

# Current Minimum of the H $\alpha$ Equivalent Width in $\pi$ Aqr

Observations note of the German VdS-Spectroscopy-Group\*

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Based on data published by Dachs et al. in 1986, Bjorkman et al. (2002) concluded that the last maximum in the emission strength in  $\pi$  Aqr was between 1980 and 1985. In their paper, Bjorkman et al. also reported the discovery of an observed extra emission embedded inside the absorption profile of H $\alpha$  and suggested that this is evidence for the existence of a companion star.

Despite data gaps due to a non-visible period, the maximum was clearly determined by the German VdS-Spectroscopy-Group to be within the narrow time window of 27 October 2005 ( $\pm 2$ d). But the H $\alpha$  emission during the last maximum (EW  $\approx 7.5$  Å, cf. Fig. 1) seems to be minute compared to that in the 1980s in which EWs of up to 40 Å were observed.

The current intensity of the H $\alpha$  emission (EW  $\approx 1-2$  Å) suggests that  $\pi$  Aqr is on its way back to a quasi-normal B-phase (Fig. 2). Should this trend prevail, the monitoring of the H $\alpha$  absorption line would be of specific interest for us because of the up coming possibility of detecting the extra emission discovered by Bjorkman et al. (2002), as our apparatus's spectral resolution has been improved considerably. The observations so far have been carried out with telescopes between 20 and 40 cm aperture and spectral resolutions  $R \approx 8000 - 14000$ . With telescopes comprising aperture more than 40 cm and spectrometers with a minimum resolution of 15000, it should be possible in the near future to provide good scientific data to support the professional community.

## References:

- Bjorkman, K.S., et al., 2002, ApJ, 573, 812-824  
Dachs, J. 1986, A&AS, 63, 87-141

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\*VdS: Vereinigung der Sternfreunde Deutschland

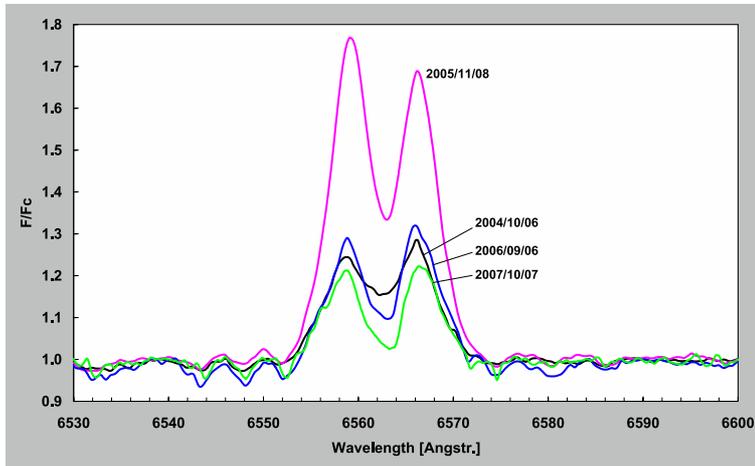


Figure 1: Development of the H $\alpha$  line profile between 10/2004 and 10/2007

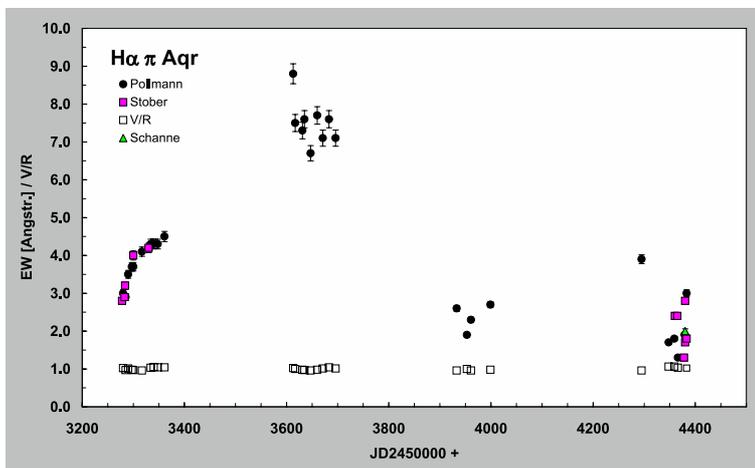


Figure 2: Time behavior of the H $\alpha$  EW and V/R between 10/2004 and 10/2007