

PHOTOMETRY OF THE ECLIPSING BINARY V1481 Cyg IN THE OPEN CLUSTER NGC 7128

MAMNUN ZAKIROV

Astronomical Institute, Uzbek Academy of Sciences, e-mail: mamnun@astro.gov.uz

The variability of V1481 Cyg (= HBV472; $m=12.1 - 12.6$ pg; Sp:B2V) was discovered by Kohoutek (1972). The star lies in the center of the very compact ($D = 3''.2$) young open cluster NGC 7128. There are only photographic (B,V,R) observations of the variable made by Alksnis (1973). He determined the period of V1481 Cyg and it was classified as an EB type eclipsing binary. The ephemeris for minima is:

$$MinI = JD2440040.61 + 2^d7634 \times E$$

Our UBVR photoelectric observations of the binary were carried out with 1m and 0.6m telescopes at Mt.Maidanak Observatory (Uzbekistan) in 1993–1995. The star No. 2 of Hoag et al. (1961) catalogue was chosen as a comparison one ($V = 10^m13$, $U - B = 0^m24$, $B - V = 0^m36$, $V - R = 0^m28$). Total number of the measurements are 126 in U, 170 in B, 220 in V and 172 in R. In accordance with our estimation the probable error of a single observation of V1481 Cyg is 0^m05 in U, 0^m013 in B, 0^m008 in V, 0^m009 in R.

Having used all times of brightness weakening we improved the ephemeris of the binary by the method of least squares, as follows:

$$MinI = JDH2440040.707 + 2^d763252 \times E \\
\pm 0.015 \quad \pm 0.000007$$

This ephemeris was used to calculate the O–C residuals in Table 1.

Table 1

<i>Observers</i>	<i>JDH24...</i>	<i>E</i>	<i>O – C</i>
<i>Alksnis, Začs</i> (1981)	40731.470	250	-0^d050
	40944.300	327	+0.009
<i>Kohoutek</i> (1972)	41151.489	402	–0.045
	41187.487	415	+0.030
<i>Alksnis, Začs</i> (1981)	41259.293	441	–0.008
	41596.452	563	+0.034
	41911.465	677	+0.036
<i>Present paper</i>	49170.442	3304	–0.049
	49173.266	3305	+0.011
	49579.447	3452	–0.006
	49582.246	3453	+0.030

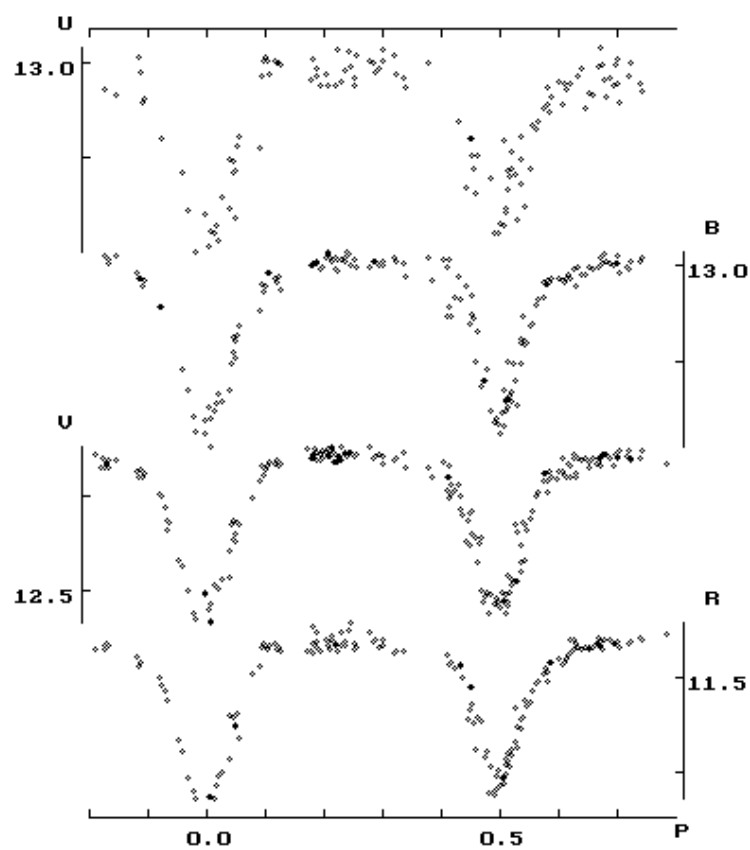


Figure 1.

The U, B, V, R light curves are shown in Figure 1. Their mean characteristics are listed in Table 2.

Table 2

<i>Phase</i>	<i>V</i>	<i>U - B</i>	<i>B - V</i>	<i>V - R</i>
<i>Max</i>	12.14	0.11	0.86	0.73
<i>MinI</i>	12.55	0.07	0.89	0.74
<i>MinII</i>	12.54	0.04	0.89	0.75

References:

- Alksnis, A., 1973, *Astron. Tsir.*, No. 761, p.7
 Alksnis, A., Začs, L., 1981, *Peremen. Zvezdy*, **21**, 499
 Hoag, A.A. *et al.*, 1961, *Publ. Naval. Obs.*, XVII, Part VII, 439
 Kohoutek, L., 1972, *IBVS*, No. 683