

LIGHT CURVES AND CA II EMISSIONS OF V711 TAURI DURING 1981-82

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The light variation of V711 Tauri was first discovered by Cousins, who suspected the variation with an amplitude of $\Delta V = 0^m.11$. This light variation was confirmed by Landis and Hall (1976). This star has been identified as the brightest RS CVn-type star by Bopp and Fekel (1976). Bopp *et al.* (1977), using Cousins' old data and their data made nearly 13 years later than those of Cousins, found that the observations show the same light curve shape and amplitude and the minimum light falls very nearly at $0^P.0$ computed with their ephemeris.

A series of intensive photoelectric observations in UBV has been reported at a number of observatories after the Oct 1977 campaign by Weiler (1977). All light curves agree, in general, for the light curve shape, and they all seem to have a migration wave towards increasing phase. A dramatic change in the light curve of V711 Tau, however, was reported by Blanco *et al.* (1981). Since the light variations were so unusual, this discovery has changed our present understanding about the wave migration and the light curve evolution entirely.

Observations made during Nov 1981 - Mar 1982 at Yonsei University Observatory confirm, in part, the dramatic light change of V711 Tau reported by Blanco *et al.* for 1980-81 season. However, the lower peak at phase about $0^P.3$ of the double-peaked light curves of the 1980-81 appeared to be absent in our V-light of the 1981-82 season. Only a single peak of amplitude $0^m.09$ remained in the light curve, and the peak is shifted towards decreasing phase.

Nine yellow light curves available up to date are given in a chronological order in Figure 1. Ephemeris used for the phase is

$$\text{JD (hel.)} = 2442766.069 + 2^d.83782E.$$

There seem to exist two discontinuities in the light curve evolution. The first of these happened right after the radio outburst in 1978, which caused a sudden increase of the amplitude of the light variation from about $0^m.08$ to about $0^m.21$ in 1978-79. The second one is clearly

present sometime after the observations of Sarma and Ausekar (1981) in 1979-80 season but before those of Blanco *et al.* in Jan 1981. None of these sudden light variations of V711 Tau can, easily, be understood with the present knowledge.

Simultaneous spectroscopic and photometric observations were made on 1982 Feb 10^d.5 UT, the former with the 188-cm coude of Okayama Astrophysical Observatory, Japan, and the latter with the 40-cm and 61-cm reflectors of Yonsei University Observatory. Two spectrograms with a dispersion of 36 Å/mm are obtained in the Ca II H and K line regions. A pronounced emissions of H and K are recorded with a slight wavelength shift in the K line as shown in Figure 2 in a logarithmic intensity scale.

References:

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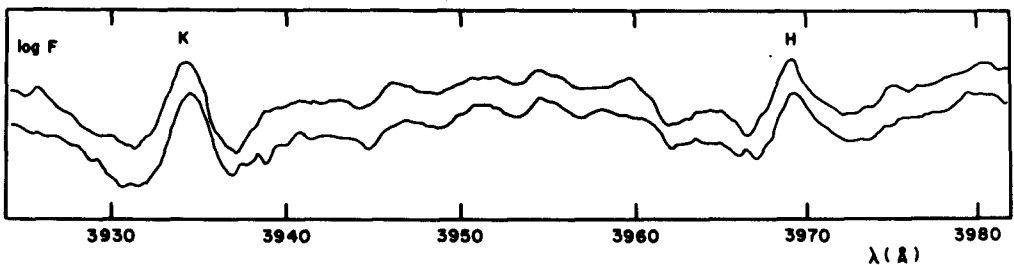
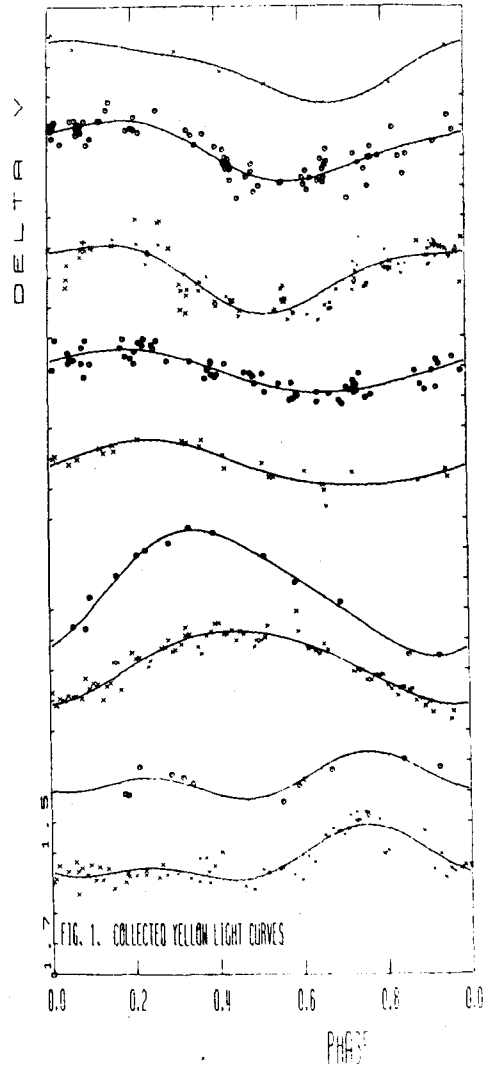


Fig. 2. Ca II H and K in the spectra of V711 Tau on 1982 Feb 10^d.5 UT.