

NEW OBSERVATIONAL RESULTS OF Of/WN - TRANSITION TYPES

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Of/WN stars have been introduced by Walborn (1977). These luminous stars are particularly characterized by the appearance of both the characteristic Of emission lines of HeII and NIII and strong HeI and [NII] emissions. These objects have become particularly interesting due to the discovery of their link to the S Dor variables (Stahl et al. 1983, Stahl 1986, Wolf 1987). They are supposed to represent key objects in the evolution of massive stars being the immediate progenitors of WN stars. We observed the Of/WN transition type stars R127, R84 and S61 of the LMC with high dispersion spectroscopy in the optical and satellite-UV range. R127 is at present undergoing an S Dor-type outburst. In 1986 R127 became the visually brightest star of the LMC until it was surpassed by SN1987A in Feb. 1987. The spectrum in the optical range during the extraordinary bright outburst phase is distinguished by numerous P Cygni type lines of singly ionized metals. Since the beginning of the present outburst the spectral type has gradually become later and the equivalent spectral type as derived from our latest CASPEC spectrum taken in 1986, August 22 was middle A. The IUE-spectrum of R127 during maximum is characterized by copious lines of singly ionized metals formed in the wind. A detailed discussion of the optical and satellite UV high dispersion spectrograms of R127 taken during its present extraordinary bright outburst phase is forthcoming in *Astronomy and Astrophysics* (Wolf et al. 1987a).

The Of/WN-characteristics at quiescence have been studied from the observations of R84 and S61. The high resolution and high S/N-spectra in the optical range are particularly distinguished by strong emission lines of H, HeI and [NII]. The UV spectra of both stars closely resemble those of late O-supergiants but all absorption lines are violet-shifted by about  $250 \text{ km s}^{-1}$  (R84) and about  $200 \text{ km s}^{-1}$  (S61). The absorption lines are stronger than in normal O-type stars. The UV-resonance lines indicate low terminal wind velocities of  $\approx 900 \text{ km s}^{-1}$  only. Unlike to normal O-type stars the AlIII-resonance lines also show pronounced P Cygni profiles with an even lower edge velocity ( $v_{\text{edge}} \approx 400 \text{ km s}^{-1}$ ). The mass loss rates ( $6.10^{-6} M_{\odot} \text{ yr}^{-1}$ ) are comparable to rates found in normal luminous hot stars. However, the wind appears to be

much more gradually accelerated similar to the wind of the galactic supergiant P Cygni. It is suggested that the Of/WN transition type stars are the hotter counterparts of the early B-type P Cygni stars. A detailed paper on the Of/WN-transition type stars R84 and S61 is forthcoming in *Astronomy and Astrophysics* (Wolf et al. 1987b).

#### References

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