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PHOTOMETRIC EVIDENCE OF THE END OF THE ACTIVE PHASE OF CH Cyg

The recent phase of activity of the symbiotic star CH Cyg began in May 1977 (Fehrenbach, 1977). Photometrically it was characterized by an intensity increase of the blue continuum (e.g. Luud et al., 1982) and by rapid changes of the U, B, V magnitudes (e.g. Slovak and Africano, 1978). The radiation of CH Cyg was significantly affected by the blue continuum in the whole optical spectral region,  $\lambda \leq 550$  nm, (Ipatov and Yudin, 1983), which completely obscured the variations of the cool component. The next increase of the star's brightness began in June to November 1981 (e.g. Kaler et al., 1983). The magnitude in the U, B, V filters fluctuated approximately between 5<sup>m</sup> and 6<sup>m</sup>. CH Cyg retained this brightness until August 1984, when a sudden decrease of 1.0-1.5 in the V-filter was observed (Panov et al., 1985a). In 1985, a minimum was observed in the U-light curve. It was interpreted as the eclipse of the hot component of CH Cyg by its cool component (Mikolajewski et al., 1987). During this period, no rapid changes in brightness were observed (e.g. Mikolajewski et al., 1987). They were indicated again immediately after the eclipse, mainly in the U-filter, at the end of 1985 and at the beginning of 1986 (Tomov et al., 1986, Skopal, 1987).

New photometric U, B, V observations were carried out at the Observatory Skalnaté Pleso from JD 2 446 700 (Figure 1). The star HD 184 786 was used for the comparison and HD 184 960 for the check. The integration time of one measurement was 10 s. The average values of the U and V- magnitudes during one night are shown in Figure 1.

The period after the eclipse of the hot component was characterized by a gradual decrease of the brightness in the U-filter, although, an increase by about 0.5 was observed in October 1987. Recent observations made in 1988 again indicate its decrease to the value  $\sim 10.5$ , which is comparable with the values in the quiescent phase of CH Cyg, observed in 1970-1977 (Luud et al., 1982). It is interesting that CH Cyg was brighter by about 1<sup>m</sup> in the U-filter during the 1985 total eclipse than in 1988. This fact indicates a decrease of the blue continuum source, which still contributed to the short wavelength region during the eclipse.

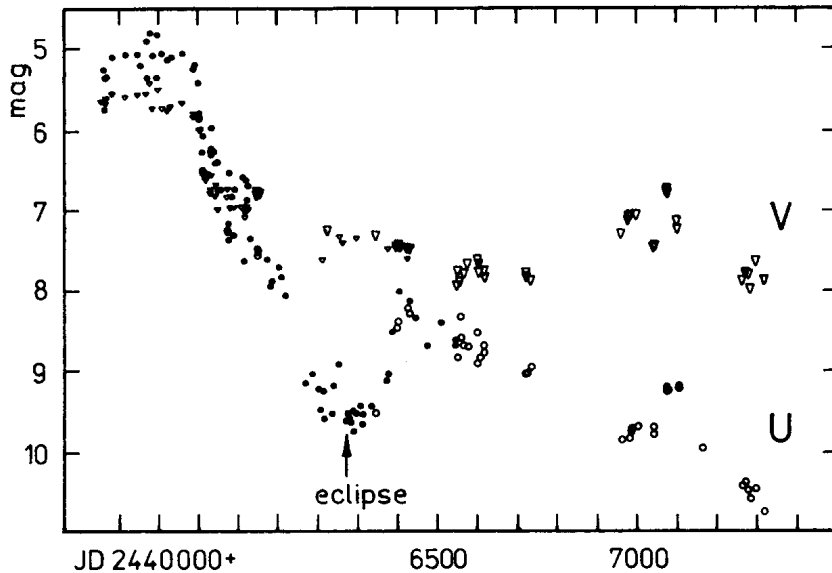


Figure 1. The U and V-light curve of CH Cyg in November 1983 to June 1988. References: ●-U,▽-V light curve according to data published by Vennik et al. (1987), Mikolajewski et al. (1987), Milone et al. (1986), Mikolajewski and Mikolajewska (1985), Mikolajewski and Wikierski (1986), Panov et al. (1985a,b). ○,▽ - Observations carried out at the Observatory Skalnaté Pleso: Skopal (1987) and from JD 2 446 700 this paper.

The star's brightness in the V-filter changed approximately between  $6^m.7$  and  $7.9^m$  from the end of 1984 till the recent observations in 1988. The brightness values were close to the visual magnitude measurements until 1960 (Gusev, 1976) and to the V-magnitude of the quiescent phase of CH Cyg in 1970 - 1977 (Luud et al., 1982). Their changes are independent of the changes in the U-filter. A significant difference in the U and V-magnitude values has been observed ever since the beginning of the eclipse, in May 1985. In 1987 - 1988 this difference reached  $2.5^m$ . The cool component of CH Cyg was thus revealed by the decrease of the blue continuum.

The amplitudes of the rapid changes of the U, B, V photometry decreased during the whole period after the eclipse. In 1987 - 1988, the brightness of CH Cyg in these filters was practically constant during one night ( $\Delta m < 0.1^m$ ), although the difference of amplitudes in the U and V-filter was obvious ( $\Delta U > \Delta V$ ). In the spring of 1986  $\Delta U \sim 0.3^m$ , but  $\Delta V \sim 0.1^m$  (Skopal, 1987, Figure 6), in contradiction to the maximum of activity, when  $\Delta U \sim \Delta V$  (e.g. Reshetnikov and Khudyakova, 1984).

If the accretion material around the hot component of CH Cyg is the source of the star's rapid brightness variations and of the blue continuum, the photometric measurements carried out in 1985 - 1988 showed that the size of the accretion complex decreased and confirmed the end of the active phase of CH Cyg.

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