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ON THE PERIODICITY OF Wa CrA/1 AND Wa CrA/2 WTTS

Walter (1986) discovered three weak-line T Tau stars (WTTS) in the CrA T-association region. The brightness of Wa CrA/1 and Wa CrA/2 is 11.24 V and 10.45 V, respectively, that of Wa CrA/3 is weaker (V = 13.72). The spectral types assigned by Walter (1986) and later by Franchini et al. (1992) are K0 to Wa CrA/1 and G5-G8 to Wa CrA/2. The rotational period of Wa CrA/2 determined by Covino et al. (1992) is P = $2\overset{d}{.}9$. Franchini et al. (1992) found a rotational velocity of Wa CrA/2 vsin i = 20 ± 5 km/s. In the course of ROTOR programme carried out in the Mt.Maidanak observatory we aimed at searching for periodicity of Wa CrA/1 and Wa CrA/2 WTTS. The observations of these WTTS were made by Yakubov in 1990 using the Mt.Maidanak 60-cm Zeiss telescope with UBVR pulse counting photometer. The periodicity of Wa CrA/1 and Wa CrA/2 light curves was analysed by CLEAN method of digital spectral analysis (Roberts et al., 1987). In this note we present the results of UBVR - photometry of Wa CrA/1 and Wa CrA/2 (see Table 1).

Table 1

JD 2448000+	V	U−B	B−V	V−R	JD 2448000+	V	U−B	B−V	V−R
Wa Cra/1					*Wa CrA/2*				
049.4071	11.40		1.22		049.4117	10.55	0.49	0.82	0.69
056.3670	11.38	0.90	1.22	0.99	056.3617	10.62	0.51	0.87	0.71
058.3847	11.35	0.78	1.22	1.08	058.3903	10.53	0.32	0.99	0.68
059.3821	11.59	0.87	1.16	1.09	059.3893	10.64	0.47	0.85	0.71
060.3663	11.42	0.76	1.13	1.16	060.3845	10.59	0.38	0.84	0.73
063.3541	11.48		1.22	1.07	063.3574	10.60		0.84	0.74
064.3383	11.55	0.63	1.14	1.05	064.3411	10.63	0.48	0.86	0.72
065.3361	11.41	0.85	1.14	1.10	065.3392	10.62	0.46	0.85	0.74
066.3330	11.59		1.17	1.07	066.3354	10.60		0.85	0.74
068.3305	11.61		1.19	1.08	068.3320	10.67		0.84	0.76
069.3423	11.38		1.12	1.07	069.3451	10.58		0.84	0.71
070.3337	11.56		1.17	1.07	070.3355	10.66		0.86	0.74
071.3309	11.45		1.19	1.05	071.3322	10.63		0.88	0.78
072.3202	11.50		1.15		072.3212	10.67		0.80	
073.3318	11.53		1.20		073.3330	10.66		0.86	
075.3426	11.57		1.16	1.05	075.3445	10.62		0.81	0.72
076.3189	11.41		1.17	1.09	076.3230	10.69		0.94	0.80
083.2883	11.43		1.17	1.09	083.2902	10.64		0.82	0.75
084.3096	11.60		1.22		084.3105	10.64		0.91	
088.2802	11.57		1.20	1.11	088.2819	10.53		0.90	0.73
089.2779	11.49		1.13	1.11	089.2842	10.60		0.85	0.74
090.2697	11.47		1.17	1.06	090.2711	10.66		0.84	0.76
091.2646	11.59		1.15	1.06	091.2659	10.64		0.87	0.78
094.2562	11.41		1.10	1.05	094.2586	10.59		0.79	0.71
095.2653	11.67		1.14	1.11	095.2675	10.65		0.86	0.72
096.2668	11.47		1.15	1.05	096.2686	10.62		0.84	0.72
097.2642	11.56		1.15	1.09	097.2655	10.59		0.83	0.78
099.2535	11.51		1.23	1.07	099.2573	10.61		0.85	0.75
100.2508	11.56		1.14	1.09	100.2528	10.56		0.86	0.73

