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NEW PHOTOELECTRIC OBSERVATIONS FOR HL AURIGAE

HL Aur is an eclipsing binary system. It was first observed by Pfau (1955) and Kippenhahn (1955) gave a photographic light curve and a series of time of minima. Tsevevitch (1956), Locher (1976), Quester (1978), Frank (1983), Fernandes (1983), Moschner and Kleikamp (1989, 1990) published some times of minima. Most of them were obtained by visual or photographic observations except for the one given by Fernandes based on photoelectric observation.

The star was observed photoelectrically on 13 nights in winter season in 1990 and 1994, respectively by using the 60 cm reflector at Xing-long station of Beijing Astronomical Observatory.

The finding chart for comparison and check stars is shown in Figure 1. All observational data were corrected for differential atmospheric extinction and transformed into Johnson standard system.

Using Kwee–Van Woerden method six photoelectric times of minima were determined (see Table 1). The 1994 light curves of HL Aur given in Figure 2 (consisting of 150 individual observations) show that the depth of the primary minimum is 1^m07 and that of the secondary is 0^m48 and a little asymmetry between Max I and Max II may be discovered.

We derived a new improved ephemeris by using all the recent times of minima as follows:

$$\text{Min.I} = \text{HJD } 2447913.3470 + 0^d62250590 \times E$$

$\pm 5 \qquad \qquad \pm 13$

From the O–C diagram the period of HL Aur is nearly constant over the past 40 years.

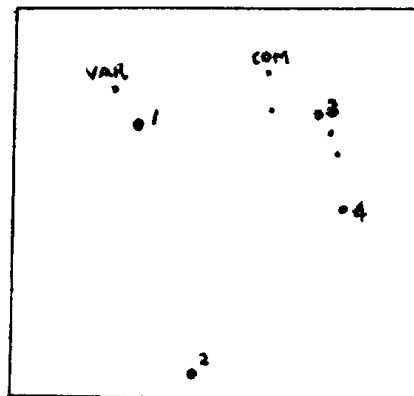


Figure 1. The finding chart of HL Aur
1: BD+49°1478; 2: BD+49°1477; 3:BD+49°1476; 4: BD+49°1474

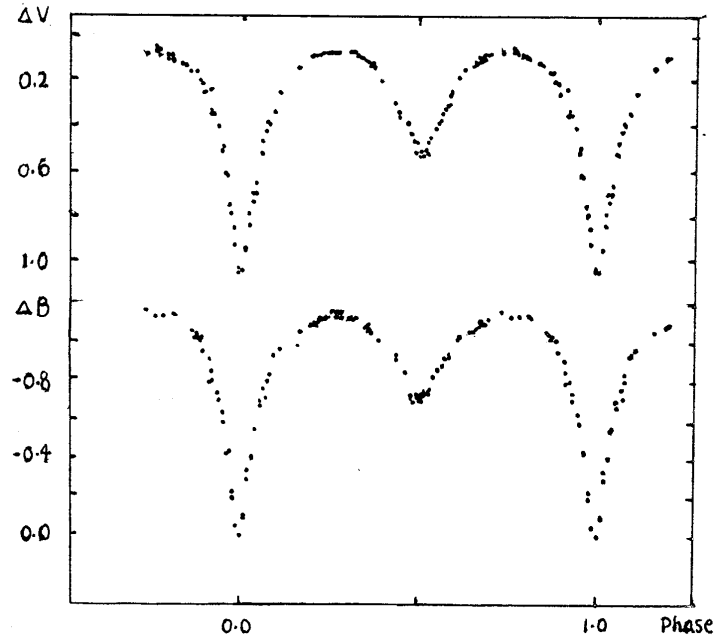


Figure 2. The light curves of HL Aur in BV colours.

Table 1. New times of minima

JD(Hel.)2400000+	colour	Min.	m.e.
47911.1722	V	II	0.0015
47911.1728	B	II	0.0013
47913.3470	V	I	0.0001
47913.3470	B	I	0.0002
47915.2162	V	I	0.0015
47915.2154	B	I	0.0007
49360.9873	V	II	0.0015
49362.2291	V	II	0.0006
49362.2274	B	II	0.0008
49363.1609	V	I	0.0005
49363.1616	B	I	0.0004

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