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**ON THE STABILITY OF SPOTTED REGIONS ON
STELLAR SURFACES OF WEAK-LINE T TAURI STARS**

We undertake a long-term photometric monitoring of a sample of WTTS in the Tau-Aur complex aimed at detecting periodic processes in the light curves of above stars and determining the lifetimes of cool spots on the star's surfaces (Grankin 1992, 1993). Maidanak UBVR-photometry Data Bank is at Tashkent Astronomical Institute and available to any interested in.

Table 1

HBC #	Name	Period (day)			Observ. interval 1900+
		bo93	gr93	other source	
29	V410 Tau			1.871 (vr88)	1.872095 86-93
68	VY Tau			5.37 (gr91)	5.36995 85-93
370	LkCa 4	3.37	3.37	3.36 (vr93)	3.3745 85-93*
376	TAP 26	2.51	2.52		2.50836 92-93
378	V819 Tau			5.6 (ry84)	5.5354 82-93*
379	LkCa 7, TAP 29	5.64		5.66 (gr92, vr93)	5.6638 85-93*
380	HDE 283572, TAP 31			1.55 (wa87)	1.529 92-93
388	TAP 35		2.74		2.73 92-93
	TAP 39		3.67		3.654 92-93
392	TAP 40		1.55		1.555 92-93
397	TAP 41		2.43		2.426 92-93
399	V827 Tau			3.75 (bo86)	3.75886 81-93*
403	TAP 45		6.2		9.91 92-93
405	V830 Tau			2.76 (ry84)	2.74079 82-93*
407	TAP 49		3.32		3.32 92-93
408	Wa Tau/1, TAP 50				3.06 93 +
420	LkCa 16	5.6			5.6 92-93
426	LkCa 19, TAP 56	2.24	2.24		2.236 90-93
427	TAP 57NW			9.32 (za93)	9.345 92-93
429	V836 Tau			6.99 (ry84)	6.755 82-93*

References to Table I:

bo86: Bouvier et al. (1986); bo93: Bouvier et al. (1993); gr91: Grankin et al. (1991); gr92: Grankin (1992); gr93: Grankin (1993); ry84: Rydgren et al. (1984); vr88: Vrba et al. (1988); vr93: Vrba et al. (1993); wa87: Walter et al. (1987); za93: Zakirov et al. (1993)

- according to Herbig and Bell (1988);

* - it was used both our observations and others;

