

# Pleione (28 Tau) is now forming a new disk!

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and

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Pleione (28 Tau) has started its new shell activity. On December 15, 2005, we found a broad and shallow absorption feature of the CaII K-line, which is known as the precursor of a new shell activity cycle (Gulliver 1977: ApJS 35, 441). The Ca II K-line absorption profile is characterized by the total width of 1200 kms<sup>-1</sup> at the continuum, the half half-width of 200 kms<sup>-1</sup>, the central depth of 0.08, and the equivalent width of 0.45Å. The spectrum was obtained at the Nishi-Harima Astronomical Observatory with a new spectrograph attached to the Nasmyth focus of the 2m-reflector, *NAYUTA*. The spectral resolving power was  $R = 7000\text{--}9000$  and the  $S/N$  ratio was about 450.

A follow-up observation carried out with the similar spectral resolution at the Bisei Astronomical Observatory on January 14, 2006 showed that the Ca II K-line became further deeper. Figure 1 shows the profile variation of the Ca II K-line from 2004 December to 2006 January.

The emission strengths of the H $\alpha$  and H $\beta$  lines were still strong in the course of their steady decrease after the year 2000. However, we found that the central shell absorption components of the Balmer lines have started to develop. Figure 2 shows the profile variation of the H $\beta$  line.

The singly-ionized metallic lines (Fe II, Ti II, and Cr II, etc.) are characterized by a broad and shallow absorption with the total width of about 500 kms<sup>-1</sup>, and a superposed central weak emission-like feature without a sharp shell component (see the Ti II line at 3914Å plotted in Fig.1, for example). We further noticed that the Fe I lines at 4046Å and 4064Å also show the profile characteristics similar to the singly-ionized metallic lines, with the central depth of only 0.02–0.03.

Pleione is now in the very early stage of a new disk formation process, which started

within one year, as judged from our observation in 2004 December. We would like to encourage any Be-star observers to include Pleione on their observing list in spectroscopy, photometry, or polarimetry.

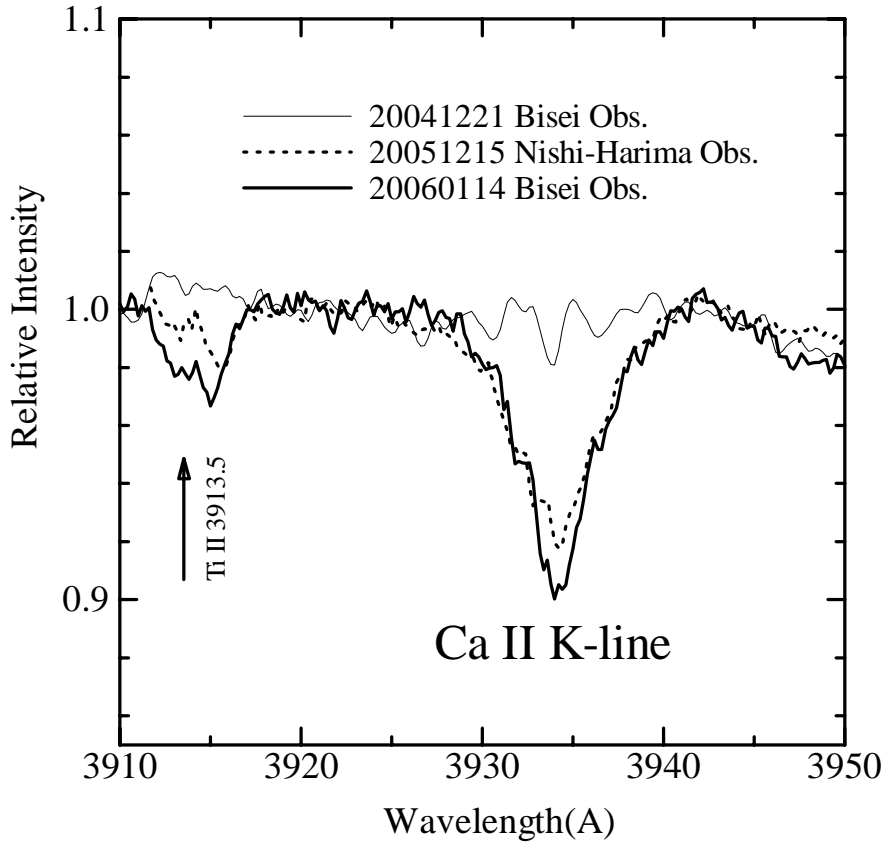


Figure 1: Ca II K-line profiles from 2004 December to 2006 January

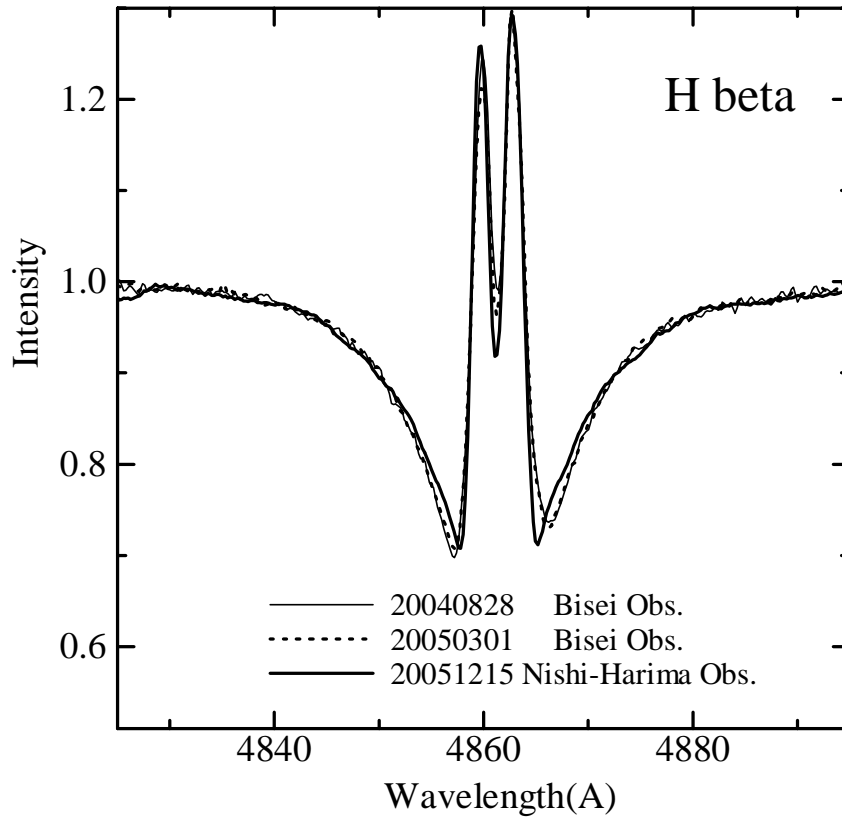


Figure 2: Deepening of the central shell absorption components at H $\beta$  line from 2004 August to 2005 December