

PHOTOGRAPHIC STUDY OF ECLIPSING BINARIES BW CAS AND AT MON

K.A. Antoniuk

Department of Astronomy, Odessa State University
T.G.Shevchenko Park, Odessa 65014 Ukraine

ABSTRACT. Photometric elements for BW Cas and AT Mon, brightness of the comparison stars and moments of 15 weakenings are determined. The period of BW Cas is twice than that previously published by Diethelm (1997).

Key words: Stars - binary - eclipsing: Individual: BW Cas, AT Mon

The investigated stars were measured on the photographic plates of the Sky Patrol of the Astronomical Observatory of the Odessa State University. The brightness of the comparison stars was determined by linking to the standards in the NGC 654 (BW Cas) and NGC 2323 (AT Mon). The brightness of the standard stars was published by Kazanazmas et al. (1979). The finding charts are shown in Fig.1. The brightness of the comparison stars is listed in Table 1. For the periodogram analysis, we have used the method described by Lafler and Kinman (1965) and realized among other algorithms in the set of computer programs by Andronov (1994). The phase curves are shown in Fig. 2-3. The moments of weakenings with corresponding magnitudes are listed in Table 2.

BW Cas. Number of pg observations $n = 184$. The ephemeris is $Min.HJD = 2445580.806 + 2.525630 \cdot E$. No period variations are detected. The secondary minimum is doubt, the range is $12^m8 - 13^m3$. Our value of the period is two times larger than that published by Diethelm (1997).

AT Mon was measured on 168 negatives. The elements are $Min.HJD = 2443596.225 + 4.29405 \cdot E$, the range $10^m95 - 11^m30$, the depth of the secondary minimum is $\leq 0^m06$.

Acknowledgement. The author is thankful to I.L.Andronov for helpful discussions.

The photometric elements:

Star	P	T_0
AT Mon	4.29405 ± 0.00015	43596.225 ± 0.003
BW Cas	2.52563 ± 0.00064	45580.806 ± 0.002

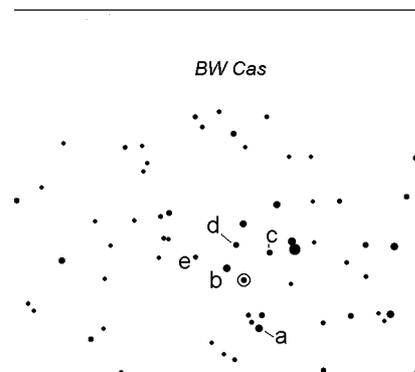
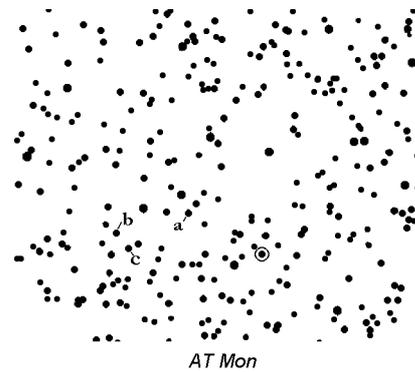


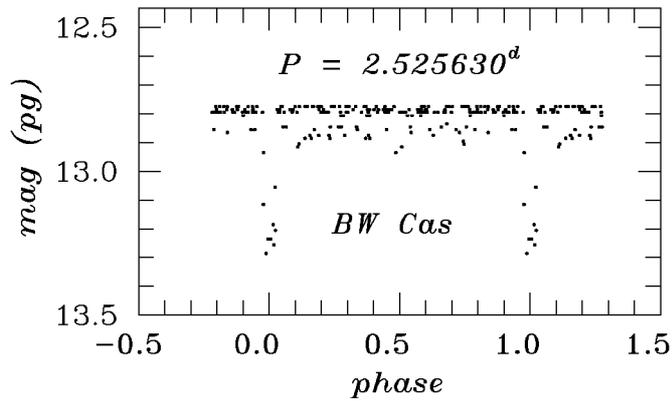
Figure 1. Finding charts for the investigated stars

Table 1. Brightness of the comparison stars.

Star	a	b	c	d	e
BW Cas	12.43	12.73	12.84	12.97	13.41
AT Mon	10.59	11.21	11.60	-	-

Table 2. Moments of weakenings and corresponding brightness.

HJD, 24.....	m_{pg}	HJD, 24.....	m_{pg}
BW Cas		BW Cas	
42331.4344	12.81	48183.4246	13.19
42801.2109	12.93	48539.4707	13.29
44109.5496	13.25	AT Mon	
44114.5420	13.10	41652.5258	11.29
45589.5185	13.24	41682.4476	11.16
46324.5416	13.26	41708.4231	11.08
46708.4750	12.79	45023.2773	11.29
47097.4057	13.06	47917.3599	10.96



References

- Andronov I.L.: 1994, *Odessa Astron. Publ.*, **7**, 49.
 Lafler J., Kinman T.D.: 1965, *Ap. J. Suppl.*, **11**, 216.
 Diethelm R.: 1997, *I.B.V.S.*, **4531**.
 Kazanasmas M.S., Zavershneva L.A., Tomak L.F.: 1982, *Atlas of the photometric standards of stellar fields*, Kiev, Naukova Dumka.

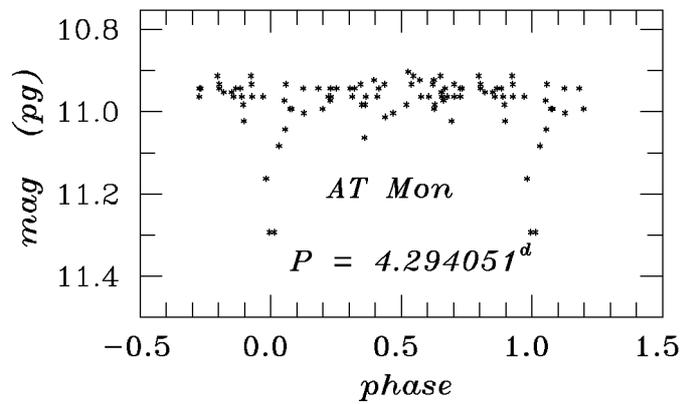


Figure 1. Phase light curves for BW Cas and AT Mon.