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**RZ CEPHEI — PERIOD VARIATION**

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The variability of RZ Cephei was discovered by Leavitt in 1907. This is an  $RR_C$ -type star and its observation is important for at least three reasons: (i) the period variability; (ii) a pre-maximum hump in the light curve and (iii) its high space velocity. For a more detailed historical information we recommend the article written by Cester and Todoran (1976).

Here only the period variability is concerned. In Table 1 we report a series of 25 observed maxima (7 maxima observed by Alania and Abuladze (1980, 1986) and 18 maxima observed by Todoran). The times of maxima were determined by Roman.

Even if the observations are performed with photoelectric photometers, having in view the varying shape of the light curve in the vicinity of its maximum, Pogson's method and "mean" light curve were used in order to determine the heliocentric times of maxima. The results are given in Table 1. Here the corresponding  $O - C$  differences were computed by using the linear ephemeris:

$$\text{Max} = \text{HJD } 2410000.38 + 0^{\text{d}}30866671 \times E \quad (1)$$

and could be affected by the variability of the corresponding light curve.

In their study referring to the period variation, Cester and Todoran (1976) postulated a cycle of 50 years, while Todoran (1976) has written: "we can say that RZ Cephei is at least a triple periodic variable star".

Now, in order to have a general image about period variation of RZ Cephei, we have also used the observed maxima listed by Todoran (1974), Cester and Todoran (1975, 1976), Maintz (1992) and Seifert (1993).

For all the above mentioned maxima, the  $O - C$  residuals are displayed in Fig. 1, where the cyclic variation is evident, but at least a critical remark could be relevant. The amplitude of the period variation is about twice the length of the period. We consider that such a situation is determined by the fact that we have here, in the same time, two unknown parameters: the length of the period and the corresponding cycle number  $E$ .

Therefore, it is evident that RZ Cephei must be observed in the future and the period variation to be connected with the changes observed in the shape of the light curve.

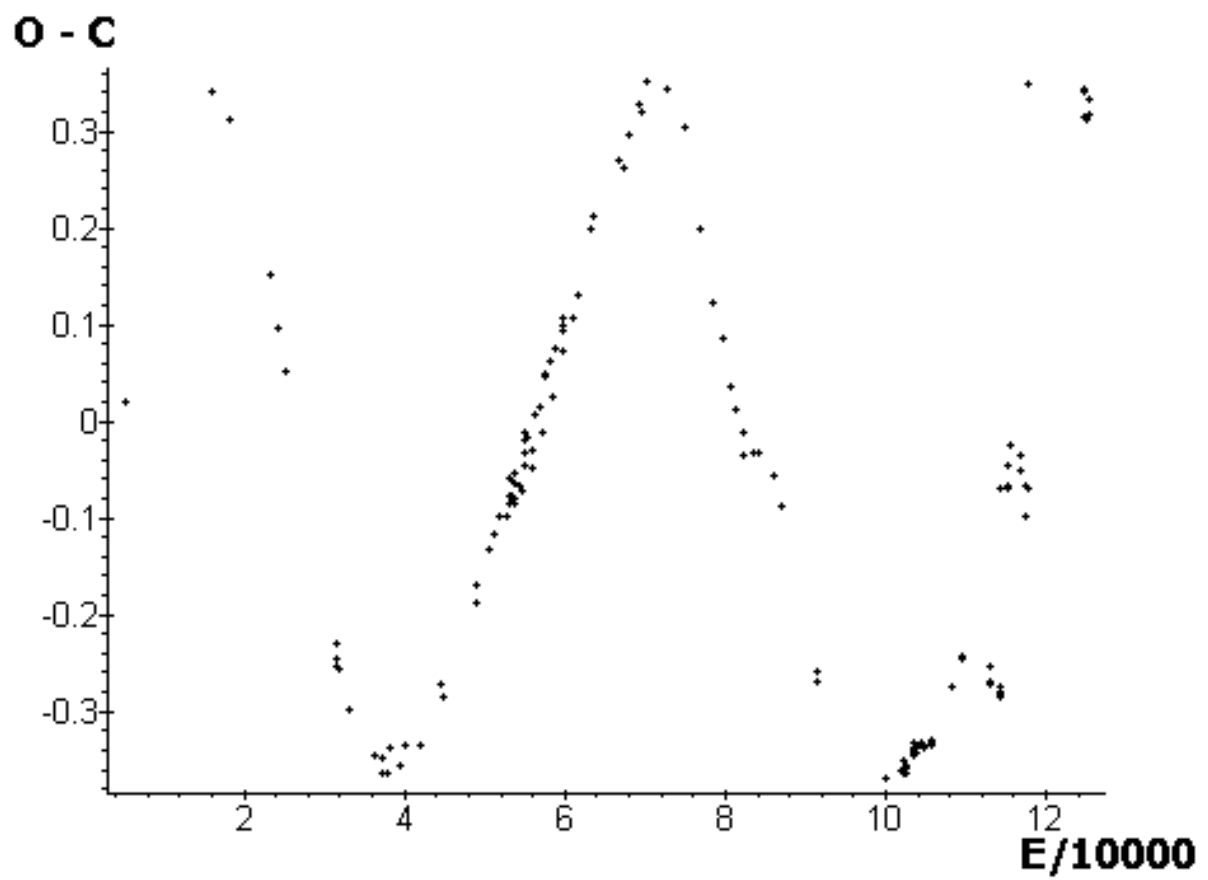


Figure 1.

Table 1: Observed maxima of RZ Cephei

HJD 244. . .	$n$	$O - C$	$E$	Observer
3378.398	41	-0 <sup>d</sup> 274	108137	Alania; Abuladze
3759.322	69	-0 <sup>d</sup> 245	109371	Alania; Abuladze
3772.286	87	-0 <sup>d</sup> 245	109413	Alania; Abuladze
3783.401	108	-0 <sup>d</sup> 242	109449	Alania; Abuladze
3791.426	54	-0 <sup>d</sup> 242	109475	Alania; Abuladze
4842.425	100	-0 <sup>d</sup> 253	112880	Todoran
4900.436	9	-0 <sup>d</sup> 271	113068	Alania; Abuladze
4901.365	59	-0 <sup>d</sup> 269	113071	Alania; Abuladze
5219.276	65	-0 <sup>d</sup> 284	114101	Todoran
5221.440	20	-0 <sup>d</sup> 281	114108	Todoran
5266.196	23	-0 <sup>d</sup> 282	114253	Todoran
5286.265	75	-0 <sup>d</sup> 275	114318	Todoran
5299.230	70	-0 <sup>d</sup> 275	114360	Todoran
5300.152	65	-0 <sup>d</sup> 273	114363	Todoran
5578.470	120	-0 <sup>d</sup> 070	115264	Todoran
5580.325	80	-0 <sup>d</sup> 068	115270	Todoran
5606.250	90	-0 <sup>d</sup> 070	115354	Todoran
5609.340	90	-0 <sup>d</sup> 046	115364	Todoran
5622.302	67	-0 <sup>d</sup> 068	115406	Todoran
6019.290	75	-0 <sup>d</sup> 025	116692	Todoran
6034.404	16	-0 <sup>d</sup> 036	116741	Todoran
6284.410	30	-0 <sup>d</sup> 050	117551	Todoran
6293.345	48	-0 <sup>d</sup> 067	117580	Todoran
6328.194	27	-0 <sup>d</sup> 097	117693	Todoran
6346.433	95	-0 <sup>d</sup> 069	117752	Todoran

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