

PHOTOELECTRIC ROCKET SPECTRA AT 10 Å RESOLUTION

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Abstract. Spectral scans of a number of early-type stars have been made with a three-channel spectrophotometer attached to a 32 cm telescope. The telescope was pointed at the individual program stars with an accuracy of at least 20 sec of arc. The spectral resolution was 10 Å over the range 1150 Å to 4000 Å. The data were recorded in digital form and processed in a computer.

The profile of hydrogen Ly- α , as smeared by the exit slit, was obtained for α Lyr, α CMa, β Ori, and β Tau. For the earlier-type stars observed the Ly- α line of the star is masked by interstellar hydrogen absorption. For ζ Oph and ζ Per the Ly- α absorption is considerably larger than for the other early-type stars. The identification of lines is relatively simple for the light elements but becomes more difficult with the heavier ions since there are many more weaker lines and 10 Å is then insufficient resolution. Extreme P Cygni profiles are present in the earliest stars and are interpreted as mass loss at high velocity.

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Discussion

Jenkins: At this time would you care to quote measurements of the Lyman-absorption equivalent widths in your spectra?

Stecher: I have not measured them in detail because of the difficulty in assigning the position of the continuum. Qualitatively only ζ Oph and ζ Per have large equivalent widths that are interstellar. The rest are in agreement with your measures. One indicates a low hydrogen abundance.

Jenkins: I had the impression that the continuum was reasonably well defined on either side of Lyman- α in some of your tracings. Since a few of these stars have not been observed at Lyman- α by other investigations, it might be useful to add your information to the collection of H α column densities in various directions.

Stecher: Yes, I plan to in the near future.

Morton: I believe you also have a scan of α Lyr. Does it show the extensive line blanketing in the 2000 to 3000 Å region found in α CMa?

Stecher: α Lyr appears to have less blanketing than α CMa. A comparison will be made soon. *Carruthers:* Would you care to comment on the relative velocity shifts in the P Cygni line profiles in γ Vel as compared to ζ Pup?

Stecher: They appear to be about half that of ζ Pup. I believe you and Morton can measure this better than I can.

Underhill: The fact that γ^2 Vel is classified as WC8 and ζ Pup as O5 f indicates that the shell of γ^2 Vel is considerably more dense than that of ζ Pup.

Stecher: Yes, I agree. This makes it most useful to compare the two and then attempt to explain the difference.

Houziaux: We have seen many lines in your spectra, despite the quoted resolving power of 10 Å. Could you state what is the shape of the instrumental profile?

Stecher: The geometric slit width.