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PHOTOELECTRIC LIGHT CURVE OF V502 Oph

V502 Oph is a W UMA type eclipsing system with components of spectral types: G2V + F9V (Binnendijk 1969). The system shows variability in the period and in its light curve shape (Maddox and Bookmyer 1979).

The new observations were made at the Astronomical Station of the Jagiellonian University in Bieszczady Mountains using a 20 cm refractor equipped with a one-channel photometer with blue and yellow filters. The FEU 92 Russian photomultiplier was used. Observations were carried out during two seasons: 1985 and 1986, using BD + 1°3300 as the comparison star. Measurements were corrected for atmospheric extinction making use of the mean coefficients for the station and next, they were reduced to the UBV system (the reduction procedure was described by Flin et al. 1985). We were able to determine five moments of minima. The results are presented in Table I.

Phases in the paper were calculated with the following elements:

$$\text{Min. I. (HJD)} = 2446555.5244 + 0.^d.45339293 \cdot E$$

In order to obtain the physical parameters of the system we used the Wilson-Devinney code: DCOMP (Wilson 1979). The following parameters were adjusted: inclination and mass ratio of the system, temperature of the second component, luminosity of the primary component and its Roche potential. Calculations were performed in mode 3 of the code simultaneously in both filters, assuming that there is no third light in the system. As the starting mass ratio we adopted its spectroscopic value (Struve and Gratton 1948), for temperatures of components, the values corresponding to their spectral types (Allen 1965).

Table I
Times of minima of V502 Oph

min	time (HJD)	filter
primary	2446530.5866±0.0004	V
primary	2446555.5244±0.0004	V
primary	2446915.5165±0.0003	B
secondary	2446528.5488±0.0005	V
secondary	2446529.4572±0.0005	V

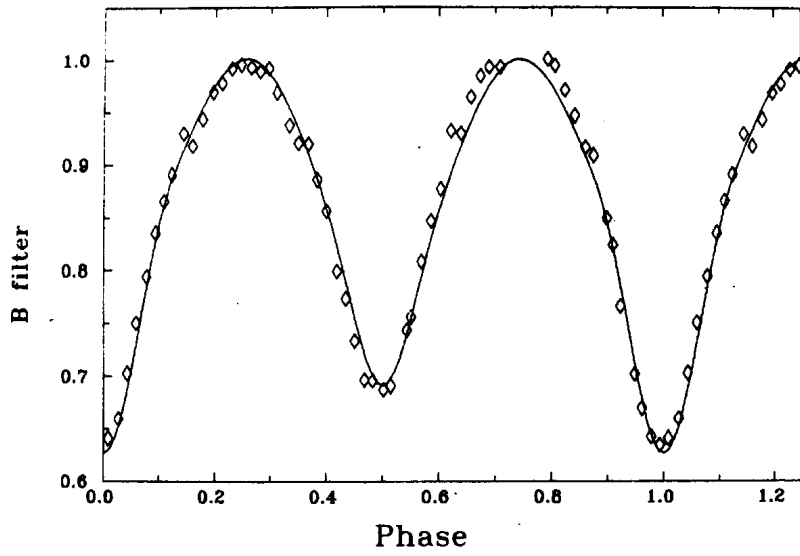


Figure 1

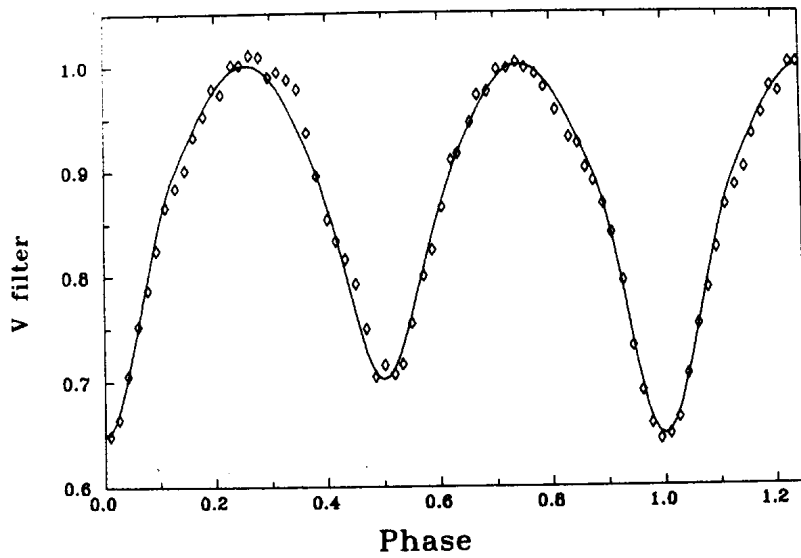


Figure 2

Table II
Parameters of V502 Oph

wavelength independent:

i	T_1	T_2	g	A	Ω	q
$70.2 \pm .2$	6140	5750 ± 30	0.32	0.50	$6.072 \pm .025$	$2.64 \pm .01$

wavelength dependent:

	L_1	L_2	X
B	4.682 ± 0.009	7.863	0.78
V	4.498 ± 0.008	8.062	0.65

The limb darkening coefficients were taken from the tables published by Al Naimiy (1978) for bolometric albedo and gravity darkening we assumed their theoretical values. The starting value for the inclination was assumed to be 70° . The results of light curve synthesis are listed in Table II and graphically presented in Figure 1 and Figure 2 (B and V filters respectively).

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