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VARIABILITY OF THE HOTTER COMPONENT OF THE ECLIPSING BINARY MM CASSIOPEIAE

The eclipsing binary MM Cas ($\alpha_{1980} = 0^h53^m.4$ and $\delta_{1980} = +54^\circ20'.5$) was observed photoelectrically during 13 nights from December 1980 to September 1982 with the 104 cm telescope of the Uttar Pradesh State Observatory to obtain the full UBV light curves. The telescope was equipped with a refrigerated EMI 6094S photomultiplier and standard UBV filters. The light curve obtained in V filter is given in Figure 1, the phases have been computed according to the ephemeris:

$$\text{Min J.D. (Hel)} = 2444581.227 + 1^d.1584704\ E$$

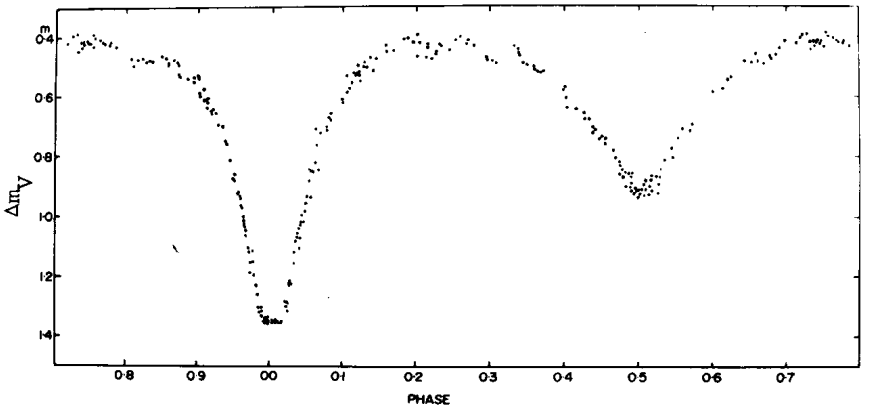

Figure 1

The V light curve of MM Cas

and the magnitude differences are referred to an anonymous star ($\alpha_{1980} = 0^h53^m.6$, $\delta_{1980} = +54^\circ20'.6$).

Figure 1 shows the presence of brightness fluctuations of amplitude $0^m.08$

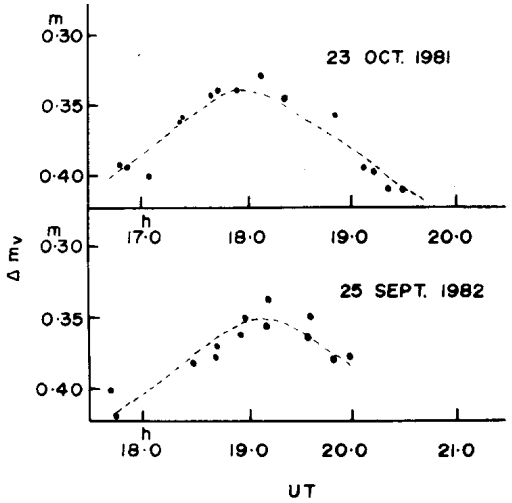

Figure 2

A representation of the light curve of MM Cas between the phases $0^p.15$ and $0^p.35$ in V filter. Note that the light curve is nearly sinusoidal.

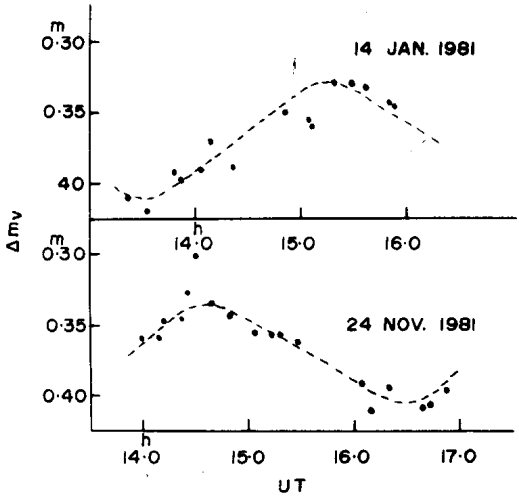

Figure 3

Same as Figure 2, but for between the phases $0^p.65$ and $0^p.85$.

and period $3^h40^m.0 \pm 1^m$. These brightness fluctuations seem to be enhanced during the secondary minima and disappear during the central phase of primary minima. This behaviour is usually expected in the case of an intrinsic variability of the hotter component which is totally eclipsed during the primary minima. The fragments of the observed light curve between the orbital phases from $0^P.15$ to $0^P.35$ and from $0^P.65$ to $0^P.85$ of the MM Cas in V filter are given, respectively, in Figure 2 and Figure 3. These observed photometric patterns and the spectral type of the primary component given by Wood et al., (1980) in light of the characteristics of Delta Scuti Stars (Breger, 1979 and Frolov, 1975) lead us to conjecture that the hotter component of MM Cas may be a Delta Scuti variable.

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