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ON THE LIGHT CURVE AND PERIOD OF V743 Cen

During test runs of the newly installed double beam photometer at the 50 cm ESO photometric telescope the  $\delta$  Scuti- or RR<sub>S</sub>-star V743 Cen was continuously monitored on the nights April 18/19 and 19/20, 1976 in U,B,V. The photometer is identical to the Hoher List Observatory instrument, which was described by Geyer and Hoffmann (Mitt.Astron.Gesellschaft No.35,209,1974; Astron.& Astrophys. 38, 359,1975). The photometer allows the simultaneous photometric observations of the variable and a comparison star within the field of the telescope with fairly high time resolution. Data acquisition and preliminary on-line reductions are done with a HP 2100 computer system. On each night four consecutive cycles of the stars have been covered with an average of about 70 individual observations per cycle and colour. The photometric accuracy is about  $\pm 0^m.003$  in all colours. As was already noticed by Kwan-Yu Chen (I.B.V.S.No.142,1966) and C.R. Chambliss (Mon.Not.R.astr.Soc.138, 437, 1968) the amplitudes of the B-light curves are quite small, and are less than  $0^m.3$ , which is conform with the present observations. Yet the amplitude variations are much larger, and also the shape variations of the light curve from one cycle to the next are much more pronounced than was anticipated by Chambliss. Both the maximum and minimum brightness, as well as the average brightness vary about 0.05 magnitudes. The following amplitude variations have been observed:  $A_V$  from  $0^m.135$  to  $0^m.188$ ;  $A_B$  from  $0^m.192$  to  $0^m.272$ , and  $A_U$  from  $0^m.180$  to  $0^m.248$ . In general these light curve changes resemble more the well known Blazko-effect than a beat period phenomenon. The maxima times of the U-,B-, V-light curve cycles were derived by using Pogson's method. Since there no colour dependent lag in the maxima times was found, the mean time instants for the three colours are given in the Table below. They are accurate to at least  $\pm 0^s.0007$ . Also listed are the maxima of Chen as given by Chambliss, those of Chambliss himself and by D.H.P. Jones (Mem.R.Astr.Soc.72,101, 1969). Since the peri-

od is so short, and about 9 years have elapsed between the latter observations and the previous ones it was not possible to establish the epoch number from the light elements given by Jones. Therefore the following linear light elements have been obtained with a least square solution and a "period finding program" written for a HP 9820 computer, assuming that no period change exceeding more than 6% of the period has taken place:

$$\text{Max.} = \text{J.D. hel. } 2439243.6436 + 0^{\text{d}}.102254 \cdot E.$$

The period seems to be constant within  $\pm 5 \cdot 10^{-6}$  days. The "noise" of the cycle length of the 1976 observations is  $\pm 1.92\%$ . This explains the difficulties of Chambliss to reconcile his and Chen's observations.

Chambliss has classified V743 Cen as a  $\delta$  Scuti star on account of its small light curve amplitude. The strong Blazko-effect as well as the period noise makes us believe to see in it an RR<sub>3</sub> type star.

Table

Maxima of V743 Cen			
Observer	Maxima J.D. hel.	E	O-C
	2400000+		
Chen	39243.6433	0	-0 <sup>d</sup> .0003
"	39243.7455	1	- .0003
"	39243.8520	2	.0039
"	39244.5642	9	.0004
"	39244.6660	10	- .0001
"	39244.7687	11	.0003
"	39244.8765	12	.0059
Jones	39594.474	3431	- .0042
"	39603.380	3518	.0056
Chambliss	39634.1525	3819	- .0004
"	39635.0740	3828	.0008
"	39636.0968	3838	.0010
"	39637.9335	3856	- .0028
"	39638.1368	3858	- .0041
"	39638.9520	3866	- .0069
Geyer/Vogt	42886.8633	35629	- .0006
" "	42887.6844	35637	.0025
" "	42887.7859	35638	.0017
" "	42887.8878	35639	.0014
" "	42888.6000	35646	- .0022
" "	42888.7014	35647	- .0031
" "	42888.8073	35648	.0006
" "	42888.9100	35649	.0010

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