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NEW TIMES OF MINIMA FOR THE EARLY-TYPE BINARIES V1331 Aq1, V701 Sco AND
 MY Ser

Three early-type eclipsing variables were measured in the UBV system by one of us (R.L.) with the ESO 50 cm telescope at La Silla in June 1990. In this note, the times of measured minima are discussed.

V1331 Aq1

By now, only three times of minima were published for this B1 binary (see Mayer et al. 1991). A complete light curve containing another three minima was measured in Chile. The times of minima were calculated by the Kwee - van Woerden method. All known minimum times are collected in Table 1. New period has been calculated:

$$\text{Pri.Min.} = \text{HJD } 2442610.0581 + 1.^{\text{d}}3641953 \cdot \text{E} ,$$

+1

the respective O-C values are given in Table 1.

Table 1

HJD 2400000+	Error (day)	Epoch	O - C (day)	Source
42610.0581		0	0	see Mayer et al.(1991)
42957.909		255	-0.0189	" " " "
47368.392		3488	+0.0211	" " " "
48062.7464	0.0003	3997	-0.0011	this paper
48066.8417	0.0006	4000	+0.0016	" "
48071.6125	0.0015	4003.5	-0.0022	" "

It seems that the errors of the second and third minimum time cannot be as large as their O-C values would suggest, i.e., the period might be variable.

Normal points of the new UBV light curve were published by Lorenz et al. (1991).

