E P9 A search for magnetic field gradients in atmospheres of Ap stars

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We present first results of our search for radial gradients of the magnetic field in atmospheres of three Ap stars. The high resolution and large spectral range of our spectra, obtained with the UVES spectrograph at the European Southern Observatory, allowed us to measure the mean magnetic field modulus from the Zeeman splitting of spectral lines below the Balmer discontinuity and to compare it with the modulus deduced from the magnetically split lines formed at higher optical depths.

Due to heavy line blending, especially in the short wavelength domain below the Balmer jump, only a small number of lines could be used to determine the mean magnetic field modulus. Even though, hints for a significant radial gradient have been detected in two stars. These results certainly should be taken into account in future magnetic field modelling and spectrum analyses.