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PHOTOELECTRIC LIGHT CURVES OF V523 CASSIOPEIAE

The present observations of V523 Cas were made on three nights during October, 1986. The 24 inch F/13.5 reflector at Lowell Observatory was used with standard Johnson B,V filters and a thermoelectrically cooled EMI 6256 photomultiplier tube. The comparison and check stars were BD 49°0160 and BD 49°0151, respectively. Approximately 460 observations were obtained at each effective wavelength.

Six epochs of minimum light were determined, using the Hertzsprung technique (1928), from observations made during three primary and three secondary eclipses. These are given in Table I.

Table I

JD Hel. 2446700+	Minimum	Cycles	(0-C)
6.66816	I	-9.0	0.0002
7.71907	II	-4.5	-0.0005
7.83668	I	-4.0	0.0003
7.95309	II	-3.5	-0.0002
8.65443	II	-0.5	0.0001
8.77141	I	0.0	0.0002

The ephemeris given by Lavrov and Zhukov was based on both photoelectric and photographic observations. Since Bradstreet retains their initial epoch in his improved ephemeris, a new ephemeris based on photoelectric observations only is needed.

However, a least squares fit to all available photoelectric minima (which cover a span of about 23,500 cycles) leads to large 0-C's. This result is apparently due to a change in the period of the system since Lavrov's and Zhukov's observations. This matter will be discussed at length in a forthcoming paper. Due to these considerations, an improved ephemeris has been calculated based on the photoelectric minima determined subsequent to Lavrov's and Zhukov's observations. The minima listed in Table I along with the eighteen other photoelectric minima of Bradstreet (1981) and Hoffman (1981) were introduced with equal weights into a least squares solution to obtain the following improved ephemeris:

JD Hel Min. I =
$$2446708.7712 + 0.23369145$$

 $\pm 2 \pm 2 \text{ (p.e.)}$

This ephemeris was used in calculating the O-C's in Table I, and in determining the phases in Figure 1.

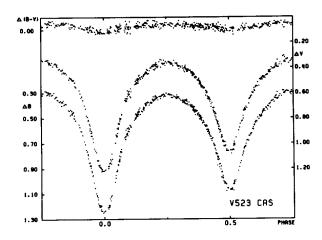


Fig. 1 - Light curve of V523 Cas defined by the individual observations,

The B and V light curves of V523 Cas defined by the individual observations are shown in Figure 1 as Δm versus phase. The analysis of the observations is underway.

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