INTRODUCTORY REPORT ON AG PEGASI*

The light history of AG Peg (HD 207757) is characterized by a ~3 mag brightening which took place during 1850–70 followed by a slow decline ever since. In recent times the V magnitude has shown variations between 7.7 and 8.8, and a semi-regular behaviour with maxima 600 to 700 days apart (Mattei 1981). The optical spectrum and its time variation was studied among others by Boyarchuk (1967) and Hutchings et al. (1975) who suggested the presence of a binary system consisting in an M type giant and a WN6 companion surrounded by a nebular region.

The IR spectrum is typical of a cool star (Allen 1979) and seems not to be variable. AG Peg is also a radio source; Gregory et al. (1977) and Ghigo and Cohen (1981) found a radio spectral index consistent with that expected for a continuous outflow model.

A strong UV flux was first observed with OAO-2 by Gallagher et al. (1979) and confirmed by the IUE observations. Keyes and Plavec (1980) observed AG Peg simultaneously in the optical and UV wavelength regions, and found a strong UV continuum with numerous strong permitted and intercombination lines. The high resolution IUE spectra revealed line profiles similar to those seen in WN stars, with broad components in the CIV, NV, NIV lines and in NIV] λ 1486, while the other intercombination lines display only a sharp emission component. According to Keyes and Plavec the hot continuum is most likely a combination of a true stellar continuum plus a nebular emission. Model fitting and Zanstra arguments indicate $T_e \sim 30000$K for the hot star.

The cool spectrum dominates longwards of ~4300A. Keyes and Plavec found an effective temperature of 3570K, corresponding to an M 1.7 spectral type. If the luminosity class is III a distance of 500pc and a radius of 56 $R_\odot$ is derived for the cool star.

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* Since the original report of C.D. Keyes has not arrived in time to be included in the Proceedings, a short abstract was prepared by the Editors partly based on notes taken during Keyes' talk.

M. Friedjung and R. Viotti (eds.), The Nature of Symbiotic Stars, 201–202.

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DISCUSSION ON AG PEGASI

Friedjung: Would you expect to see X-ray emission? Would it not be expected to be absorbed by the strong wind?

Keyes: It is true that the densities we calculate are rather high (10^9–10^{10} cm^{-3}), although these are for the intercombination line region and not the wind. May be one might expect some X-ray absorption at these densities, but we might expect to see the ionization effects (OVI and other high ionization species) of this absorption in the wind and we do not.

Kafatos: I would like to point out that the presence of absorption in the NIV] profile is very interesting because it would imply regions close to the source of the continuum, but where densities are not excessively high, e.g. $N_e \sim 10^{10}$ cm^{-3} for a scale size of $L \sim 2\ 10^{12}$ cm.

Viotti: As far as the CIV doublet is concerned showing in AG Peg the sharp emission component at 1550 A much stronger than the 1548 A one, if you have an absorption region moving at $\sim$ 500 km s^{-1} the strongest emission line at 1548 A is strongly depressed due to blending with the absorption component of the other line at 1550 A. The same effect has been for example seen in the MgII doublet of η Car.

Keyes: Yes, I agree that such a mechanism could give the observed diminution of the 1548 A emission. However, the 1548 A component of your absorption region should be observable in an image exposed long enough to reach the continuum. We have only one sufficiently deeply-exposed image and we shall certainly look for this blue shifted 1548 component.

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