

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2043

Konkoly Observatory
Budapest
1981 November 16
HU ISSN 0374-0676

PHOTOELECTRIC LIGHT CURVES OF CK BOOTIS (HD 128141)

The system, which was discovered to be a binary of WUMa type by Bond (1975), has been observed in two colours with the 30 cm Maksutov telescope of the Ankara University Observatory. Bond's comparison star, HD 128128, was adopted. HD 128186 and BD +09°2919 were used as check stars.

Two light curves obtained in 1977 and 1978 are presented in Figs. 1 and 2, respectively. The phases were calculated from the formula (Aslan, 1978):

$$\text{HJD } 2442897.3759 + 0^{\text{d}}.3551501 \text{ E}$$

The light curve displays typical W UMA type features with a scatter of individual observations that is more than expected from observational errors alone; the mean rms error of a single differential measure is about $0^{\text{m}}.015$ in both colours. The most important property of the light variation is the interchanging depths of the eclipses. Such behaviour has been observed in AC Boo, AM Leo and TZ Boo. Hoffmann (1978,1980) has recently discussed his observations of TZ Boo in some detail.

The minimum at phase 0.0, which will be called arbitrarily the primary minimum, is seen to be the fainter one in Fig.1, but in the observations of Bond, it was the brighter. In 1978 observations in Fig.2, the sense has reversed again.

The primary minimum was fainter than the secondary in 1977 (Fig.1) by $0^{\text{m}}.02$ in v and $0^{\text{m}}.03$ in b. In 1978 (Fig.2) the minima were almost equally deep, the secondary being slightly deeper by about $0^{\text{m}}.015$ in b, but not more than $0^{\text{m}}.01$ in v.

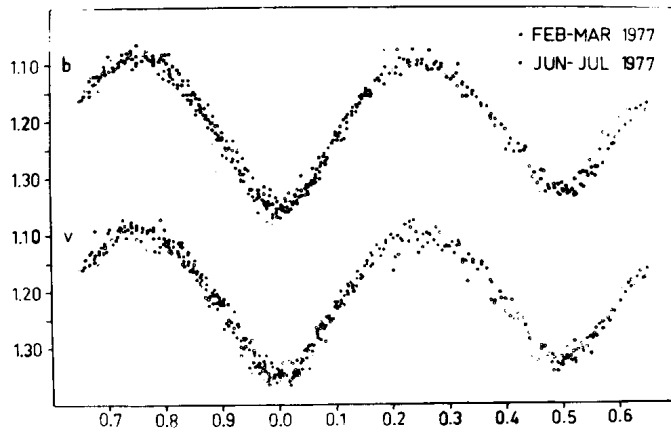


Figure 1

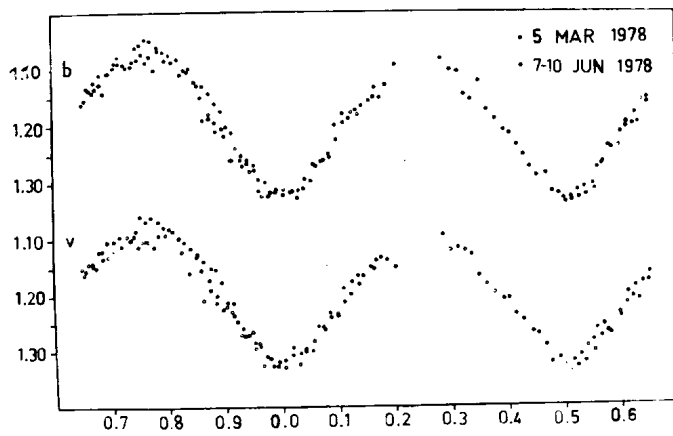


Figure 2

Comparing the 1977 and 1978 light curves, it is seen that there was hardly any change in the brightness of the secondary minimum but the primary minimum became brighter in 1978 by about $0^m.03$ in v and $0^m.04$ in b, with a large scatter from night to night. This presumably indicates that the source of the changes is the eclipsing component during the primary minimum.

Another feature of the light curve is that the maximum preceding the primary minimum is brighter than the maximum following the primary minimum, the phasing being the same as in Bond's light curve, save the interchange of the depths of the eclipses. Maxima attained in 1977 and in 1978 light curves were almost the same with the exception of 5th March 1978, on which the system was decidedly brighter near the phase 0.75, with no difference in the level of the minimum.

Any change in b-v colour index over the period is less than $0^m.01$. The observations, together with those in 1981 will be given elsewhere.

This work has been supported by TÜBİTAK (the Scientific and Technical Research Council of Turkey).

Z.ASLAN, M.GÖREN, E.DERMAN
Ankara University Observatory
A.Ü. Fen Fakültesi
Ankara, Turkey

References :

- Aslan,Z. 1978, IBVS No.1462
Bond,H.E. 1975, P.A.S.P. 87, 877
Hoffmann,M. 1978, Astron. Astrophys. Suppl. 33, 63
Hoffmann,M. 1980, Astron. Astrophys. Suppl. 40, 263