# ULTRAVIOLET VARIABILITY OF THE SYMBIOTIC STAR AG PEG

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Symbiotic star AG Peg consists of a hot subdwarf with a WN6 spectrum and a cool M3 giant, which is not filling its Roche lobe (Boyarchuk 1967, 1985). A detailed study of profiles, equivalent widths and radial velocities of emission lines in optical spectra allowed Hutchings et al. (1975) to conclude that a hot subluminous star approximately 1 $M_\odot$ rotates rapidly and ejects material which streams towards the cool M giant with the mass 3-4 $M_\odot$. UV observations seems to support this model.

UV observations provided from the databank of the IUE satellite were obtained in 1978-81 by different observers. The observational material consists of 12 high dispersion SWP spectra and covers the region 1200 - 2100 A. The spectra were reduced at Trieste observatory using standard IUESIPS package. The radial velocities of emission lines were measured on tracings and corrected for the motion of Earth and satellite. The orbital phases in our paper were computed according to Meinunger's (1981) ephemeris:

$$\text{Min.} = \text{JD } 2\,428\,250 + 827^{d} \times E \,, \qquad (1)$$

derived from photometric minima of brightness.

UV spectrum of AG Peg shows a number of strong emission lines. From the shapes of the line profiles it is possible to distinguish three types of emission lines:

1. Very broad emission lines with width (FWHM) 600 - 1000 km/s: He II 1640 Å, N IV 1718 Å, N V 1238,1242 Å.
2. Narrow emission lines with width (FWHM) 40 - 70 km/s: O III] 1661,1666 Å, Si III] 1892 Å, C III] 1909 Å.
3. Combined broad emission lines with narrow component: N IV] 1486 Å, C IV 1548,1550 Å.

The broad emission lines are formed in higly ionized region near the hot rapidly rotating object. The broad emission lines N V 1242 A, N IV 1718 Å and C IV 1550 Å show broad absorption in the blue wings of these lines, which indicate mass-loss wind (Penston and Allen, 1985). The proof that the wind is not isotropic comes from the observation of C IV 1548 Å line, which is in some phases depressed due to blending with broad absorption component of broad emission line C IV 1550 Å (Fig. 1). Fig. 2 shows that the wind is variable and



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seems to be more enhanced in the direction of the cool component. The wind can easily drive material ejected by the hot component towards the cool one.

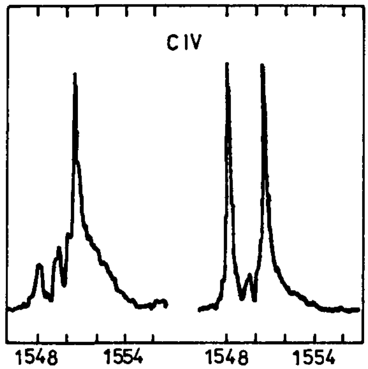


Figure 1. C IV lines in orbital phases 0.729 and 0.507.

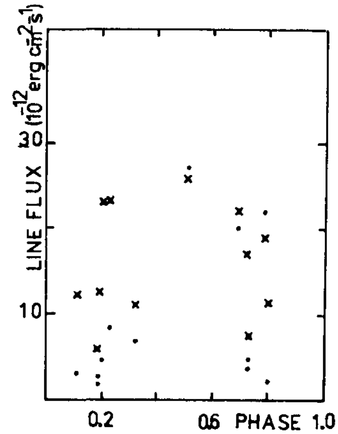


Figure 2. Phase dependence of line flux of C IV 1548 Å (dots) and 1550 Å (crosses) lines.

Radial velocities of nebular emission lines O III], Si III], C III], N IV] fit radial velocity curve of the cool component indicating that these lines are formed near this component (Fig. 3).

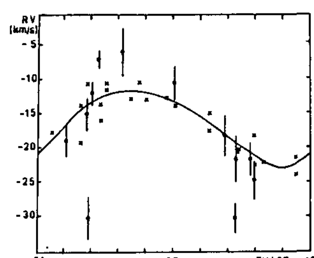


Figure 3. Radial velocities of nebular emission lines with r.m.s. errors. The data for RV curve of the cool component (crosses) are from the works of Cowley and Stencel (1973) and Hutchings et al. (1975).

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