COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 3162

Konkoly Observatory
Budapest
22 March 1988
HU ISSN 0374-0676

PHOTOELECTRIC OBSERVATIONS OF THE ECLIPSING BINARY V676 CENTAURI

Based on photographic observations, the first light curve of V676 Cen ($\alpha = 14^h34^m42^s$, $\delta = -38^o37!7$, 1950.0) was given by Hoffmeister (1956). He determined a difference between minima of the order of 0.1 magnitudes and classified this variable as a W UMa-type system. Besides, Hoffmeister obtained 83 times of minimum which gave the following ephemeris:

$$\text{Min I} = \text{J.D. hel } 2434425.555 + 0^d.292397\ E \qquad (1)$$

So far, no other observations of this star have been published. During 1987 this twelfth magnitude short period eclipsing binary was observed photoelectrically in the UBV system using the 76 cm. and the 154 cm. telescopes of El Leoncito (San Juan, Argentina) and Bosque Alegre (Córdoba, Argentina) stations, respectively. At El Leoncito an RCA 34031 (A) photomultiplier refrigerated by Peltier effect and photon-counting electronics were used. The observations at Bosque Alegre were performed by means of an RCA 1p21 photomultiplier refrigerated with dry ice. Standard UBV filters were employed

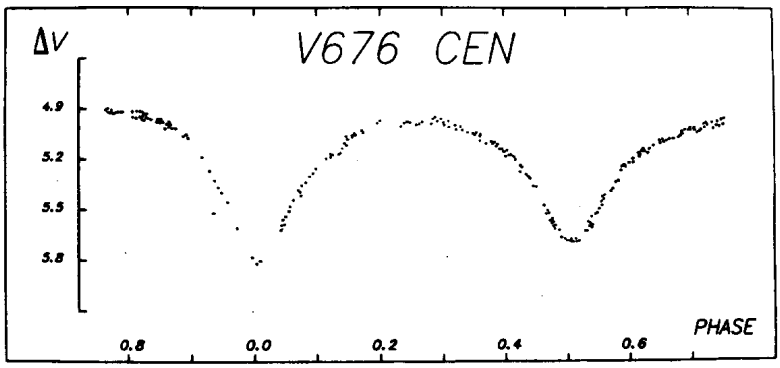

Figure 1, V light curve of the eclipsing binary V676 Centauri

Table I. Photoelectric times of minimum light of V676 Centauri

Min	JD hel. 2440000.+	E	O-C
II	6965.6195	-20.5	-0.00171
II	6965.6199	-20.5	-0.00131
II	6965.6167	-20.5	-0.00151
I	6971.6167	0.0	0.00149
I	6971.6167	0.0	0.00149
I	6971.6155	0.0	0.00029
II	6973.5174	6.5	0.00165
II	6973.5163	6.5	0.00055
II	6973.5184	6.5	0.00265
II	6975.5618	13.5	-0.00068
II	6975.5607	13.5	-0.00178
II	6975.5617	13.5	-0.00078
II	6978.4869	23.5	0.00052
II	6978.4867	23.5	0.00032
II	6978.4858	23.5	-0.00058
I	7007.5860	123.0	0.00111
I	7007.5814	123.0	0.00221
II	7008.6001	126.5	-0.00246
II	7008.6011	126.5	-0.00146

in both cases. The measurements were made differentially with respect to the comparison star HD128488. All the observations were corrected by first and second order differential extinction using mean coefficients for both observatories.

A total of 1326 UBV observations were derived and from them 19 new times of minima were calculated. These times of minima were used to deduce the following linear least squares ephemeris:

$$\text{Min I} = \text{Hel. J.D. } 2446971.61521 + 0^{d}.2923901\ E \qquad (2)$$
$$\pm 0.00034 \quad \pm 0.0000057$$

The photoelectric minima together with the epoch number and O-C residuals calculated from the ephemeris given in equation (2), are listed in Table I. As shown in the table, the difference between the observed minima and those calculated from ephemeris (2) yield very small randomly distributed O-C residuals, all being smaller than 0.003 day.

Although the coverage of the photoelectric light curve (Figure 1) is not complete, there is no doubt that we are dealing with a close (contact) system. The continuous light variation due to proximity and reflection effects of the components outside eclipses is easily recognized. Besides, the difference in brightness during the primary and the secondary minima is only about $0^{m}.15$.

The observations of this variable will be continued during the next observing seasons to complete the light curves and to analyze them by means of modern

synthetic computational methods.

For assistance during observations we thank Messrs. J. Laborde, J.R. Puerta and J. Ahumada. Also we express our gratefulness to the Director of Felix Aguilar Observatory for the observing time.

This work was partially supported by the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) of Argentina.

M. GÓMEZ, E. LAPASSET

Observatorio Astronómico,
Universidad Nacional de Córdoba
Laprida 854, 5000 Córdoba,
Argentina

Reference:

Hoffmeister C., 1956, Veröffentlichungen der Sternwarte zu Sonneberg, Band 3, Heft 1, p. 43.