GENERAL DISCUSSION

Hutchings: Do you have any comment on the existence or origin of the λ5300 line reported in HD 153919 by Dupree and tentatively attributed to Fe XIV?

Olson: A broad emission feature at 5294Å was reported by Baliunas, Dupree and Lester (1977, Bull. A.A.S., 9, 298) and tentatively identified as an Fe XIV fine structure transition. However, this emission was seen in an X-ray binary (HD 153919, 4U 1700-37) and not in any of the single O stars they examined. Therefore, at the present time, this observation is not relevant to single star wind models.

Lester: Coudé spectra taken at Cerro Tololo in May 1977 at the same phases at which the (Fe XIV) was previously reported show no emission which can be attributed to this ion to a limit of < 1% of the continuum. There is also no variability in this spectral region with phase.

Seggewiss: Let me come back to Wolf-Rayet stars with intrinsic absorption lines. Beside HD 92740 there are some other WN7 stars in the η Carinae region showing O-type absorption lines which very likely belong to the WR star : HD 93162 (Moffat, 1978, Astron.Astrophys.) and HD 93131 (Moffat and Seggewiss, 1978, Astron.Astrophys, in press). According to our Coudé spectroscopy these stars don't show velocity variations. They may be binaries only if the orbital inclination is fortuitously small and/or the companion is a very low mass star. This appears contrived and more likely they are single WR stars with intrinsic absorption lines like the photospheric absorption lines in Of stars.

Underhill: I would like to emphasize that the spectra of WN7 and WN8 stars are very similar to Of spectra, the chief differences being the greater intensity of the emission lines in the WN stars. The line widths are comparable. Wolf-Rayet stars of all other spectral subtypes have significantly broader emission lines. They form a different morphological group. At the time the type WN7 was first recognized, the type Of was barely known owing to the weakness of the defining emission lines. Then all hot stars with strong NIII and He II emission lines were put automatically into the Wolf-Rayet class.

Abbott: How much geometric extension is needed to produce emission in lines?

Kunasz: For the kinds of models I have worked with, if the line formation region extends as far as 1.3 stellar radii some emission is expected.

P. S. Conti and C. W. H. de Loore (eds.), Mass Loss and Evolution of O-Type Stars, 309–310.

Castor: I want to point out a numerical coincidence that may be significant for the coronal-plus-cool wind model. That is that the 1-2 KeV X-ray flux required in Cassinelli's and Olson's model of ζ Pup is just what is produced if all the mass of the wind passes through a shock wave with a strength of about 600 km/s. The emission measure of the cooling region behind the shock is the same, to a factor 2, as that required in the coronal wind model. The shock strength 600 km/s will produce a hot region with a temperature of 5×10^6 K. We can only guess what might produce such a shock; we might get an oblique shock if the radial flow in a rotating star developed a non-axisymmetric instability. I have not found a really convincing picture of this, but it could work.

I have talked with Nelson about what his and Tony's instability would do. It is important to notice that the instability exists only for length scales less than a mean free path of the lines that drive the flow. That is 10^8 or 10^9 cm - very small. With a mixing-length-type description of the finite amplitude motion, we find velocity amplitudes like a few kilometers per second.

https://doi.org/10.1017/S0074180900013681 Published online by Cambridge University Press