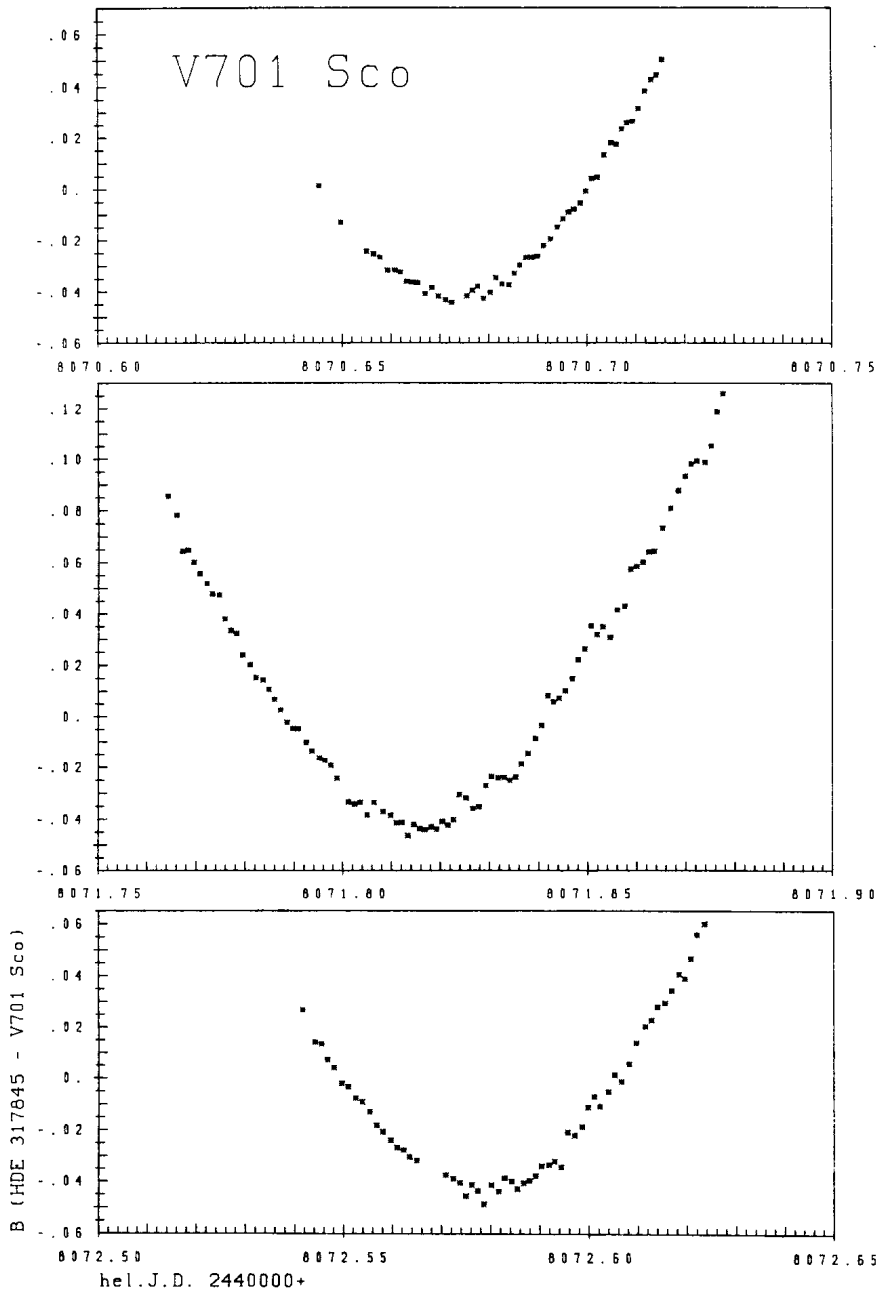


Fig. 1 V701 Sco: measurements of primary (top) and secondary (middle, bottom) minima, obtained in June 1990 at the ESO 50cm telescope

V701 Sco

Recently a photometric and spectrographic study of V701 Sco was published by Bell and Malcolm (1987). This study included also a discussion of the orbital period of the binary, and arrived at the ephemeris

$$\text{Pri.Min.} = \text{HJD } 2446199.5059 + 0.\overset{+3}{\underset{+19}{76187645}}\text{E} ,$$

based on 8 photoelectric times of minima. In Table 2 we give the minimum times obtained in Chile; the measurements are plotted in Figure 1. The comparison star was HDE 317845, the same as used by Bell and Malcolm. The number of epochs and the O-C values correspond to the ephemeris given by these authors. We do not give a new ephemeris, since the O-C values are quite small; they however suggest that the present period has been shorter than 0.761876. The conclusion made by Bell and Malcolm, that the period of V701 Sco has remained nearly constant in the time interval covered by photoelec-

Table 2

HJD 2400000+	Error (day)	Epoch	O - C (day)	Source
48070.6727	0.0002	2456	-0.0016	this paper
48971.8152	0.0002	2457.5	-0.0019	" "
48072.5777	0.0002	2458.5	-0.0013	" "

tric data (which is now about 24 years), is therefore confirmed, in spite of a discordant measurement by Bruton and Chambliss (1985).

MY Ser

No accurate minimum time has yet been published for this star. Among measurements by Davidge and Forbes (1988), there are several nights which cover down- or upward parts of minima, and which can be combined to calculate times of minima. Results for a secondary and a primary minimum are listed in Table 3. There is also given a secondary minimum time calculated from measurements obtained in the UBV system during one night in June 1990. The comparison star was HD 168112.

The formal errors of the minimum times are small, however, asymmetries in the light curves are present and the real errors can be worse. Data in Table 3 suggest that the phase of the secondary minimum is 0.503; according to Davidge and Forbes, MY Ser is a semi-detached system, and in such a case the orbit should be circular. Therefore, we estimate the errors of the min-

imum times as 0.005^d , and the resulting ephemeris is

$$\text{Pri.Min.} = \text{JD } 2446231.612 + 3.^d_{.32160} \cdot E .$$

+5 +1

Table 3

HJD	Error (day)	Epoch	O - C (day)	Source
24400000+				
46230.941	0.002	-0.5	-0.0107	(1)
46232.6125	0.0010	0	0	(1)
48067.7894	0.0008	552.5	-0.0071	this paper

(1) calculated according to data by Davidge and Forbes (1988)

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