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H AND K EMISSIONS IN V 471 TAURI (BD + 16^{o} 516)

The white dwarf eclipsing variable V 471 Tauri was discovered as a spectroscopic variable by Wilson in 1953. In the intervening years the star has been observed by many investigators mainly photoelectrically and also spectroscopically. The photoelectric observations of the star indicate that the light curve of the star exhibits only primary minima and an advancing migration wave through the light curve. It was also reported that the migrating wave appears to indicate a periodicity of about 1/2 years (Ibanoglu, 1978). Although the star has been continuously observed at the observatory of Ege University, from 1973 until the present time, the data concerning photoelectric observations already published goes until 1978. In the mean time for the source of the migrating wave and its travel through the light curve many suggestions were put forward. One of these suggestions is a spot model where a spot or spots occur on the surface of the star with changing their positions similar to the Sun, resulting in the changing appearance of the light curve. It was also suggested that probable correlation may exist between simultaneous spectroscopic and photoelectric observations such as; Intensity of the Ca II (H and K) lines in emission may vary according to the position of the migrating wave, or occurrence of H and K emissions may be correlated with the maxima or minima position of the wave. Bearing these facts in mind, the star was spectroscopically observed at the Observatory of Asiago in March 1980, with 122 cm Cassegrain telescope, prism spectrograph and image intensifier with 42 and 40 A/mm dispersions at 3968 and 3933 A, respectively. When the light curves sofar obtained and published examined and compared with the spectroscopic observations recently obtained, some interesting results came out seem to be worthwhile particular attention. In the Figures 1 and 2, the intensity of H and K lines

