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**THREE-COLOUR PHOTOMETRY OF MM HERCULIS
DURING 1998–1999**

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Name of the object:	
MM Her = BD +22°3245 = HD 341475	
Equatorial coordinates:	Equinox:
R.A. = 17 ^h 58 ^m 35 ^s .99 DEC. = 22°08′78″	1999
Observatory and telescope:	
Ege University Observatory, 48-cm Cassegrain telescope	
Detector:	Hamamatsu, R4457 (PMT)
Filter(s):	<i>B</i> , <i>V</i> and <i>R</i> filters of Johnson <i>UBV</i> system
Comparison star(s):	BD +21°3274 = HD 341480
Check star(s):	BD +22°3250 = HD 164306
Transformed to a standard system:	UBV
Standard stars (field) used:	Pleiades stars
Availability of the data:	
Upon request	
Type of variability:	EA

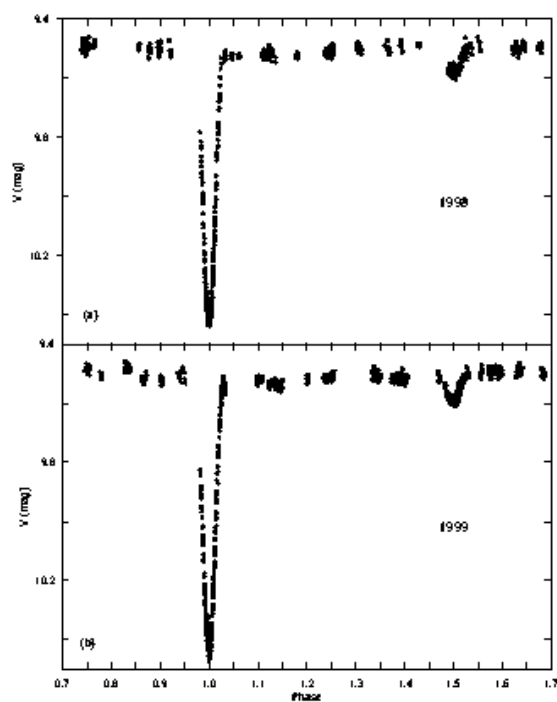


Figure 1. The light curves of MM Herculis obtained in 1998 and 1999.

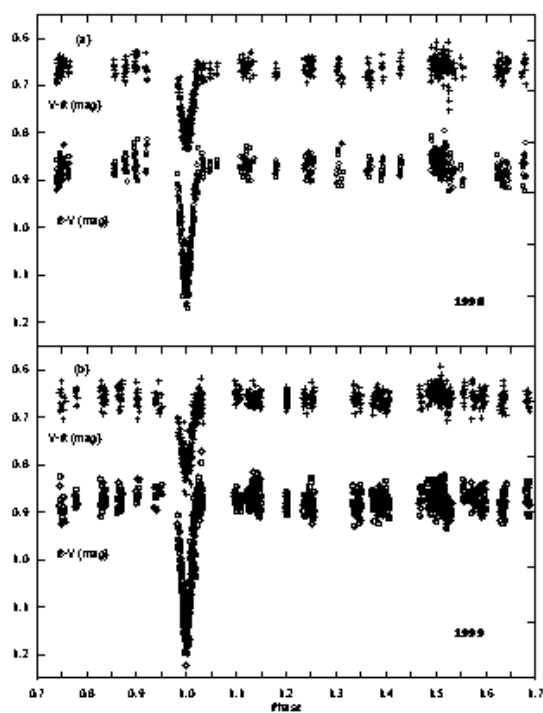


Figure 2. The colour curves of MM Her obtained in 1998 (upper panel) and 1999 (bottom panel). The open circle and plus symbols indicate $B - V$ and $V - R$ colours, respectively.

Remarks:

The eclipsing binary MM Herculis is one of the most active binary systems in the class of RS CVn stars. The system was first observed visually by Tsesevich (1954). Recently, its light variations were examined by Heckert and Ordway (1995), Evren and Taş (1999) and Taş et al. (1999). Our observing run includes 42 nights between May 5 and October 8, 1998 and 45 nights between March 1 and October 6, 1999. We obtained 749 and 912 data points for each colour in 1998 and 1999, respectively. The light (in V) and colour (in $B - V$ and $V - R$) curves obtained in these years are shown in Figures 1a,b and 2a,b. The phase of each observation was computed by the following light elements

$$\text{HJD}_{\text{minI}} = 2445551.4274 + 7^{\text{d}}960326 \times E.$$

Wave-like distortions outside the eclipses are clearly seen from Fig 1. The amplitudes of the waves are about $0^{\text{m}}04$ and $0^{\text{m}}05$ in 1998 and 1999, respectively. The light variations seen outside eclipses are caused by star spots and the distortion waves possess two minima separated by almost half a period. The brightness at mid-primary minimum of the system obtained in 1999 is about $0^{\text{m}}04$ fainter than the one in 1998.

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References:

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