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PHOTOELECTRIC  $H_{\beta}^W$  AND  $H_{\beta}^N$  OBSERVATIONS OF W UMa (BD+56<sup>o</sup>1400)

The photoelectric observations of W UMa were carried out on 7 nights of April 3, 5, 6, 13, 15, 16 and 19, 1983. The observations were obtained using the 51 cm, f/13.5 cassegrain reflector at Biruni Observatory of Shiraz University. The photoelectric photometer is equipped with an unrefrigerated RCA 4509 multiplier tube and a Leeds and Northrup Speedomax was used to record the amplified signals from the photomultiplier. The observations were made using Strömberg  $H_{\beta}^N$  and  $H_{\beta}^W$  filters, the characteristics of them are given in Table I. The sequence of observations was the usual pattern of sky-comparison-variable-comparison-sky, with each reading lasting about 50 seconds.

Table I: Filter characteristics

Filter	Halfwidth (Å)	Max transmission	$\lambda$ (max) (Å)
$H_{\beta}^W$	155	86.5 %	4859
$H_{\beta}^N$	31	47.5 %	4858

The comparison star was SAO 27274 and SAO 27268 served as a check star. No significant variations were detected in the magnitude differences between the comparison and check stars. The moments of minima were obtained using Russell method according to the ephemeris (Hamzaoglu et al., 1982).

$$JD \text{ Hel Min I} = 2444986.3624 + 0^d 33363808 \text{ E}$$

The observed minimum times and (O-C) values are given in Table II.

JD Hel 2440000+	Type of Min	Filter	E	(O-C) days
5444.4468	Min I	$H_{\beta}^N$	1373	-0.0007
5444.4456	Min I	$H_{\beta}^W$	1373	-0.0019
5444.2802	Min II	$H_{\beta}^N$	1372.5	-0.0005
5444.2789	Min II	$H_{\beta}^W$	1372.5	-0.0018

One can see that the (O-C) values of the primary minimum are slightly greater than those for the secondary. The light curves are presented in Figure 1. Both light curves are asymmetrical where the maximum near 0.25 phase is brighter than the corresponding maximum at 0.75 phase. The differences in the mean heights of the maximum at 0.25 phase relative to the maximum at

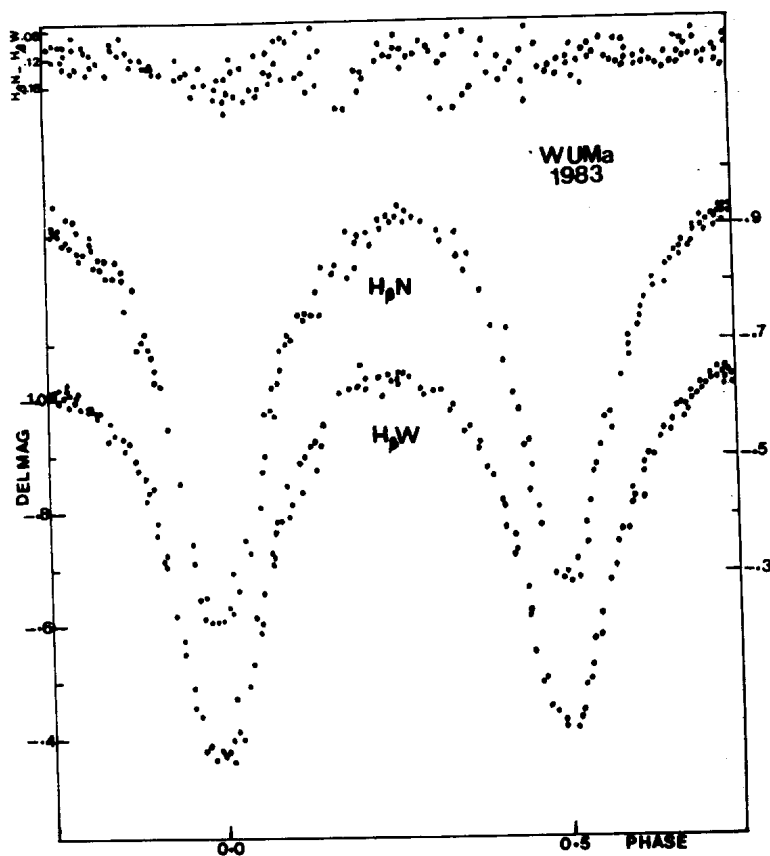


Figure 1 : The  $H_{\beta}N$  and  $H_{\beta}W$  light curves of W UMa.

0.75 phase are 0.013 mag and 0.010 for  $H_{\beta}W$  and  $H_{\beta}N$  observations respectively. The loss of light at primary eclipse relative to the brighter maximum at 0.25 phase is 0.670 mag and 0.712 mag in  $H_{\beta}W$  and  $H_{\beta}N$  respectively. Consequently the primary minimum depth is deeper than the secondary minimum.

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