

**HIGH RESOLUTION SPECTROSCOPY
AT THE ESO 50 CM TELESCOPE:
SPECTROSCOPIC MONITORING OF LUMINOUS HOT
STARS**

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Abstract. Galactic Luminous Blue Variables and A- and B-type supergiants were monitored spectroscopically with high resolution in wavelength and time. Line profile variations on different timescales are found.

1. Observations

With the portable fiber-linked echelle spectrograph of the Landessternwarte Heidelberg-Königstuhl FLASH (Mandel, 1988) attached to the ESO 50 cm telescope at La Silla we monitored from February through May 1993 a few galactic Luminous Blue Variables (LBV) and several A- and B-type supergiants (cf. Wolf et al. 1993) at high resolution both in wavelength

TABLE I
List of monitored objects

| object | sp | spectra/nights |
|------------------|---------------|----------------|
| η Car | pec (LBV) | 103/117 |
| θ^1 Ori C | O7 V | 78/89 |
| AG Car | Ofpe-A2 (LBV) | 91/115 |
| ζ^1 Sco | B1 Ia-O | 93/114 |
| β Ori | B8 Ia | 86/104 |
| HD 96919 | B9 Ia | 84/115 |
| HD 92207 | A0 Ia | 86/115 |
| HD 160529 | A2 Ia-O (LBV) | 71/101 |

($R = 20000$) and time (each night one spectrum per object). With our EEV CCD with 1152×770 pixel of 22μ we cover 2700 \AA in one exposure (standard setup: $4050 - 6780 \text{ \AA}$).

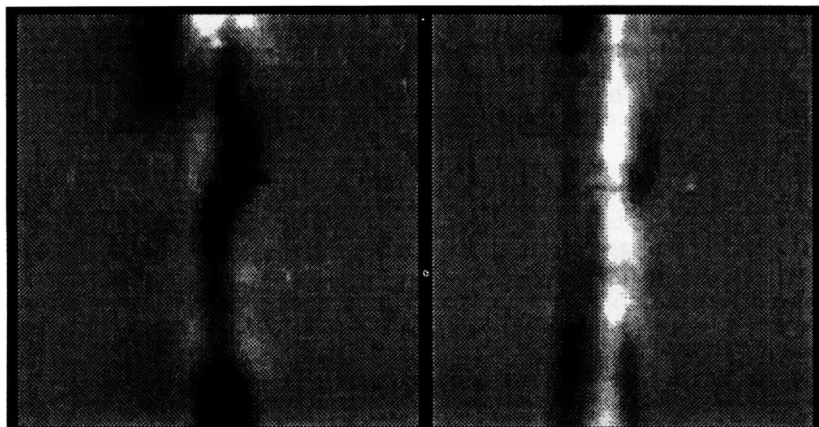


Fig. 1. Line profile variations of He I 6678 (left) and Si II 6347 of AG Car. The lines are centered to the systemic velocity (+20 km/s) of AG Car. The complete width of the abscissa is from -300 to $+300$ km/s for both lines. The ordinate covers the timespan from JD 2449023(bottom) to JD 2449139(top).

2. Aims and first results

The aim of the campaign is to study the time and depth dependent atmospheric velocity fields of these objects and the mass-loss variations derived from the $H\alpha$ -profile variations.

All monitored objects show line profile variations from strictly periodic as found for θ^1 Ori C (cf. Stahl et al. 1993) to highly irregular as for β Ori. The observed typical timescales of these variations due to the hydrodynamic processes in the extended atmospheres of these luminous objects range from a few days to a few weeks. Therefore daily observations over months are the right choice to monitor these stars.

References

- Mandel, H.: 1988, in IAU Symp. 132, eds. G. Cayrel de Strobel and M. Spite, pg. 9-13, Kluwer.
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- Wolf, B., Mandel, H., Stahl, O., Kaufer, A., Gäng, Th., Gummertsbach, C.A., Szeifert, Th.: 1993, "High resolution spectroscopy at the ESO 50 cm telescope": The ESO Messenger (submitted)