+ - this star was included in our observation program in 1993

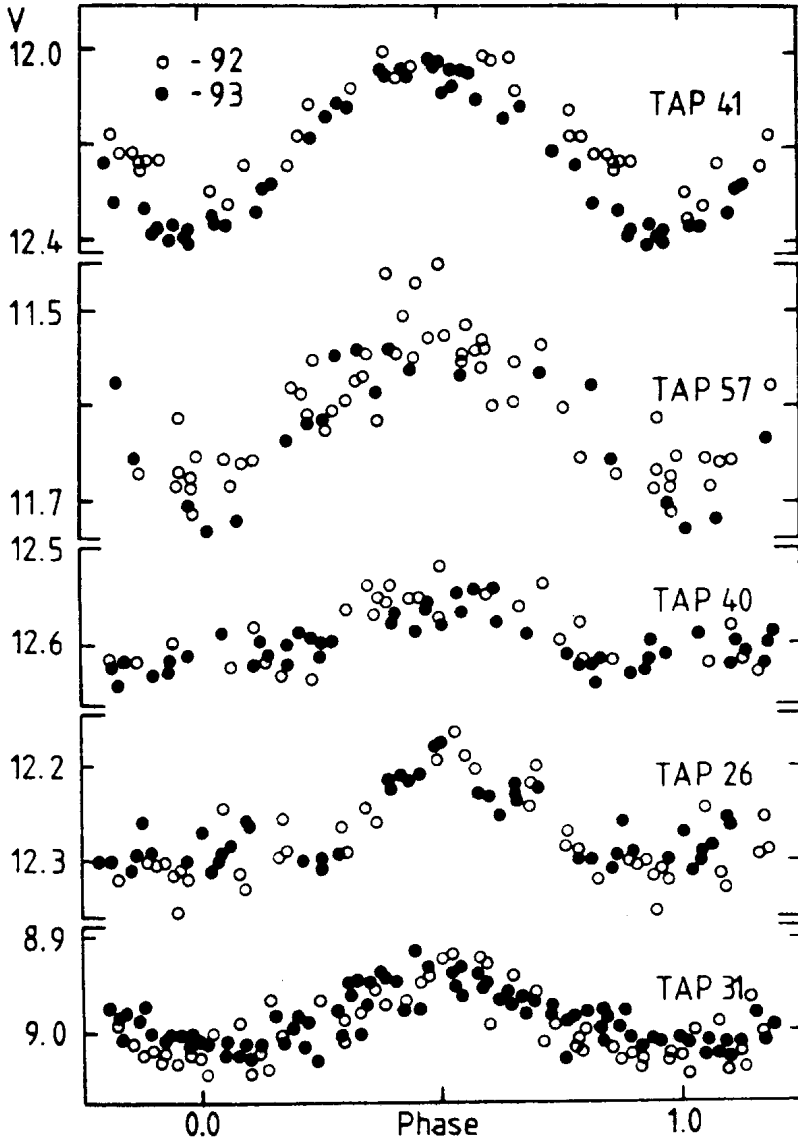


Figure 1. Phase diagrams for light curves in the V filter for 5 WTTS.
Empty circles - data of 1992, filled circles - data of 1993.

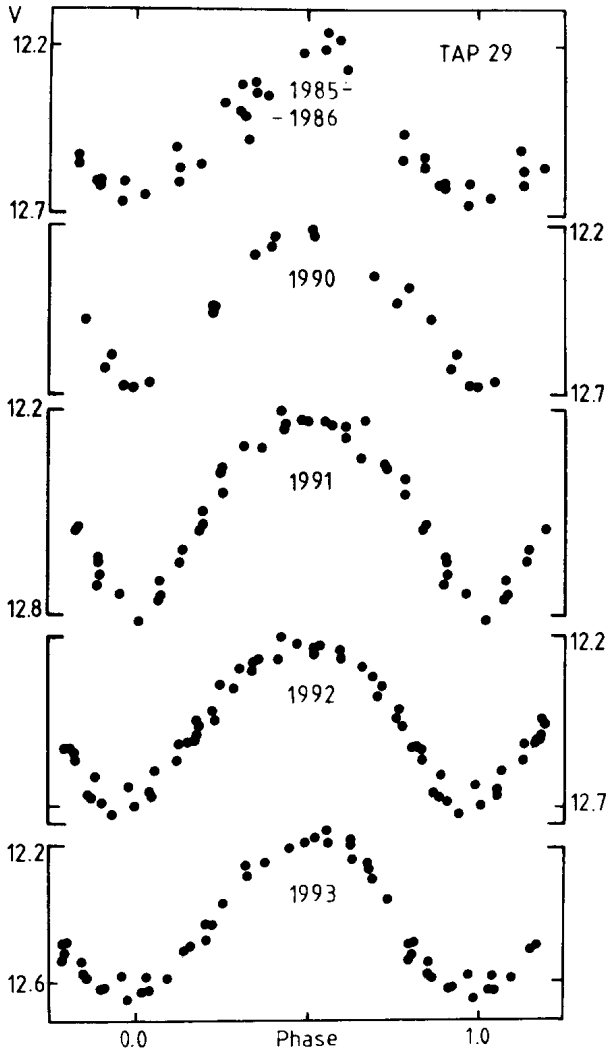


Figure 2. Phase diagrams for different seasons of TAP 29 (LkCa 7). For the 1985/86 season data from Vrba et al. (1993) are also shown.

During observations from 1992 to 1993 we did not find any essential changes in the phase and frequency of the periodic processes for most of the WTTS with well-known periods (see Table 1 and Figure 1). Moreover, three stars (LkCa 4, LkCa 7, and VY Tau) keep their periods in 1985-1993 and four ones (V819 Tau, V827 Tau, V830 Tau, and V836 Tau) in 1982-1993. Only some small changes were found in the shape and the amplitude of their folded light curves (e.g. Figure 2).

It is known that the periodic variability of WTTS is mostly due to dark spots on their surfaces. The strict periodicities in the light curves of observed stars allow to suggest that the lifetimes and localization of the spot groups on the stellar surfaces do not change on the timescale from one to a few years. Hitherto only one WTTS (V410 Tau) with similar properties is known (Vrba et al., 1988).

The phenomenon of the spotted region stability on stellar surfaces seems to be explained either by strong local magnetic fields or the tidal interaction in the close binary systems (as RS CVn type).

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