The complex structure of the SiIV λλ 1393.755, 1402.73 Å regions of 42 BeV

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Abstract. In this paper we present a statistical study of the UV SiIV resonance lines in 57 BeV stars' spectra, using the method proposed by Danezis et al. (2003). With this method we can study the velocity fields of the complex atmospherical regions of SiIV resonance lines λλ 1393.73, 1402.73 A, which present SACs or DACs. We found that there exist five levels of rotation velocity with the mean values of 830 km/s, 492 km/s, 285km/s, 137 km/s and 51 km/s. The values of the apparent radial velocity of all SACs lie in the range between -306 km/s and +194 km/s.

1 Introduction

The ultraviolet resonance lines of SiIV (λλ 1393.755, 1402.77 Å) are usually intense features in the spectra of early type stars and provides us with a useful tool for the study of the stellar atmosphere's structure. Thus, it has been studied by many researchers [1-33]. The profile of the resonance lines seems to depend on the spectral subtype and the luminosity class [29], so it has been proposed that the doublet may be a significant tool for the spectral classification [23], [33]. It has been observed that the lines present decreasing strength from the earliest to the latest spectral subtypes. Panek & Savage [22] and Henize et al. [11], [12] observed that they disappear in the spectra of Be stars later than B3. However, Marlborough [20], Marlborough & Peters [21] and Slettebak [26] pointed that the doublet may be observed in stars as cool as B8. Many researchers have studied the existence of Satellite Absorption Components (SACs or DACs), which accompany the SiIV resonance lines in the spectra of Be stars and which are of circumstellar or

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interstellar origin [1-5], [7-10], [13-20], [24], [25], [29-32]. Finally, the SiIV doublet is an indicator of mass-loss effects in B stars, especially when asymmetries appear in both of the resonance lines [13], [17], [27], [28].

2 Data and Results

The data we used are the SiIV resonance lines of 42 BeV stars. The stars' spectrograms have been taken with IUE satellite with the Short Wavelength range Prime camera (SWP) at high resolution (0.1 to 0.3 Å).

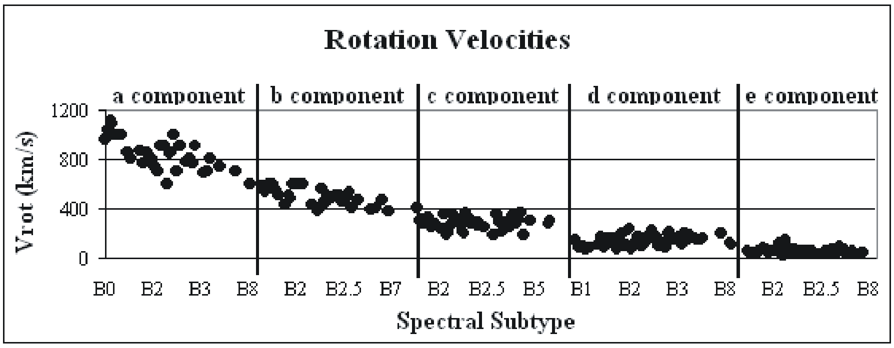

Figure 2 : *Apparent rotation velocities of all the SACs as a function of the spectral subtype. Five levels of rotation velocity are presented with the mean values of 830 km/s, 492 km/s, 285km/s, 137 km/s and 51 km/s.*

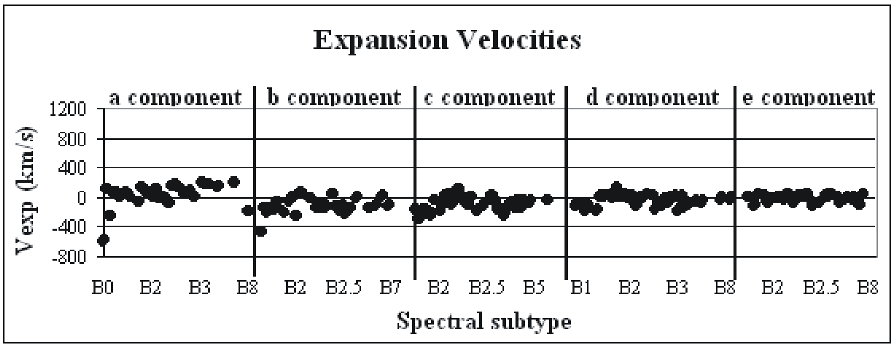

Figure 3 : *Apparent expansion/contraction velocities of all the SACs as a function of the spectral subtype. The values of the expansion/contraction velocity of all the SACs lie in the range between -306 km/s and +194 km/s.*

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