

PHOTOMETRIC INVESTIGATION OF DR AND

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ABSTRACT. Based upon photographic observations obtained with a 48-cm reflector AZT-3 OAO, 236 estimates of the unique RR Lyr – type star DR And have been derived. 6 moments of maximum light are listed, these being represented fairly enough by GCVS (1985) elements. The 3-rd order trigonometric polynomial fit corresponds to the period $P = 0^{\text{d}}56318 \pm 0^{\text{d}}00001$ (clos to the GCVS value), initial epoch HJD Max=2445121.466±0^d.003, Max=12^m.06±0^m.04, Min=13^m.14±0^m.06. Light curve variations may be attributed to the Blazhko effect.

Key words: Stars: RR Lyrae–type stars: Individual: DR And.

For further investigation of secular variations of the period of the RR Lyr–type star DR And, we have obtained 236 photographic observations using the 48-cm reflector AZT-3, of the Astronomical Observatory of the Odessa State University within the interval JD 2444955 - 45353. The instrumental system is close to B ($\lambda_B = 4400 \text{ \AA}$), The magnitudes of the comparison stars were taken from the paper by Romanov et al. (1978).

The star was, in particular, investigated by Tsessevich (1957), who, based upon his own visual observations, was the first to suggest the Blazhko effect present in this star. Later on, the supposition was definitively confirmed.

To determine the acting value of the pulsational period, the phase light curve was fitted by a trigonometric polynomial with differential corrections to the period (Andronov, 1994). Various orders have been tested. The third order corresponds to the "false alarm probability" of only 10^{-12} . The corresponding best fit values are listed in the abstract. The estimated value of the period is very close to that of

Table 1. The list of maxima of DR And

Max JD hel	E	O-C	σ_T	mag
2444524.527	12971	+0.005		
2444884.355	13610	+0.001		
2444986.298	13791	+0.005	0.003	11.69
2444987.407	13793	+0.002		11.69
2444991.346	13800	+0.005	0.003	11.77
2445228.452	14221	+0.032	0.008	11.99

the GCVS.

To obtain the moments of individual maxima, the "running parabola" fit (Andronov, 1997) was used. The optimal value of the filter half-width Δt was found to be 0^d.025. Then the moments of extrema have been obtained by using this fit.

In Table 1 are given the moments of maximum obtained, the corresponding stellar magnitudes and the residuals O – C according to the elements of GCVS (Kholopov, 1985). The moments are well fitted by using these elements. The first two moments of maximum of DR And were obtained by Shakun L.I. (private communication) in the Astrophysical Observatory of the Kishinev University.

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