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A NEW ECLIPSING BINARY NEAR BL Cam

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Name of the object:	
W1	
Equatorial coordinates:	Equinox:
R.A.= 03 ^h 47 ^m 45 ^s .03 DEC.= 63° 28' 25".8	2000.0
Observatory and telescope:	
BOAO (Bohyunsan Optical Astronomy Observatory), 1.8m reflector (f/8, Cassegrain focus)	
Detector:	Thinned back illuminated SiTe 2048×2048 chip (11'.6 × 11'.6)
Filter(s):	<i>B, V</i>
Date(s) of the observation(s):	
JD 2451871, 2451872, 2451874, 2452269–2452272	
Transformed to a standard system:	Landolt 1992
Standard stars (field) used:	
Availability of the data:	
From the IBVS website, as 5340-t1.txt	
Type of variability:	EB

Times of minima:						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	<i>O – C</i> [day]	Rem.
W1	51871.186	0.001	I	<i>V</i>	0.0000	
	51872.163	0.001	I	<i>V</i>	–0.0015	
	51874.122	0.001	I	<i>V</i>	+0.0005	
	52272.375	0.005	I	<i>V</i>	–0.0013	

Remarks:

Time-series BV CCD photometry was performed over five nights for W1 from November 4, 2000 to December 28, 2001. Using IRAF/CCDRED package, we processed CCD images to correct overscan regions, trim unreliable subsections, subtract bias frames and correct flat field images. Instrumental magnitudes were obtained using the Point Spread Function fitting photometry routine in IRAF/DAOPHOT package (Massey & Davis, 1992). We applied the ensemble normalisation technique (Gilliland & Brown, 1988) to standardise the instrumental magnitudes of all stars in the time-series CCD frames. A new faint field eclipsing binary star ($\langle V \rangle = 19.92$ mag, $\langle B \rangle - \langle V \rangle = 0.84$ mag) was discovered.

$O - C$ values were calculated according to the following ephemeris:

$$\text{Min I} = \text{HJD } 2451871.186 + 0.326171 \times E.$$

The period is preliminary, similar solution as shown in Fig. 2 can be obtained with other periods in the 0.325-0.329 d period range.

References:

Gilliland, R. L., Brown, T. M., 1988, *PASP*, **100**, 754

Landolt, A. U., 1992, *AJ*, **104**, 340

Massey, P., Davis, L. E. 1992, A User's Guide to Stellar CCD photometry with IRAF

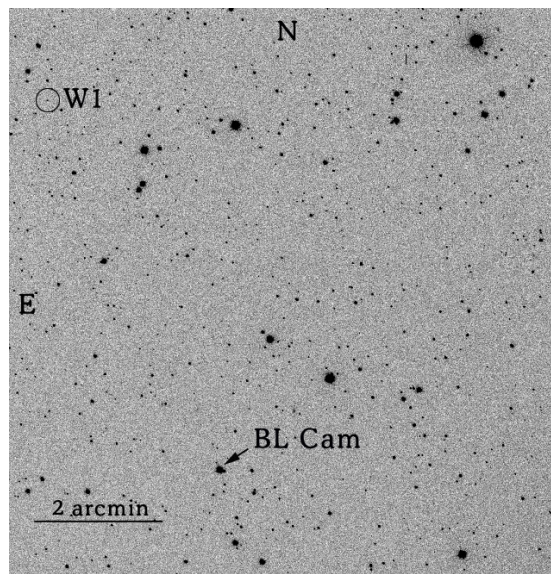


Figure 1. Finding chart of the new variable star, W1 in the field of BL Cam.

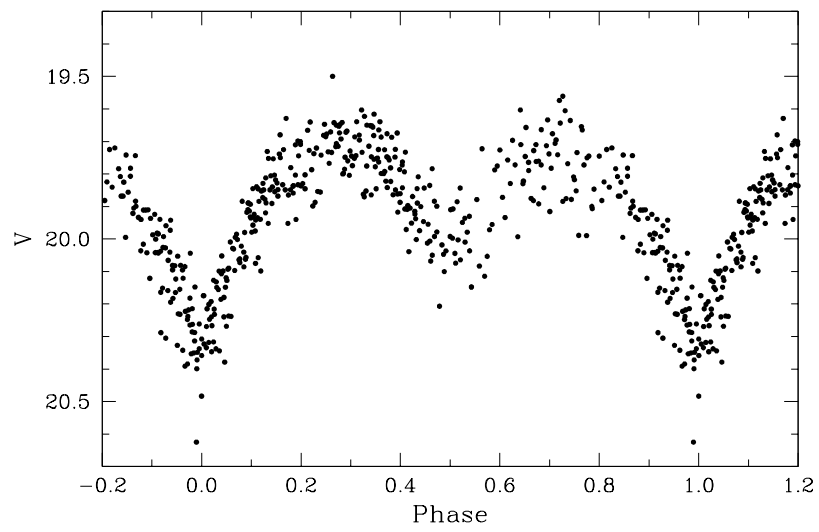


Figure 2. Light curves of the new variable star, W1.