

ULTRAVIOLET OBSERVATIONS OF RR TELESCOPII

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The ultraviolet spectrum of RR Tel was extensively studied with the IUE satellite since 1978 in both the high and low resolution modes. A comprehensive study of these observations was made by Penston et al. (1981) who measured more than 400 emission lines. As it is clearly shown in figure 1, the UV spectrum of this symbiotic star is very rich in emission lines. Like in the optical spectrum (Thackeray 1977), the UV spectrum presents emission lines of ions belonging to a wide range of ionization energies, from neutral up to four and five times ionized species (OV, MgV, CaVI, etc.). Permitted, intercombination and forbidden transitions were found which may allow a diagnosis of the physical conditions of the emitting regions. Electron temperatures of $1.2\text{--}1.9 \times 10^4 \text{K}$ and densities of $10^6\text{--}10^8 \text{cm}^{-3}$ were derived by Penston et al. (1981), but higher densities could be inferred from the relative intensities of the NIII] lines (Alta-

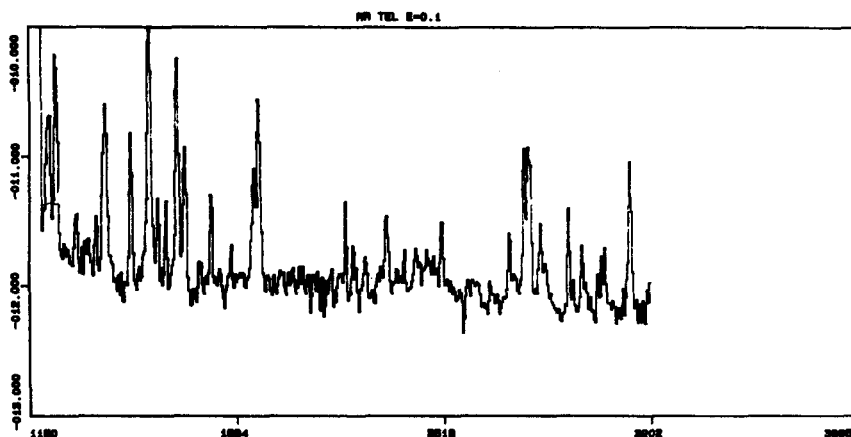


Figure 1. The low resolution ultraviolet spectrum of RR Tel.

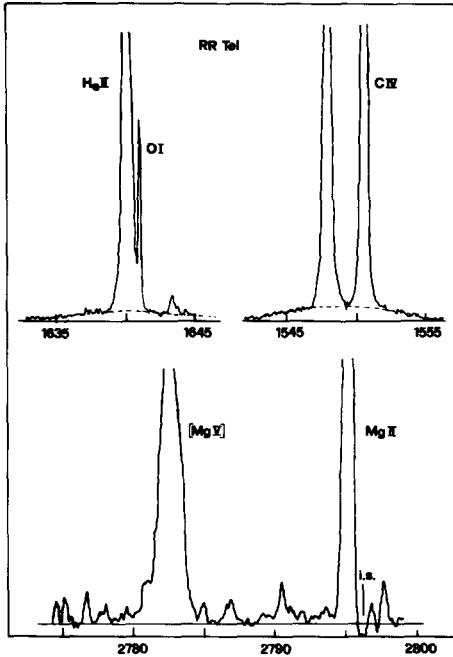


Figure 2.

intense lines. The width and relative intensity of the wings seem to be different from line to line, being larger for CIV and HeII and smaller for CIII] λ 1909 line.

Broad emission wings have been observed by Keyes and Plavec (1980) in AG Peg and by Altamore et al. (these proceedings) for the HeII λ 1640 emission line in AG Dra. They could be the result of Thomson scattering in an extended ionized envelope, or of emission from a very hot region or rotating disk. A detailed study of these features in the UV and optical spectra of symbiotic stars is required to improve the current models on these stars.

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more et al. 1981). Several FeII emission lines were identified by Penston et al. belonging to resonance and highly excited transitions as well. From the high resolution spectra they also found a systematic increase of the line widths with the ionization energy. A similar result was previously found by Friedjung (1966) and Thackeray (1977) for the optical lines. The optical spectra also show broad emission features resembling the WR line spectra.

Weak shallow emissions are also present in correspondence of the strongest emission lines in the most exposed IUE SW images, while they are less evident in the LW region probably because of the high density of weak emission lines (figure 2). These wings could be of instrumental origin but an inspection of the most exposed calibration spectra taken at VILSPA showed no trace of wings in the most