RECENT INCREASE OF THE ACTIVITY OF THE SYMBIOTIC STAR CH CYGNI

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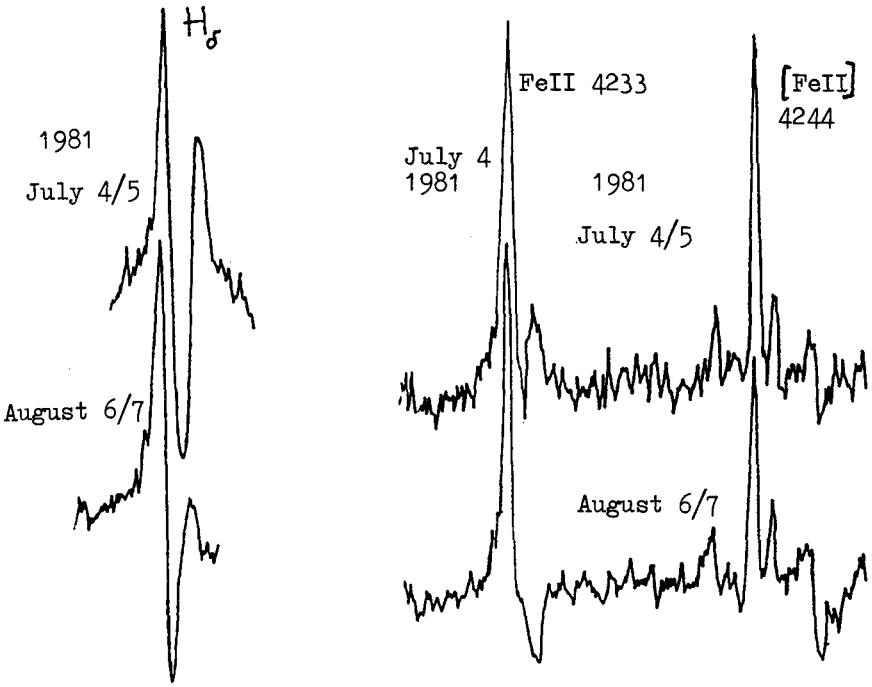
CH Cyg has exhibited a great deal of activity in the recent times. We obtained two spectra with dispersion of 9 A/mm with the 2 m telescope of the Ondrejov Observatory on the nights of July 4/5 and August 6/7, 1981. The differences between these spectra are conspicuous. The description of the spectral changes during this period follows:

The Balmer lines became broader, the R wing of the early Balmer shell lines being partly suppressed by absorption. The inverse P Cygni profiles became apparent from H_8 to H_{30}. The most conspicuous feature is the split



M. Friedjung and R. Viotti (eds.), The Nature of Symbiotic Stars, 137–138.

ting of the TiII absorptions into two components. CaII became broader with several absorption cores. The shell V≫R profile of the FeII lines changed to an inverse P Cygni profile, while no change of the [FeII] line profiles was observed. An increase of the blue continuum is apparent.

Our spectroscopic observations support a binary model in which a cool component fills its Roche lobe from time to time, thus inducing mass transfer towards the gainer which is a hot subdwarf. An accretion disk is formed around the hot companion which falls onto the star. During tne outburst, which can be explained by a thermonuclear runaway on the surface of the gainer, the central bright hot region became larger. This is the cause of the stronger absorptions which arise in the accretion disk. According to the shapes of the line profiles, the following layers in the accretion disk around the hot companion can be distinguished, in the sequence away from the hot companion: H I, CaII, TiII, FeII. [FeII] lines are present in a common envelope. The shape of the shell lines with R< V shows that absorption saturates the R emission as the matter recedes from us when falling down into the surface of the gainer. The recent activity of the star is also confirmed by the photoelectric photometry from Skalnate Pleso Observatory, too. The V magnitude fluctates around $\sim 6^{m}$. The brightness during recent activity is higher than than during the recent photometric history of the star. The observed flickering (Slovak and Africano 1978, Mon. Not. R. astr. Soc. 185, 591) is due to a hot spot on the accretion disk like in the dwarf novae.

https://doi.org/10.1017/S0252921100097529 Published online by Cambridge University Press