THE FAR UV SPECTRUM OF THE BINARY SYSTEM AX MON *

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AX Mon is early indicated in the literature as a double system (Merrill 1952). Cowley (1964) noted that the system consists of a rapidly rotating B3 star and a somewhat fainter K giant.

We describe in this paper the main features of the far UV spectrum of HD 45910 observed with IUE at phase 0.5 (SWP 4762, LWR 4131). An analysis of this spectrum has been presented as part of a Ph.D. thesis (Danezis 1983). The far UV spectrum of AX Mon presents a large range of ionization stages going from CI, OI, NI, MgI to SiIV, CIV, NV.

1. Lines of Low/Normal Ionization

The spectrum is dominated by shell absorption lines of NiII, FeII, FeIII, SiII, SII, CII, AlII, AlIII, MgII. A double structure is clearly indicated in all these lines. Their average radial velocity is 0 ± 10 km s^{-1} and -260 ± 10 km s^{-1} respectively (Fig. 1 and 2). Red emission wings are observed in the MgII resonance doublet at 2800 Å which shows a P Cygni profile. The MgII absorption cores are composed of a narrow component close to rest wavelength which blends with the IS line, and a broad component which shows a multiple structure. The resonance lines of FeII present a third component located at lower velocity (-60 km s^{-1}) (Fig. 5).

2. Lines of High/Normal Ionization

Broad and asymmetrical profiles are observed for SiIV, CIV, NV resonance lines with blue edge velocities -660, -700 and -650 km s^{-1} $\pm$ 5 km s^{-1}, respectively (Fig. 3 and 4).

In Figures 1 to 5 we present the line profiles of AX Mon together with those of HD 50138 observed by V. Doazan with IUE.

Acknowledgments

I wish to thank Dr. V. Doazan for suggesting and supervising this work and Drs. P. L. Selveli and R. Stalio who have communicated to us the IUE spectra of AX Mon.

References

Cowley, A. P. 1964, Ap. J. 139, 817.
Danezis, E. 1983, Ph.D. Thesis, University of Athens 1983.
Merrill, P. W. 1952, Ap. J. 116, 498.

* Read by V. Doazan

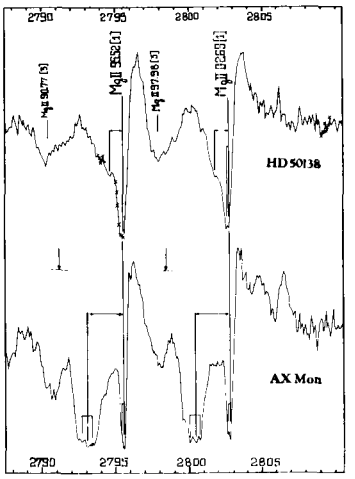

Fig. 1

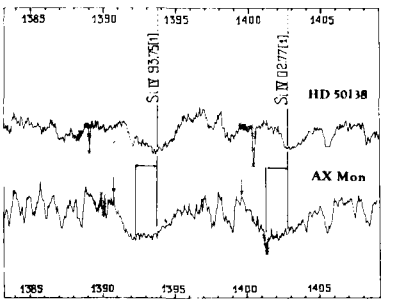

Fig. 2

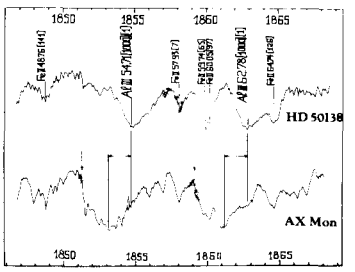

Fig. 3

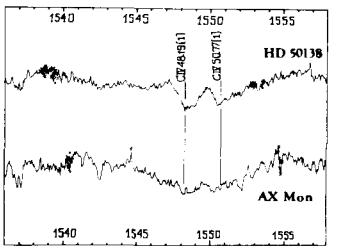

Fig. 4

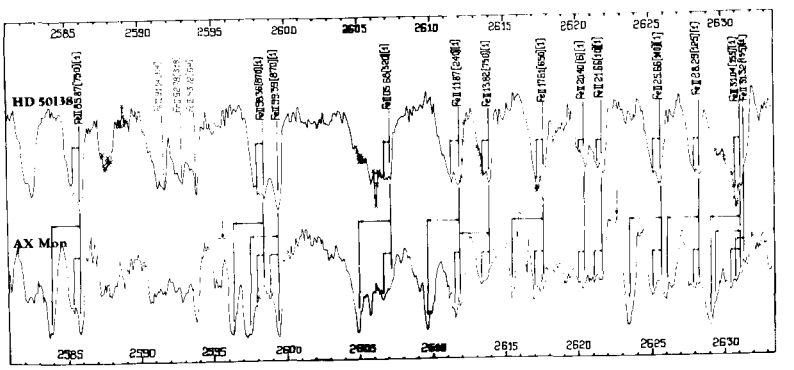

Fig. 5

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DISCUSSION FOLLOWING DANEZIS (paper read by Doazan)

Plavec:

The missing component in the FeII (1) resonance doublet may be due to blending with a weak emission in the red wing of the component. Interacting binaries typically display emissions at the resonance or the lowest-level subordinate lines of FeIII; with cooler circumstellar plasmas, you will probably get the same with FeII. The emission lines have P Cygni profiles, thus you can get a red-displaced component; it may blend with the absorption profile of the other component, and thus decrease its depth substantially.

Doazan:

We do not see any emission wings in the FeIII lines, and the crowding of the FeII lines in the region of the FeII resonance lines does not allow any detection of emission wings.

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