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# Spectroscopic observations of the exoplanet WASP-32b transit

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## Abstract

© 2017, Pleiades Publishing, Ltd.We present first results of spectroscopic observations of transiting exoplanets in the Special Astrophysical Observatory of the Russian Academy of Sciences with the Main Stellar Spectrograph of the 6-m BTA telescope. For the exoplanetWASP-32b, we detected a significant variation of intensity and equivalent width in the Hα spectral line of the parent star at the time of a transit. The equivalent width of the line during transit is by 8–10% larger than outside the planet passage. Residual intensity in the core of the line reveals the following tendency: the line is by 10–15% deeper inside transit than outside it. Observations with the long-slit spectrograph of the Crimean Astrophysical Observatory at the 2.6-m ZTSh telescope also showed a transit event in the Hα line, although, with a smaller amplitude and shape inverted in relation to the data from the 6-m telescope. While in the observations with the BTA the Hα line becomes deeper during the transit, in the ZTSh observations, the residual intensity of the Hα line decreases during the transit. Reducing and analysis of the archive data of WASP-32b observations with the HARPS spectrograph also confirm the Hα line modulation at the time of the transit. The observed data give evidence of the envelope in WASP-32b filling the Roche lobe and a comet-like tail of changing geometry and orientation relative to the observer. These changes determine different depths and shapes of the Hα spectral line at the time of transits.

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## Keywords

planetary systems, planets and satellites: individual: WASP-32b

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