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PHOTOELECTRIC BVR_C OBSERVATIONS AND NEW ELEMENTS OF THE CEPHEID HD 32456

Recently Bastian et al. (1996) and Campos-Cucarella et al. (1996) published light curves in B and V filters and light elements, based on a short time span, for the bright Cepheid HD 32456 found by Makarov et al. (1994).

To refine the published ephemeris, we have analysed photographic archival plates at Sternberg Astronomical Institute of Moscow (80 estimates) and at Astronomical Institute of Tashkent (28 estimates). We also observed HD 32456 photoelectrically at Mt. Maidanak observatory in August 1996, where the 60-cm reflector was used and 17 BVR_c measurements were obtained (Table 1); the accuracy of the individual data is near 0.01 mag in all filters. According to our data, the amplitude of the light curve (Figure 1) is $0\overset{m}{.}59$ in V, $0\overset{m}{.}27$ in $B-V$ and $0\overset{m}{.}13$ in $V-R_c$.

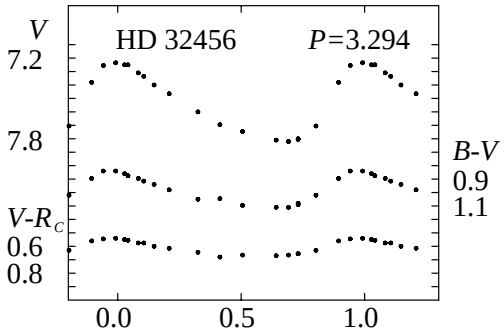

Figure 1

Table 1

JD hel 2450000+	Phase	V	$B-V$	$V-R_c$	JD hel 2450000+	Phase	V	$B-V$	$V-R_c$
312.3420	.084	7.304	0.890	.572	319.3408	.208	7.458	0.974	.612
314.3428	.691	7.814	1.102	.664	320.3198	.505	7.738	1.087	.665
314.4746	.731	7.795	1.081	.653	321.3042	.804	7.699	1.011	.628
315.3352	.992	7.227	0.833	.537	322.3015	.107	7.328	0.909	.573
315.4506	.027	7.241	0.852	.549	322.4339	.147	7.390	0.935	.595
316.4355	.326	7.593	1.041	.643	323.3132	.414	7.688	1.037	.677
317.4789	.643	7.801	1.102	.670	324.3567	.731	7.791	1.072	.652
318.3112	.896	7.372	0.888	.557	325.3814	.042	7.243	0.869	.552
318.4680	.943	7.245	0.833	.543					

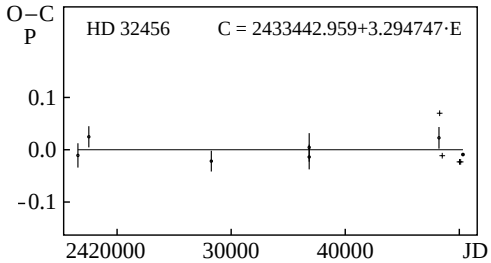

Figure 2

Table 2

Max JD hel 2400000+	Error	Filter	E	$O-C$	Number of observations
16567.2012	0.0766	PG	−5122	−0.0637	12
17522.7952	0.0667	PG	−4832	0.0537	13
28260.2223	0.0654	PG	−1573	−0.0997	23
36839.7696	0.0780	PG	1031	−0.0736	14
36839.8578	0.0899	PV	1031	0.0146	14
48216.6518	0.0681	PG	4484	0.0473	32
50318.5951	0.0029	B	5122	−0.0580	17
50318.6230	0.0042	V	5122	−0.0301	17

All observations obtained were analysed with Hertzsprung's method; the derived epochs of maxima are given in Table 2. These epochs of maxima, together with those published by Bastian et al. (1996) and Campos-Cucarella et al. (1996), were introduced into a linear least-squares solution which resulted in the following improved ephemeris formula:

$$\text{Max JD hel} = \underset{\pm.031}{2433442.959} + \underset{\pm.72}{3.2947470} \times \text{E}$$

This ephemeris was used in calculating the phases in Table 1 and the $O-C$ values in Table 2 as well as for plotting our observations in Figure 1 and $O-C$ diagram in Figure 2, where the above mentioned published epoches of maxima are marked by crosses.

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References:

Bastian, U., Born, E., Agerer, F., Dahm, M., Grossmann, V., Makarov, V., 1996, *IBVS*, No. 4306

Campos-Cucarella, F., Guarro-Flo, J., Gomez-Forrelad, J.M., Garcia-Melendo, E., 1996, *IBVS*, No. 4317

Makarov, V., Bastian, V., Hoeg, E., Grossmann, V., Wicenec, A., 1994, *IBVS*, No. 4118