

P03a Long-Term Variability of Spectropolarimetric Properties in AB Aurigae

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We present the results of high resolution and long term spectropolarimetric monitoring observation for the pre-main sequence Herbig Ae star AB Aurigae (A0Ve). The measurements of the linear polarization were carried out with LIPS (Line Polarimeter and Spectrograph, $R = 7000 - 9300$) at UH88 telescope during three seasons in 2002, 2005 and 2006. The emission lines of $H\alpha$, He I, Na I D, O I and others were investigated.

We found a significant variability in both spectroscopic and polarimetric profiles, especially for the $H\alpha$ line. Changes in the linear polarization of $H\alpha$ P-Cyg-type profile are detected across blueshifted absorption wing, but no linear polarization was detected across emission component, which had been reported by Pontefract et al. in 2000. We propose two different interpretations of the disappearance of polarized $H\alpha$ emission component. In the first one, the spherically symmetric distribution of most of $H\alpha$ photons that directly approach to the observer significantly increased. This situation might be caused by stellar activity. The second interpretation involves the changes in the spatial distribution of circumstellar matter with random distribution of inhomogeneities such as regions of different electron density.