Studies of Rapid Line Profiles Variability in Spectra of OB Stars Based on Observations at the Terskol Peak Observatory with the 2-m Telescope

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This paper is devoted to a study of the line profile variations (LPVs) in spectra of bright OB stars from an analysis of their observations on the 2-m telescope at the Observatory on Mount Terskol, Russia. Totally 170 spectra of 6 bright OB stars were obtained from 18 to 24 January 2019. A log of observations is given in the Table 1.

Table 1. Stars observed to detect the fast LPVs at the Terscol observatory.

Star	Sp.Type	V	N_{sp}	Exp (s)	Date obs.
λ Ori A	O8III	3.47	24	240	18-21.01.2019
19 Cep	O9Ib	5.11	8	1200	18-21.01.2019
δ Ori A	O9.5II+B1V+B0IV	2.41	49	90	18-24.01.2019
ε Per	B1.5III	2.89	37	150	18-21.01.2019
γ Ori	B2V	1.64	42	50	18-21.01.2019
η Uma	B3V	1.86	10	50	18-21.01.2019

Result of an analysis of LPVs in spectra of ε Per is given by Kholtygin et al. (2020b). For an illustration in Fig. 1 the difference spectra for line HeI 5016 and H_α are given. Regular components of LPVs with periods from 1.5 to 18 hours were revealed. Evidence of irregular variations in line profiles on minute time scales was also found.

For the main sequence bright B2V star γ Ori the 50 spectra in the region $\lambda\lambda\, 3960 - 7445$ were registered. The line profiles obtained in the different dates are slightly differ as it is demonstrated in Fig. 1 (left panel). The Fourier analysis of LPVs in spectra of γ Ori opens the regular components with periods 3, 8, 54

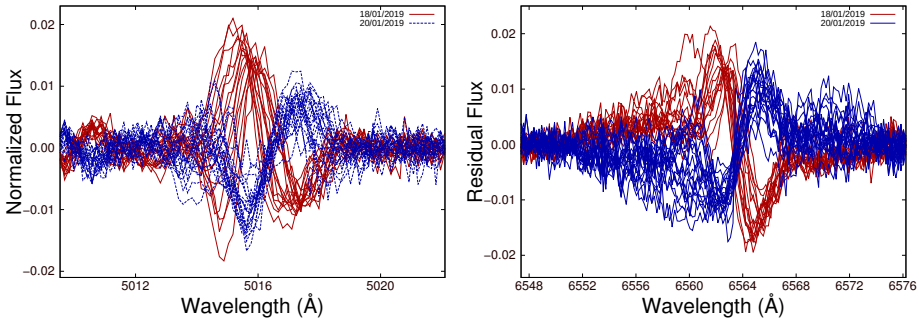

Fig. 1. *Left panel:* Difference spetra for HeI 5016 line. *Right panel:* The same that in the left panel, but for H_α line

and 57 minutes. In the spectra of other stars observed in 2019 and mentioned in a Table 1 the regular LPVs were also detected (Kholtygin et al. 2020a).

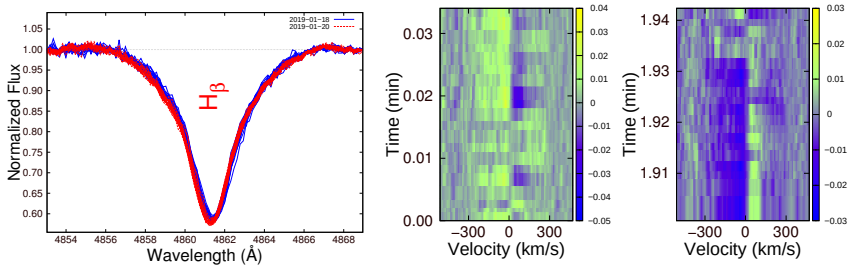

Fig. 2. All H_β line profiles in spectra of γ Ori (left panel), dynamical spectrum of the line H_β LPVs on Jan. 18, 2020 (medium panel) and Jan. 20, 2020 (right panel).

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