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HD 200925, A PULSATING VARIABLE

The star HD 200925 (BD +50°3259) was observed by Bedolla and Pena (1979) on four nights during 25th to 28th September 1978 in V filter. They reported this star as a variable with a tentative period of $0^d.238$, and no definite type of its variability is given.

To determine its accurate period and establishing its type of variability, the star was observed by us photoelectrically on the 38 cm reflector of the Uttar Pradesh State Observatory on a total of seven nights during October-December 1979, using a cooled (-20°C) 1P21 photomultiplier tube, the conventional U, B and V filters of the Johnson and Morgan system, and standard d.c. techniques. The data were reduced to the standard system. BD +50°3256 was used as a comparison star. The average standard deviations of the comparison star are $0^m.015$, $0^m.010$ and $0^m.010$ in U, B and V filters, respectively.

On the basis of the maximum of the individual light curves observed by us and those reported by Bedolla and Pena, we determined a period of $0^d.267396$. In our U, B and V light curves magnitude variations of $0^{m.54 \pm 3}$, $0^m.45$ and $0^m.32$, respectively have been noticed. The variation in B-V colour during a pulsation cycle is $0^m.14$. The V light curve of our individual observations and normal B-V colour curve covering the whole cycle, are given in Figure 1.

From the shapes of the light and colour curves, the star appears to be a short period cepheid variable. The mean values of B-V and U-B colours have been determined to be $0^m.30$ and $0^m.07$ respectively which indicate that it belongs to spectral type

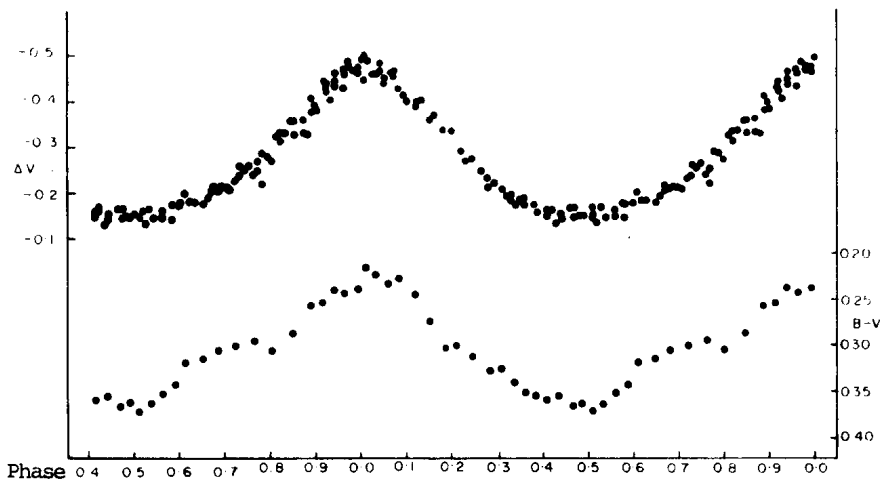


Fig. 1. Observed V light curve and B-V colour curve of HD 200925

F2 III. Using the period and B-V colour (assuming there is no reddening), determined by us, in the P-L-C relation (Gupta, 1977), the absolute magnitude (M_v) is derived to be $0^m37 \pm 0^m16$. Plotting these values of M_v and B-V in the colour magnitude diagram the star lies within the cepheid instability strip, which further supports that the star HD 200925 is a cepheid variable.

A detailed analysis of the UBV light curves and further observations are in progress.

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