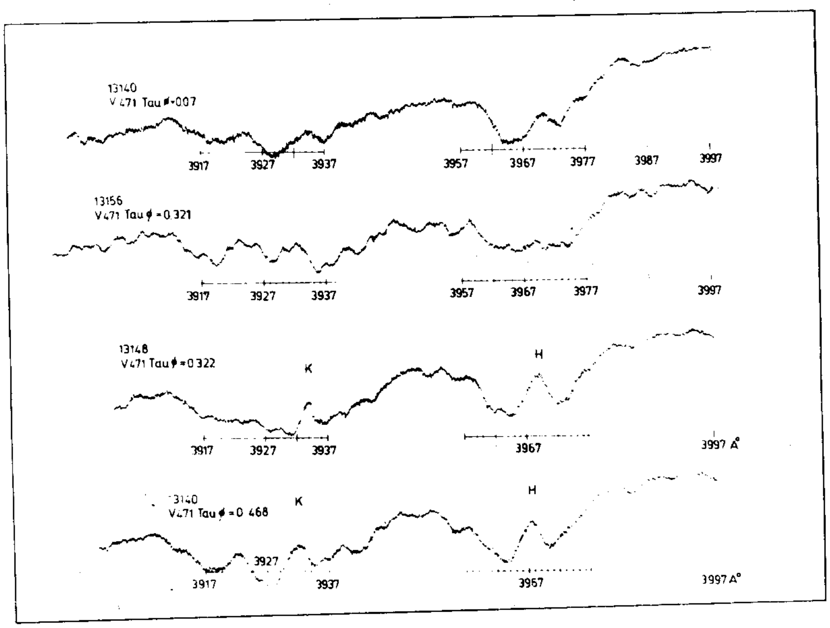

Figure 1

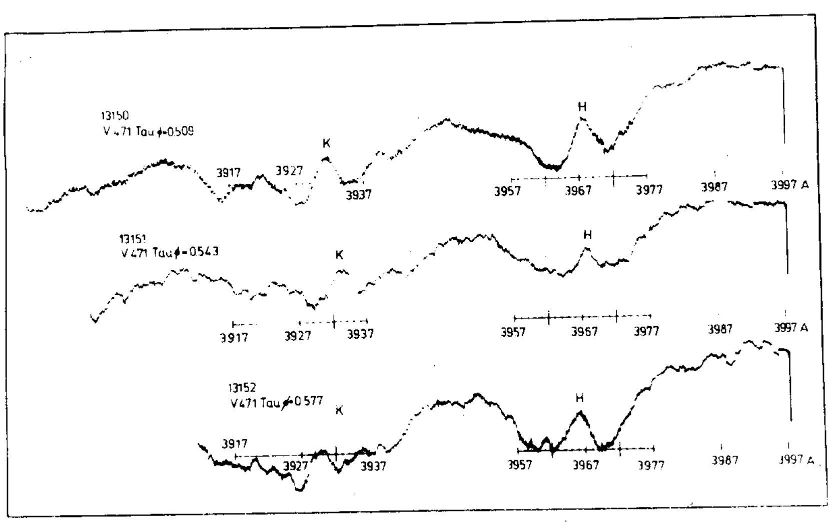

Figure 2

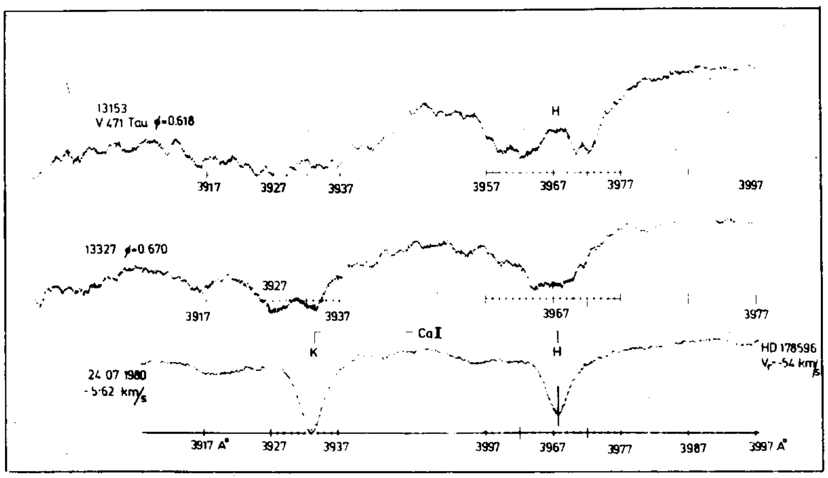

Figure 3

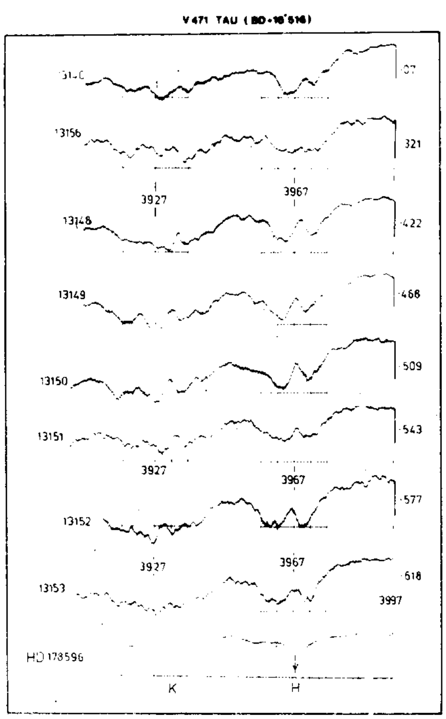

Figure 4

versus orbital phases of the star are presented along with the absolute wavelength scale, derived from the comparison spectra and also checked by observing one of the variable stars (HD 178596) from Wilson (1953). At the orbital phase 0.32 H and K emission does not exist or it is nearly minimum, where as in all other orbital phases the Ca II emission exists, If we examine the light curves and particularly the last one, (Tunca et al.,1979) at 0.32 phase where Ca II emission does not exist or its intensity is in minimum, the light curve exhibits a maximum. Although spectroscopic observations presented here were obtained at the begining of March 1980 and time duration difference with the last light curve is about 1 year, if we consider that the migrating wave shows periodicity with 180 - 192 days interval (Ibanoglu, 1978) we may anticipate to see the maximum position again in the vicinity of the previous position. Where the maximum peak position within the light curve corresponds to the observation of the star surface with no spots and this also corresponds to the non existence of the Ca II emission. In Figures 1,2 and 3, the microdensitometer scans of rotationally broadened H and K emissions within the absorption lines for different orbital phases are presented. In Figure 4 the same scans together with the scan of the comparison star are presented.

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