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ACCURATE BV LIGHTCURVE OF THE ECLIPSING BINARY V1898 Cyg

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Name of the object:	
V1898 Cyg = HD 200776	
Equatorial coordinates:	Equinox:
R.A. = 21 ^h 03 ^m 53 ^s .8 DEC. = +46°19'50"	2000
Observatory and telescope:	
28-cm Schmidt–Cassegrain telescope	
Detector:	Optec SSP5 photoelectric photometer
Filter(s):	BV
Date(s) of the observation(s):	
From July 22, 2003 to September 17, 2004	
Comparison star(s):	HD 200595 (B3V); adopted magnitudes $V = 6.486$, $B - V = -0.137$ transformed from Tycho-2 V_T , B_T values following Bessell (2000); the same comparison star adopted by McCrosky and Whitney (1982) and Halbedel (1985)
Check star(s):	HD 201666 (B2V); adopted magnitudes $V = 7.643$, $B - V = -0.013$ transformed from Tycho-2 V_T , B_T values following Bessell (2000)
Availability of the data:	
Available at the IBVS website and http://ulisse.pd.astro.it/V1898Cyg/index.html	
Type of variability:	EB
Transformed to a standard system:	Yes
Standard stars (field) used:	

Remarks:

Abt et al. (1972) discovered V1898 Cyg as a single lined spectroscopic binary with a period of 2.9258 days. Photoelectric photometry by McCrosky and Whitney (1982) fitted to this period was unable to provide a reasonable light curve. Later on, Halbedel (1985) obtained 110 pairs of B , V photoelectric measurements and indicated an orbital period of 3.0239 days with nearly equally deep eclipses. The Variability Annex to the Hipparcos Catalog suggests that the depth of primary and secondary eclipses should be markedly different and that the orbital period should be around half of the previously published values. Our extensive (607 points in V band, 559 in B band) and accurate (r.m.s. error 0.006 mag in B , 0.008 mag in V) photoelectric photometry provides the first complete mapping of the light and color curves (see Figure 1) of this interesting early type binary (B2III, Fehrenbach et al. 1962). The data show that the correct orbital ephemeris for primary minimum in V band is:

$$\text{Min (I)} = 2452901.3740(\pm 0.0001) + 1.51311(\pm 0.000005) \times E.$$

Heliocentric times of primary minima are 2452895.3220 (± 0.0002) and 2452901.3740 (± 0.0001) in V band, 2453246.3663 (± 0.0005) in B band.

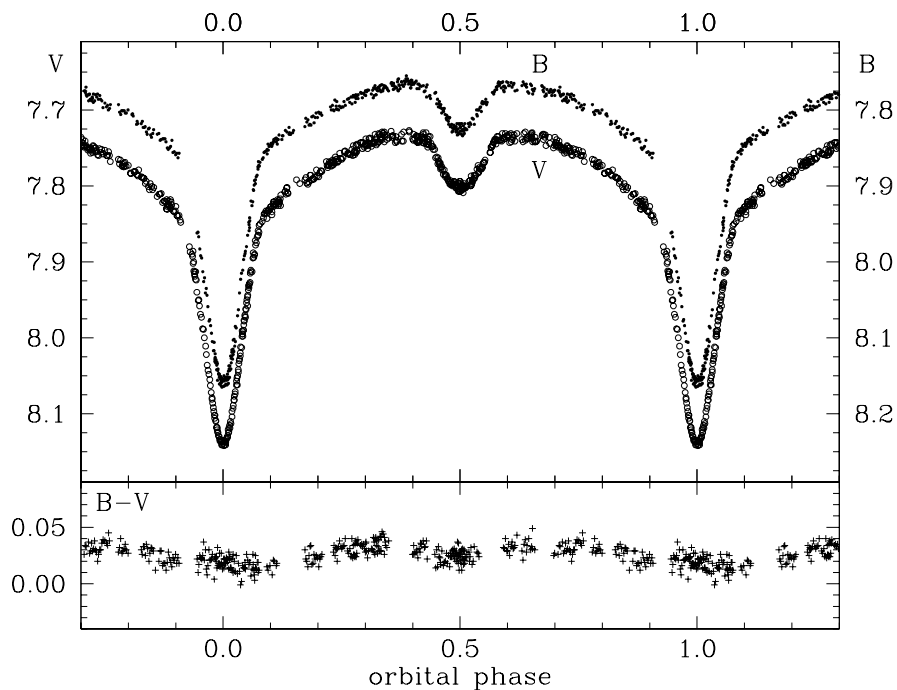


Figure 1. The complete B and V light curves and $B - V$ color curve for V1898 Cyg

References:

- Abt, H.A., Levy, S.G., Gandet, T.L., 1972, *AJ*, 77, 138
 Bessell, M.S., 2000, *PASP*, 112, 961
 Fehrenbach, C. et al., 1962, *J. Obs.*, 45, 349

Halbedel, E.M., 1985, *IBVS*, No. 2663

McCrosky, R.E., Whitney, C.A., 1982, *IBVS*, No. 2186

ERRATUM FOR IBVS 5714

The true shape of the eclipsing binary light curve and the modified, correct period of V1898 Cyg was already published in IBVS 5699/76 (2005, July 20) by Caton & Smith (<http://www.konkoly.hu/cgi-bin/IBVS?5699#76>).

The Editors