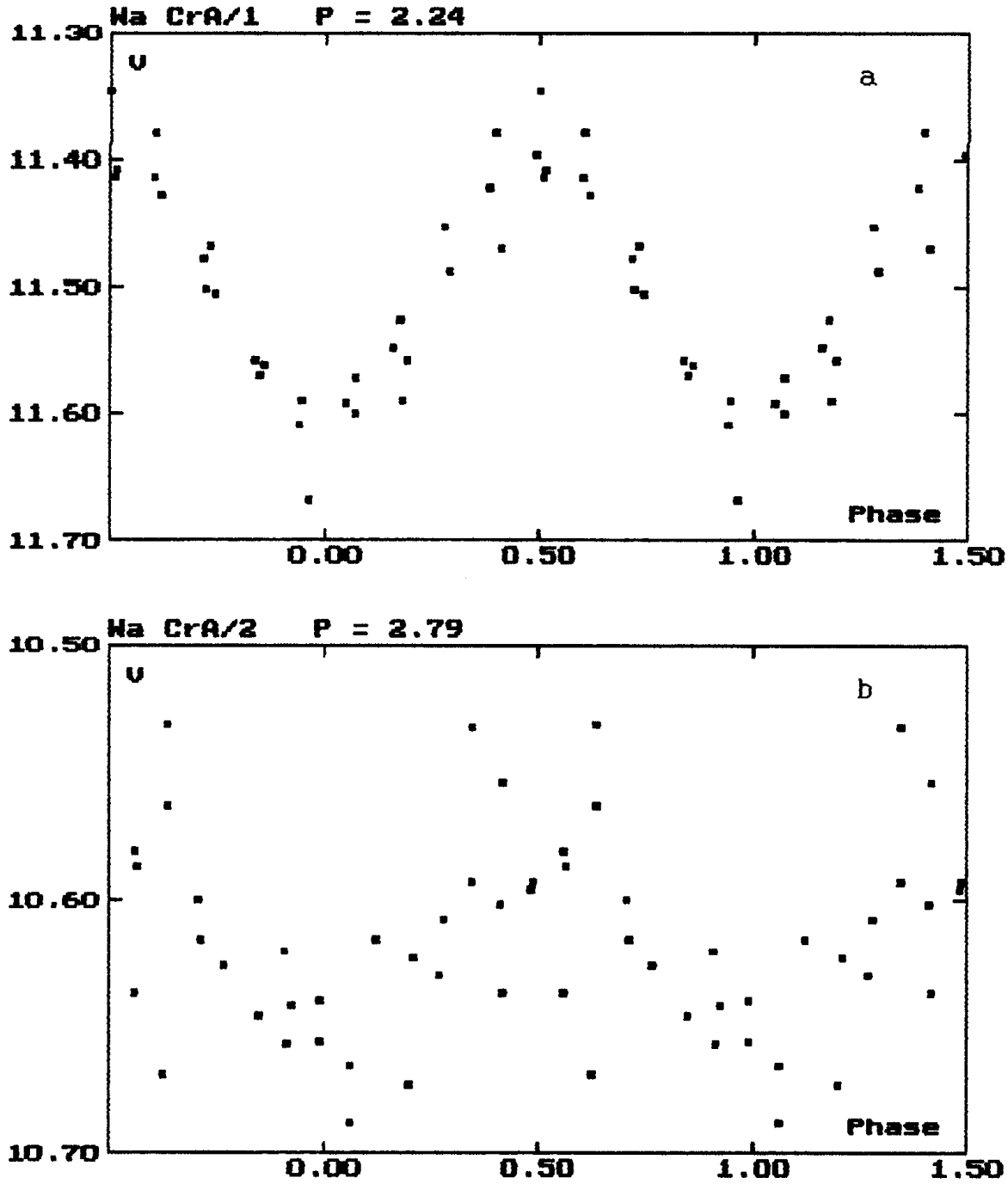

Figure 1. Folded light curves for Wa CrA/1 (a) and Wa CrA/2 (b).

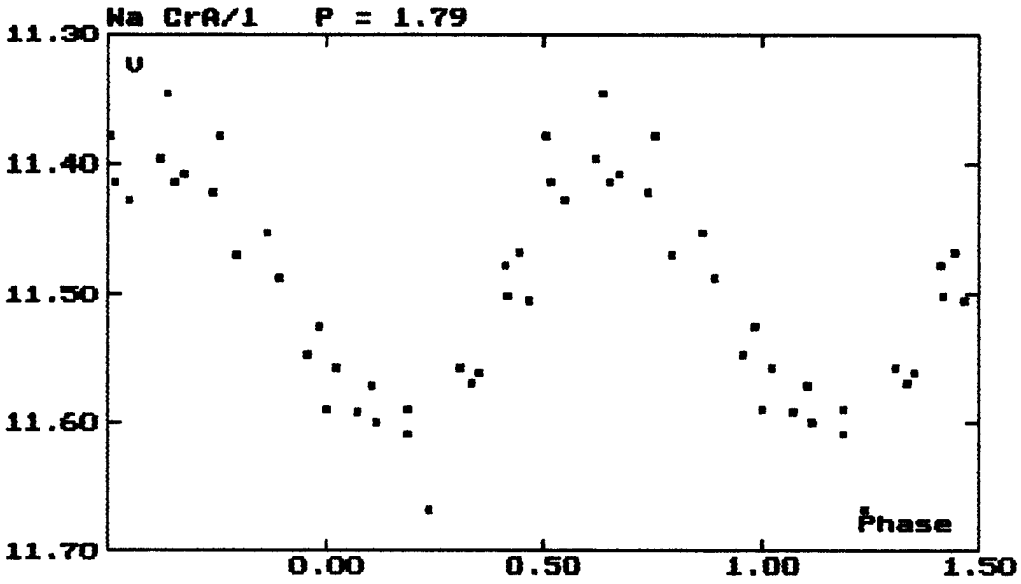

Figure 2. False periodic light curve.

The results are as follows:

Wa CrA/1: $P_0 = 2^d.24$, Min JD = 2448048.30
Wa CrA/2: $P_0 = 2^d.79$, Min JD = 2448048.25

Figure 1 shows the folded light curves for both stars. Besides, two false periods can be present,

Wa CrA/1: $P_f = 1^d.79$,
Wa CrA/2: $P_f = 1^d.55$

which produce fully equivalent folded light curves with P_0, but have somewhat larger dispersions of the points about the curves. The false period for Wa CrA/1 is shown in Figure 2. Similarity of the true and false light curves (Figures 1a and 2) is due to the southern position of the stars for Mt. Maidanak observatory latitude. Every night observation was only made close to the culmination of the stars and spacing of the temporal file is equal to one sideral day.

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