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NEW ELEMENTS AND LIGHT CURVE OF CR TAURI

(BAV MITTEILUNGEN NO. 123)

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Name of the object:
CR Tau = S3949 Tau

Observatory and telescope:
Private Observatory, 20-cm SCT

Detector:	SBIG ST6 camera

Filter(s):	None

Comparison star(s):	GSC 1862.1685

Check star(s):	GSC 1862.1725

Transformed to a standard system:	No

Remarks:

CR Tau was discovered by Hoffmeister (1949a). 15 photographic minima were used to derive the first elements (Hoffmeister 1949b). These elements are listed in the GCVS. Recently we could observe photoelectrically ten new minima, which showed the GCVS-ephemeris to be a spurious one. The minimum times are calculated according to the Kwee–van Woerden method (1956). Using all available photoelectric minima, a weighted least squares fit led to the new ephemeris:

$$\text{Min I} = \text{HJD } 2451195.4818 + 0^{\text{d}}.68270353 \times E.$$
$$\pm 2 \qquad\qquad \pm 15$$

Acknowledgements:

Data from the Lichtenknecker Database were used

Table 1: Observed times of minima for CR Tau, epochs and residuals computed with respect to the linear ephemeris derived in this paper.

JD hel. 2400000+	Type*	Epoch	$O-C$	Ref.	JD hel. 2400000+	Type*	Epoch	$O-C$	Ref.
26004.38	P	−36899.0	−0.02	[1]	31449.65	P	−28923.0	+0.00	[1]
26313.70	P	−36446.0	+0.03	[1]	49688.756	E:	−2207.0	+0.001	[2]
26355.27	P	−36385.0	−0.04	[1]	49726.307	E:	−2152.0	+0.003	[2]
26634.51	P	−35976.0	−0.03	[1]	49734.4942	E	−2140.0	−0.0020	[2]
26662.48	P	−35935.0	−0.05	[1]	49756.3431	E	−2108.0	+0.0003	[2]
26718.45	P	−35853.0	−0.06	[1]	50428.4626	E	−1124.5	−0.0018	[2]
26987.51	P	−35459.0	+0.01	[1]	50464.3073	E	−1071.0	+0.0010	[2]
27342.51	P	−34939.0	+0.01	[1]	50849.3518	E	−507.0	+0.0007	[2]
27368.45	P	−34901.0	+0.00	[1]	50863.3450	E	−487.5	−0.0015	[2]
27394.39	P	−34863.0	+0.00	[1]	50864.3710	E	−485.0	+0.0004	[3]
27396.41	P	−34860.0	−0.03	[1]	50864.3711	E	−485.0	+0.0005	[2]
27535.36	P	−34657.5	−0.01	[1]	51185.2412	E	−15.0	−0.0000	[4]
27688.60	P	−34432.0	−0.03	[1]	51195.4821	E	0.0	+0.0003	[2]
31447.63	P	−28926.0	+0.03	[1]					

* P denotes photographic minima (weight 1) and E CCD observed minima (weight 10). Those marked with ':' got reduced weight (5).
[1]: Hoffmeister (1949b), [2]: Agerer: this paper, [3]: Diethelm (1998), [4]: Diethelm (1999)

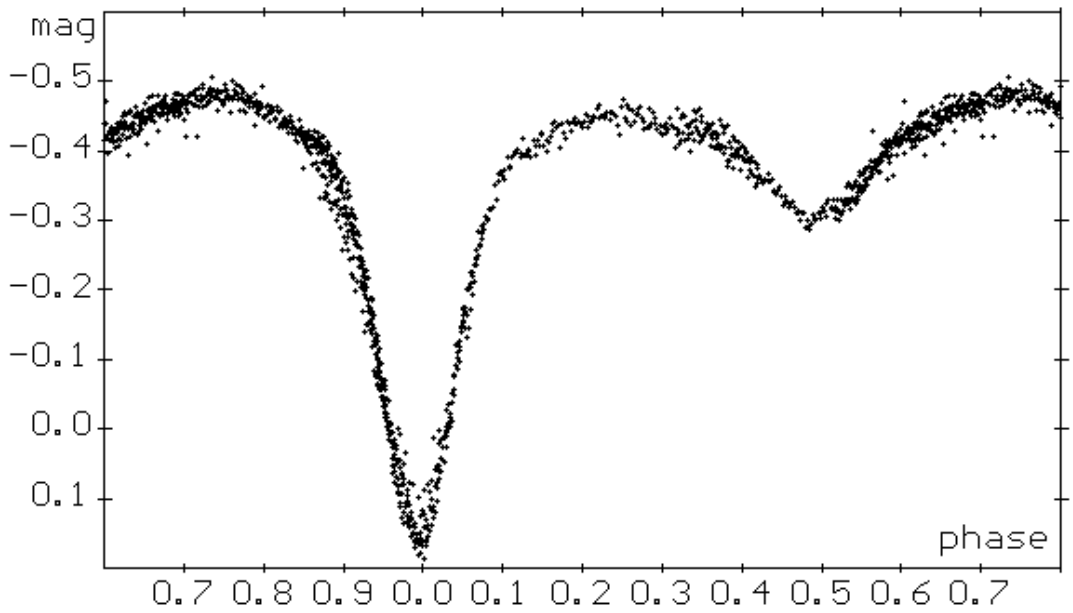

Figure 1. Differential light curve of CR Tau, drawn with the new ephemeris

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