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Photometric Data to Derive an Hertzsprung - Russell Diagram for the Spectral Types of Open Cluster M35

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In this paper, we present using photometric data study to derive an Hertzsprung - Russell (HR) diagram for the spectral types of open cluster M35 (NGC 2168). Astrophotography data of M35 observation with a telescope prompt 8 at Chile. Download 10 photo images data of the blue and visual filter from Skynet Catalog, then the photos will be reduction to eliminate noises in order to use stack images of stars matching by the Maxlm DL5 program. All photo images to measure the photometry of the star with Aperture Photometry Tool program. The distance modulus ($V-M_v$) and the distance to star cluster (d) were obtained and compared for the main sequence turn off point of an HR diagram. The color index (B-V) and the absolute magnitude (M_v) were calculated the effective temperature (T_{eff}), luminosity (L), radius (R), mass (M) and age (t) of the stars of the cluster. The physical properties of star cluster were determined, that can be identified the spectrum types of stars of open cluster M35.

The results photometric solution shows that with an HR diagram illustrate that the distance modulus of 9.60, the distance to star cluster of 832.34 parsec, the average effective temperatures of 5313.268 K, the average luminosities of $0.743L_{sun}$, the average radiuses of $0.847R_{sun}$, the average masses of $0.743M_{sun}$ and the average ages of 137.87 t_{sun}. The spectral types of stars of open cluster M35, most of spectral type G and K, which is a main sequence with similar luminosity and temperature of the sun.

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