

COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS

Number 4099

Konkoly Observatory
Budapest
11 October 1994

HU ISSN 0374 – 0676

PHOTOELECTRIC OBSERVATIONS OF EP AURIGAE

EP Aur was discovered to be an eclipsing binary by Hoffmeister (1936, 1949) and is a β Lyr type binary with a period of 0^d5910091, Tsesevitch (1954) gave a complete light curve, together with 9 times of photographic minima, but no more attention was paid to this star in past 40 years. Recently, Frank (1983), Vielmetter (1989), Moschner and Kleikamp (1990), Agerer (1991) published some times of minima for this star, among which only one was photoelectric observation (Agerer, 1991), the other were photographic or visual observations.

This star was included as one of short period β Lyr binaries of our observational programme and observed by using the 60 cm reflector at Xing-long station of Beijing Astronomical Observatory from December 1990 to February 1991.

Comparison and check stars are very near to the binary. The finding chart is shown in Figure 1. All individual observational were corrected for differential atmospheric extinction and transformed into standard UBV system. A total of 371 observations in each B and V colour were obtained, including one primary and three secondary times of minima. The light curves in BV bands are shown in Figure 2. From the light curves we can derive the depth of the primary minimum to be about 0^m7 and that of the secondary about 0^m2.

The times of minima were estimated by using Kwee–Van Woerden method. A new ephemeris based on our new times of minima together with published minima in literature is derived as follows:

$$\text{Min.I} = \text{HJD } 2448245.2312 + 0^{\text{d}}59100742 \times E$$

± 11 ± 10

Table I. New times of minima of EP Aur.

JD(Hel.)2400000+	colour	Min.	m.e.
48245.2373	V	I	0.0005
.2362	B	I	0.0005
48246.1070	V	II	0.0001
.1153	B	II	0.0008
48272.1151	V	II	0.0001
.1175	B	II	0.0001
48273.3120	V	II	0.0009
.3097	B	II	0.0001



Fig. 1

Figure 1. The finding chart of EP Aur.

1: BD+31°1219, 2: BD+31°1217; 3: BD+31°1221, 4: BD+31°1226; 5: BD+31°1227
 c: comparison star; ch: check star

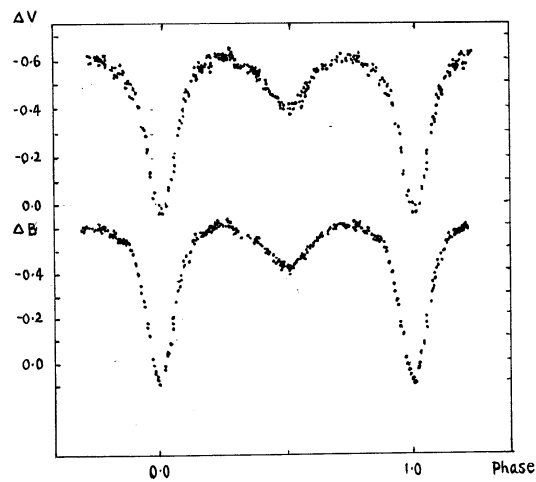


Figure 2. The light curves of EP Aur in BV colours.

From the O–C diagram, the period of this star is nearly constant. The times of minima collected for this star were not enough to cover all the important parts of the O–C diagram, so the conclusion has to be confirmed.

A further analysis of the light curves is in progress.

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