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NEW PHOTOELECTRIC OBSERVATIONS
OF VW CEPHEI

VW Cep is a short period variable star (HD 197433 = BD + 75^o752). It is the brightest member of contact binaries of W-type (Binnendijk, 1970). This system was discovered as a variable star by Schilt in 1926. It was the subject of intensive study by various investigators. The irregularities in its light curves and the changes in its period have led to different assumptions and explanations to understand this system. Small humps seem to appear close to the primary minimum. It is believed that these humps are produced by emissions from a hot spot formed by a gas stream impacting on a circumstellar shell around the hotter component (Pustylnik and Sorgsepp, 1976). Yamasaki (1982) attempted to explain the irregularities and peculiarities in the light curve of VW Cep in terms of star-spot model. According to his result the star-spot moves on the stellar surface toward decreasing longitude with a period of about 2 years. Also this system suffers from both erratic and periodic changes in the orbital period. These changes could be due to the distortion in the light curve or due to the light-time effect. Some other investigators attributed these changes to mass transfer between the two components (Karimie, 1983 and Niarchos, 1984).

The present observation of VW Cep were made on the nights of 23 and 26 of September, 1985. The 50 cm cassegrain telescope at Byurakan observatory in Armenia (U.S.S.R.) equipped with a single-channel photoelectric photometer furnished with an unrefrigerated RCAC 31034 A photomultiplier tube was used.

The stars chosen for comparison and check purposes are HD 195191 and 197665 respectively. The estimated uncertainties for the single observations are of order 0.^m006 in B filter and 0.^m005 in V filter. The points which define the B and V light curves and B-V colour curve are potted in Figure 1.

New times of minima have been obtained with Kwee and Van Woerden's method (1956). The following ephemeris formulae (Kukarkin et. al. 1974)

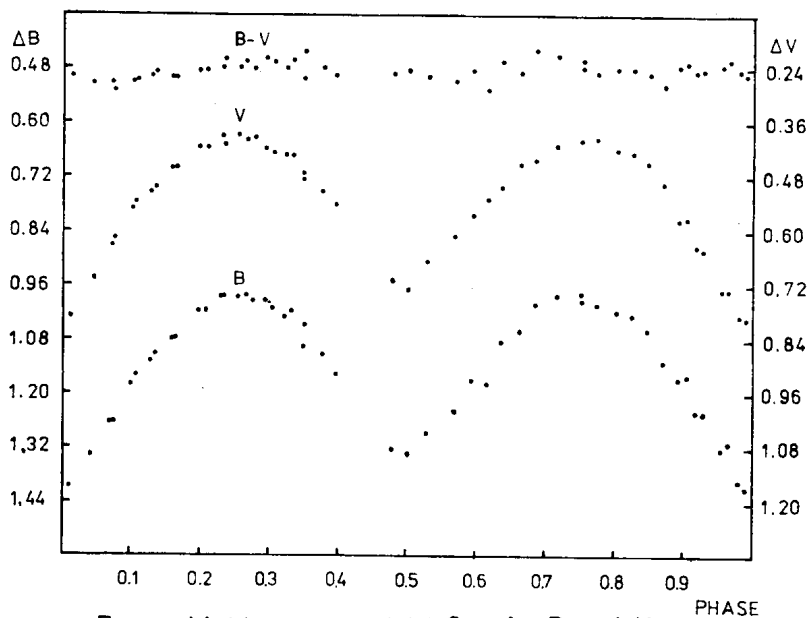


Fig. 1 Light curve of VW Cep in B and V

have been used:

$$\text{Min I (Hel.)} = 2439348.415 + 0.^d.278314E$$

The new moments of minima are as follows:

HJD	Min	O-C
2446333.4139	II	0.01328
2446336.3354	I	0.01249

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References:

- Binnendijk, L., 1970, *Vistas in Astronomy*, 12, 217.
 Karimie, M.T., 1983, *Astrophys. Space Sci.*, 92, 53.
 Kukarkin, B.V., et al., 1974, *Second Suppl. to the Third Edition of the General Catalogue of Variable Stars*, Moscow.
 Kwee, K.K. and Van Woerden, H., 1956, *Bull. Astron. Inst. Neth.*, 12, 327.
 Niarchos, P.G., 1984, *Astron. Astrophys. Suppl. Ser.*, 58, 261.
 Pustynnik, I. and Sorgsepp, L., 1976, *Acta Astron.*, 26, 319.
 Yamasaki, A., 1982, *Astrophys. Space Sci.*, 85, 43.