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**THE H α PROFILE VARIATIONS IN THE
SPECTRUM OF HD 225094, B3Ia**

The great deal of supergiants have variations of light, radial velocity, colour and occasionally in line profiles (see e.g. Abt, 1957; de Jager, 1980). The variations are explained probably by pulsations (Maeder, 1980; Lovy *et al.*, 1984) and/or some other mechanisms.

The star HD 225094 (HR 9097, BD +62°2356) is a member of the association Cas OB5 (Humphreys, 1978), has been classified as B3Ia supergiant and has the magnitude $m_v=6.24$ in the Bright Star Catalogue (Hoffleit, 1964).

The light variability of this star was discovered by Guinan *et al.* (1982). They detected an irregular brightness variability with the full amplitude of about 0^m.1 on a timescale of several days. The observations by Hill *et al.* made in 1976 show the same results. Our recent (1991) observations in the Vilnius photometric system at Mt. Maidanak have resulted in a quite smooth change in the brightness with the full amplitude of about 0^m.1 and with possible characteristic timescale of 22–23^d.

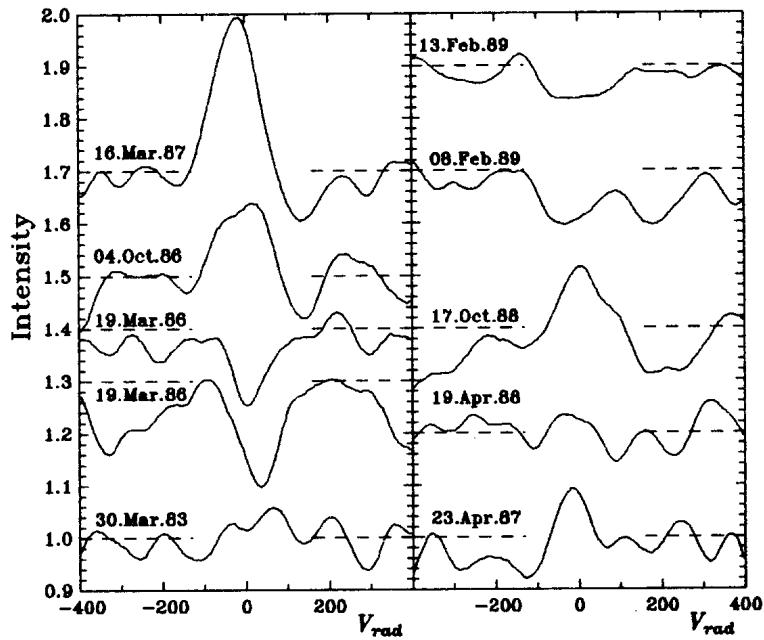
The supergiant HD 225094 has been observed with the 1.5-m telescope of Tartu Astrophysical Observatory at Tõravere / Estonia during 1983–89. We have obtained ten spectra of satisfactory quality using the Cassegrain spectrograph ASP-32 on Kodak 103-aF plates. These spectra cover the H α region with the reciprocal dispersion 27 Å·mm⁻¹, and are being used to investigate the possibility of H α profile variations to test the hypothesis that the star has variability in spectral lines.

All the spectrograms were digitized using the computer controlled Microdensitometer PDS 1010 of Tartu Astrophysical Observatory and elaborated using the spectrum-processing system KASPEK. Reduction routine steps are described by Annuk (1986).

Despite the fact that the spectrograms have a quite high noise-level, the comparison of several spectra has shown that the profile of H α line is

Table 1. List of H α profile observations for HD 225094

<i>JD</i>	<i>Date</i>	<i>W(mÅ)</i>	<i>V_{rad}</i>
2445424.346	30. Mar. 83	—	—
6509.292	19. Mar. 86	480(<i>abs</i>)	42.8(<i>abs</i>)
509.346	19. Mar. 86	307(<i>abs</i>)	23.3(<i>abs</i>)
707.604	04. Oct. 86	-390(<i>em</i>)	-8.5(<i>em</i>)
871.336	16. Mar. 87	-582(<i>em</i>)	-26.06(<i>em</i>)
909.519	23. Apr. 87	—	—
7270.475	19. Apr. 88	—	—
452.420	17. Oct. 88	-146(<i>em</i>)	6.7(<i>em</i>)
566.302	08. Feb. 89	—	—
571.323	13. Feb. 89	—	—

Fig. 1. Variability of H α line profile in the spectrum of HD 225094

variable on long timescale. The log of observations is presented in Table 1. The third and fourth columns give the values of equivalent width and radial velocity (when they were measurable) of H_{α} line, respectively. In Figure 1 the shapes of the profile are presented. One can see that the profile has mainly a "flooded" shape, but it is sometimes changing to either absorption or emission. The mechanism that might be responsible for the observed variations is the growth of the envelope with a following throw off of matter contained in it and/or "puffs" lacking spherical symmetry.

Unfortunately our sequence of observations is irregular and we could not trace all the course of changing. Therefore more observations are needed to investigate this interesting supergiant.

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