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NEW PHOTOELECTRIC PHOTOMETRY OF MM HERCULIS

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Name of the object:	
MM Her = BD +22°3245	
Equatorial coordinates:	Equinox:
R.A. = 17 ^h 58 ^m 31 ^s .11 DEC. = 22°08'50	1997
Observatory and telescope:	
Ege University Observatory, 48-cm Cassegrain telescope	
Detector:	Hamamatsu, R 4457 (PMT)
Filter(s):	B, V and R filters of Johnson UBV 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
Remarks:	
<p>MM Herculis is a member of RS CVn type eclipsing binaries showing wave-like light variation in their light curves out of eclipses. Its light variations were investigated by Sowell et al. (1983) and Evren (1985; 1987a,b) in detail. The present observations of MM Her were obtained on 22 nights in 1997, and on 42 nights in 1998. The light curve obtained in 1997 of the system shows clearly the sine-like distortion. The amplitude of the variation is approximately 0.1 mag. B–V colour curve has its maximum at the phase of minimum brightness. The shape of the light curve obtained in 1998 differs from that in 1997. The wave-like distortion is asymmetric in shape rather than being sinusoidal. If the distorting effects were due only to the cool spots the colour would get reddened at the phase of minimum brightness. But this reddening is only seen in the V–R curve obtained in 1997. The reason of the blueing in B–V should not be related with the cool spots. This phenomenon can be understood by assuming existence of a facular network or a facular structure, which surrounds the spots, hotter than the photosphere.</p>	

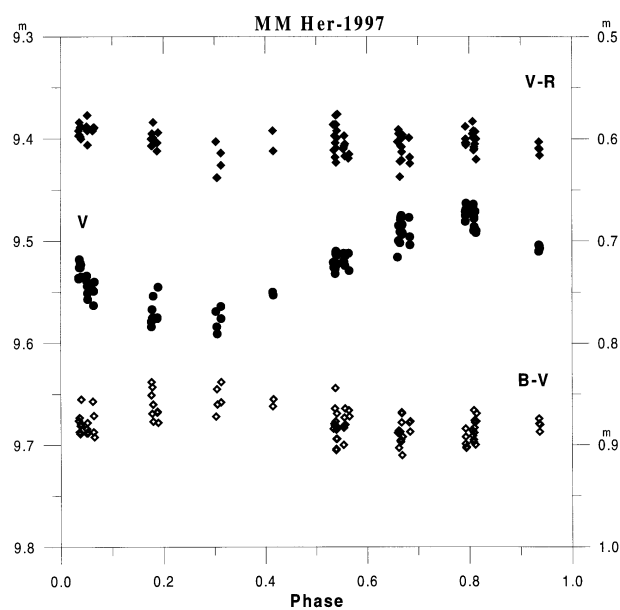


Figure 1. The light and colour curves of MM Her obtained in 1997

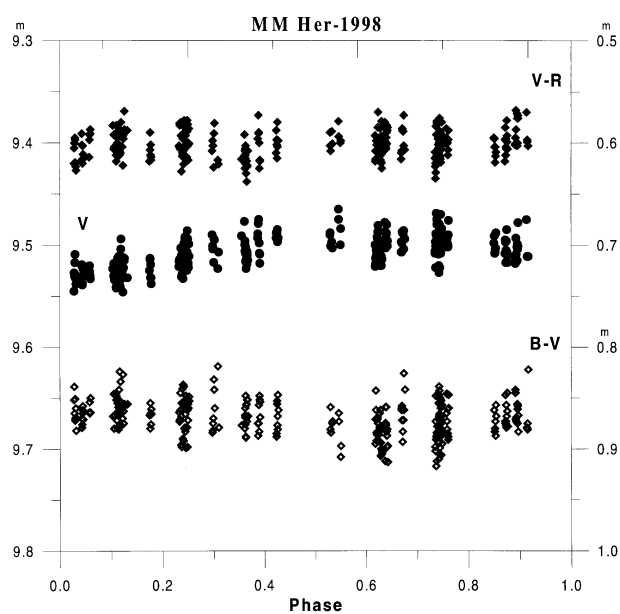


Figure 2. The light and colour curves of MM Her obtained in 1998

References:

- Evren, S., 1985, *Astrophys. Space Sci.*, **108**, 113
 Evren, S., 1987a, *Astrophys. Space Sci.*, **137**, 151
 Evren, S., 1987b, *Astrophys. Space Sci.*, **137**, 357
 Sowell, J.R., Hall, D.S., Henry, G.W., Burke, E.W. Jr. and Milone, E.F., 1983, *Astrophys. Space Sci.*, **90**, 421