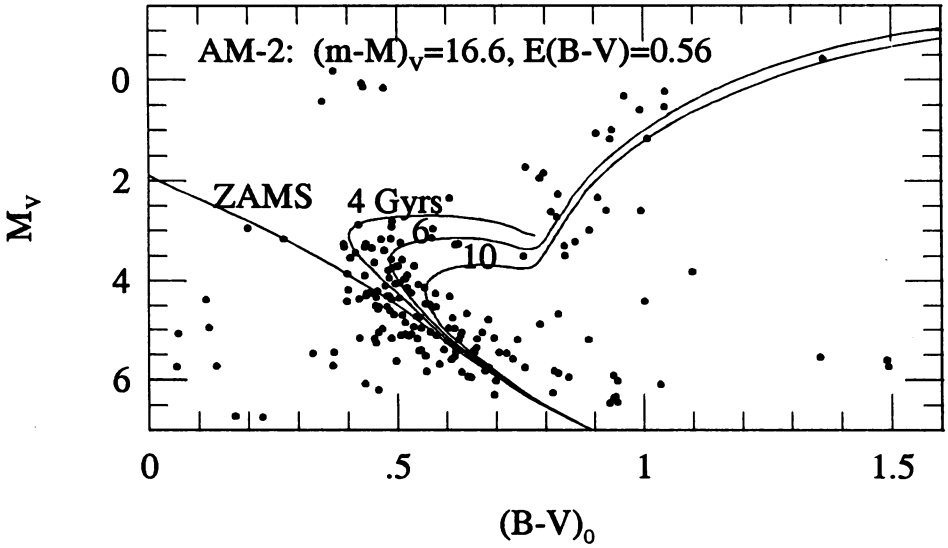


Figure 1. Estimation of the age of AM-2 using the Revised Yale isochrones for $[\text{Fe}/\text{H}] = -0.4$ dex and $Y = 0.28$. Note that the age of AM-2 is estimated to be 5 ± 1 Gyrs.