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ON THE LIGHT VARIABILITY OF V530 Cyg

It is not clear what type of light variability an interesting star V530 Cyg shows. During the past four decades the variable was considered as an eclipsing system (Hoffmeister, 1949), as an irregular star of RW Aur type (Meinunger, 1966), and even as a non-variable (Philip'ev, 1980).

Our UBVR photoelectric measurements of V530 Cyg were carried out during the period of 1966-1983 on 107 nights with a single-channel pulse-counting photometer. The 0.5 m reflector was used firstly in Kiev, then, after 1971, at Caucasus (Peak Terskol, h=3100 m). Besides, the brightness of V530 Cyg was sixty times estimated visually but no noticeable light fading has been recorded. During 167 nights the star showed only three plausible light fadings with an amplitude near $0^m.5$ in V (Figure 1). In other cases the average V-magnitude and colour indices were:

$$V=11^m.75 \quad U-B=0^m.26 \quad B-V=0^m.61 \quad V-R=0^m.50.$$

Julian date of the three minima along with V-magnitudes and colour indices are presented in Table I.

Table I

J.D.	V	B-V	U-B	V-R
24 39685.434	12.28	0.58	0.31	-
42278.280	12.27	0.65	0.22	-
45226.419	12.27	0.55	- 0.05	0.63

One should consider the photometric features as evidence for eclipsing nature of variability since a formal period

$$P = 35^d.519958$$

fits the minima observed. But that is not the case.

At first, period P contradicts to our observations on J.D. 2441958 and J.D. 2442313 as well as Philip'ev's ones on J.D.2443699 when the stellar brightness was normal.

Secondly, the colour indices B-V and particularly U-B noticeably vary from one minimum to another.

The duration of the fading stage is unknown. However, in two of three cases

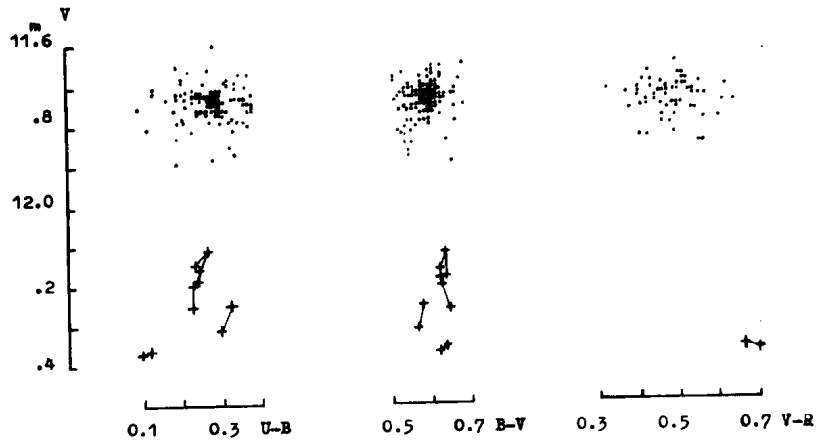


Figure 1. Nightly mean U-B, B-V and V-R colour indices versus V-magnitudes of V530 Cyg. Individual colour indices at minimum are denoted with +.

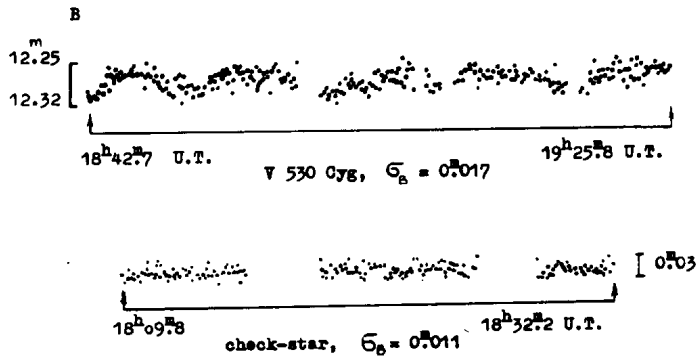


Figure 2. Comparison of the B-monitoring data of V530 Cyg and check-star on J.D. 2442724. Check-star has no catalogue identification.

the star was bright one day before and one day after the minima. That points out to the short time scale of the minima.

On the night of J.D. 2442724 V530 Cyg showed rapid light variations with the amplitude about 0.05^m . The characteristic time of the variations seems to be near 3 minutes (Figure 2, upper part). No light variations have been previously found when monitoring the reference star in B with an accuracy of 0.011^m (Figure 2, lower part).

While the star is getting dimmer the colour indices slightly vary. The UV radiation increases and the long-wave radiation decreases at minimum light as the colour indices U-B and V-R change in opposite direction. The B-V remains unchanged. Such photometric and colorimetric behaviour implies that the cause of variations has the physical rather than geometrical nature. So the variable star would be considered as a rapid irregular variable star with non-periodic random light fadings.

In contrast to the other stars similar to V530 Cyg no clear evidence was found for a presence of the H α emission. Earlier spectral investigation of Zaitseva and Esipov (1972) and our 5 spectrograms of H α region showed a shallow H α absorption line. Shallow profile of the line seems to be preferentially associated with the undetected trace of H α emission.

UBVR data will be published in the forthcoming issues of the *Perem. Zvezdy* (Variable Stars).

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