

COMMISSION 27 OF THE I.A.U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 109

Konkoly Observatory
Budapest
20 October 1965

**SPECTRAL VARIATIONS OF THE
WR STAR HD 50896**

Variations in the spectrum of the WN6 star HD 50896 were found by Wilson (1948), Smith (1955) and by one of us (Bertola 1963), while light variations were detected by Ross (1961). Fifty spectra were obtained at Asiago using the Cassegrain spectrograph 40 Å/mm at H γ in order to ascertain the possible binary nature of the star, common to a large number of WR stars. The spectra cover a period of six years, from 1959 to 1965. Many of them were taken in rapid succession during the night. The following emission lines have been measured for radial velocity: He II 4859, 4685, 4541, 4338, 4199, 4100; N IV 4058; N V 4603-19. For all the lines comparable radial velocity variations with a mean amplitude of 300 km/sec were detected. On the average the velocity range is between -20 km/sec and +280 km/sec. However, no correlation seems to exist between the displacements of the lines. A period-analysis of the radial velocities shown by the N V 4603-19 line, the sharpest feature in the spectrum, leads to a tentative period less than one day. Nevertheless the scatter is high and no certain conclusion can be derived. We are tempted to conclude that on the basis of our present data, the hypothesis of the binary nature of the star has to be ruled out. The fact that the continuum in HD 51896 is not so strong as in other WR binaries, where there is the contribution of the companion, might be another argument supporting the above conclusion.

An additional aspect of the spectral variations of HD 50896 is concerning the line profiles of He II 4100 and N IV 4058. While in the majority of the spectra the contour of the He II 4100 line is rounded, in some cases it exhibits a plateau-like shape. More conspicuous are the variations of N IV 4048. Normally the profile of this line is asymmetric, steeper on the violet edge. However,

sometimes, the band has a superimposed absorption feature, whose position and intensity are variable. When the absorption is present, the red edge is equally steep as the violet.

If future observations will confirm that HD 50896 is not a binary system, then, the above variations are an indication of considerable activity in the envelopes of WR stars.

References:

- Bertola F., 1963, Asiago Contr. No. 137.
Ross L.W., 1961, PASP 73, 354.
Smith H.J., 1955, Harvard Thesis.
Wilson O.C., 1948, PASP 60, 383.

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October 1965

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