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V LIGHT CURVE OF CC COMAE

The eclipsing binary CC Com is a system of W UMa type with the shortest known period. The first photoelectric observations in the V band were made by Wenzel (1967). Rucinski (1976) found the elements of this binary from his UBV observations. Two-colour light curves of CC Com were also obtained by Zhukov (1976) and by Breinhorst and Hoffmann (1982).

New light curves in V were obtained with the 60 cm reflector of the Southern Station of Sternberg Astronomical Institute in April 1983. The mean error of one observation did not exceed $\pm$ $0^m.02$. Figure 1 shows the mean light

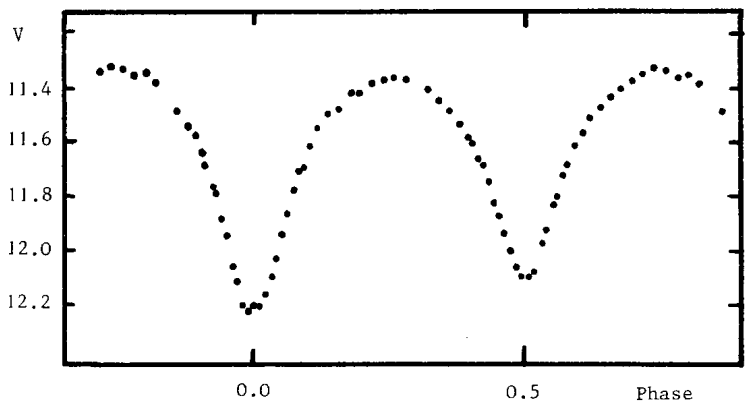

Figure 1

curve of CC Com. The times of minimum light observed in 1980 and 1983 are given in Table I with (O-C)'s calculated by the following ephemeris formula:

$$JD_{hel.}\ \text{Min I} = 2442467.8307 + 0^d.2206862 \cdot E,$$

where Rucinski's epoch has been taken.

Table I

JD_{hel} 2444000+	Min	(O-C)
584.4316	I	$-0^d.0004$
672.3763	II	+0.0008
1434.5162	I	+0.0009
1435.5087	II	+0.0003
1436.2814	I	+0.0006

Analysis of all photoelectric observations of CC Com leads to the following conclusions:

1. The mean light of the variable star in maxima observed in different seasons varies. This may be due to a physical variability of the third hypothetic component of the system. It may also be due to a long-period variability of Wenzel's comparison star "a", but more thorough studies are needed. However, the differences between the V-values of the comparison star and that of the control star are about the same in 1975 and 1983 and these are $0^m.083$ and $0^m.075$, respectively.

2. O'Connell's effect has been found with five light curves in the V-system. This effect is of cyclic character, moreover it takes place at maximum I (phase 0.25).

3. The secondary minimum in yellow light had an invariable shape and depth during the period of the observations of the CC Com (taking into account the above remark - point 1.)

4. The binary has a variable period but it is difficult to decide on the nature of the change from the appearance of the (O-C) diagram (see Fig.2).

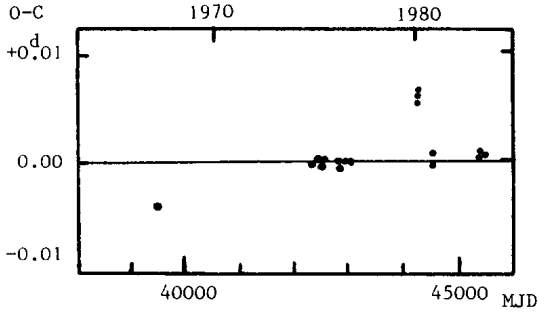

Figure 2

5. During 1975 I discovered short-lived depressions at the light curve together with the colour changing of CC Com. Such depressions are revealed by the observations of Rucinski (1976) as well. The character of these depressions and their position at the light curve (phase 0.36-0.38 and 0.84-0.89) enable us to suppose the existence of nonstationary gaseous streams from the primary or at least to establish definitely the nonstability of the common envelope of the system in the vicinity of point L1.

In conclusion I wish to draw attention to the same peculiarities discovered by us for the light curves of V 523 Cas, which has characteristics similar to those of CC Com.

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