

TIME SCALE VARIATIONS OF C IV AND Si IV P-CYGNI PROFILES IN THE UV SPECTRUM OF THE O-STAR HD 93521

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In this paper we study the UV C IV and Si IV P-Cygni profiles of the O-star HD 93521 in four different periods spanning a time interval of 16 years. Using GR model, we perform multicomponent fits to C IV and Si IV P-Cygni profiles, and we analyze both emission and absorption spectral lines to the individual components they consist of. We therefore resolve and study independently (a) the emission from the adjacent absorption and (b) the different components that compose both the emission and absorption profiles. By measuring the radial velocities, FWHMs, optical depths (at lines centers) and column densities of each individual emission and absorption component we probe the physical conditions, kinematics and time variability of each individual emitting/absorbing cloud in the line of sight. Finally, we examine the variability of the ratios of the column densities between the absorption and emission components that form the P-Cygni profiles. Our main goal is to test the distinction and independence of emission and absorption components indicating that the stellar wind, as in the case of quasar outflows, is not smooth and homogeneous but clumpy, consisting of emitting and absorbing clouds that form the complex P-Cygni profiles. Multicomponent fitting of C IV and Si IV P-Cygni profiles is performed using ASTA software built by the Astrophysical Spectroscopy Team of the University of Athens.