

# VARIABLE HIGH VELOCITY JETS IN THE SYMBIOTIC STAR CH CYGNI

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Highly blue or red shifted broad emission components of H I lines have been noticed in some recent spectra of the symbiotic star CH Cyg. Their intensities, profiles, and displacements from the narrow component have changed with time scale of days. For example, a blue-shifted ( $-1545 \text{ km s}^{-1}$ ) intense emission component and a red-shifted weak ( $+757 \text{ km s}^{-1}$ ) emission were seen on 1994 September 9. One day after, the blue-shift and red-shift became  $-2076 \text{ km s}^{-1}$  and  $+1285 \text{ km s}^{-1}$ , respectively.

The profile of the broad emissions could be classified in some groups:

- 1: Main part is seen in the blue side of the narrow component, and a weak tail is found in the red side. The blue-shift of the main peak from the narrow component is roughly  $-1000 \text{ km s}^{-1}$ .
- 2: Main part is seen in the red side. The red-shift of the main peak is roughly  $1000 \text{ km s}^{-1}$ .
- 3: Two emission components are seen in the blue and red sides of the narrow component. The blue-shift sometimes exceeds  $-2000 \text{ km s}^{-1}$ , while the red shift is roughly  $1000 \text{ km s}^{-1}$ .
- 4: Broad emission component is merged in the narrow component.
- 5: Weak but very broad and roughly symmetric emission tail is seen. The full width at zero intensity is about  $8000 \text{ km s}^{-1}$ .
- 6: P Cygni type absorption reverse is superimposed on one of the above profiles.

The behaviour of the broad emission components suggests that there is a strong variable gas outflow in this system. The properties of the broad components are rather similar to those of broad emission components of H I lines of some Seyfert galaxies, except for the time scale of variation.