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THE SYMBIOTIC STAR AG PEGASI: UBV PHOTOMETRY DURING 1962 - 1984

AG Peg is one of the brightest and most studied symbiotic stars. It is known that its brightness increased by 3^m from 1840 to 1860 with a subsequent slow decrease (Rigollet, 1947). It is being continued now at a rate $\Delta m_{PG} \approx 0.04/\text{yr}$ (Meinunger, 1983). The increase of brightness in 1946 noted by Rigollet (1947) has been caused by light fluctuations appeared around 1935 (Meinunger, 1983).

UBV photometry of AG Peg was resumed at the Crimean Astrophysical Observatory in 1980 (Belyakina, 1970). The results of our observations (●) are shown in the Figure together with Burchi's 1980 (Δ), Fernie's 1972 (o), and Meinunger's 1983 (x) results.

Evidently, the V, B, U light curves resemble each other and are in fact undulated fluctuations in combination with a general decrease ($\Delta V \approx 0.02/\text{yr}$, $\Delta B \approx 0.04/\text{yr}$, $\Delta U \approx 0.045/\text{yr}$). The amplitudes of these fluctuations increase noticeably in time. But they tend to be constant in the intensity scale with ratio $I_V : I_B : I_U = 0.8 : 1.0 : 0.8$. The 1984 observations were not used for this calculation.

Some values (800^d, 827^d) have been assumed or derived for the light fluctuation period of AG Peg (Belyakina, 1970, Meinunger, 1983). In the last few years different values (733^d, 760^d) were obtained from the visual observations of this variable (Slovak, 1982; Luthardt, 1984).

Figure 1 shows moments of the light curve minima indicated by vertical lines according to:

$$\text{Min.} = \text{J.D. } 24\,39\,000 + 820^{\text{d}} \text{E}$$

This value fits the light curve apparently well. But the minimum of the V light curve in 1983 is displaced. Possibly that was the reason why the period values derived by Slovak (1982) and Luthardt (1984) are shorter.

The IR photometry has demonstrated that the red component of AG Peg binary system is constant (Glass et al., 1973; Feast et al., 1977; Mendoza, 1972).

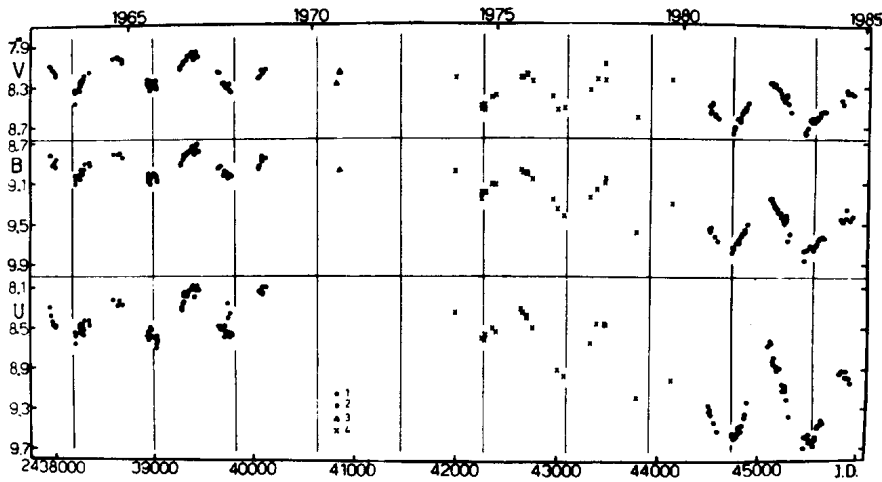


Figure 1

Probably the light fluctuations of AG Peg are caused by the orbital motion of the components. It follows from the correlation of the light curve and radial velocity curve of this variable star.

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References:

- Belyakina, T.S., 1970, *Astrofizika*, 6, 49.
 Burchi, R., 1980, *IBVS* No.1813.
 Feast, M.W., Robertson, B.S.C., Catchpole, R.M., 1977, *M.N.R.A.S.*, 179, 499.
 Fernie, J.D., 1972, *P.A.S.P.*, 84, 528.
 Glass, I.S., Webster, B.L., 1973, *M.N.R.A.S.*, 165, 77.
 Luthardt, R., 1984, *IBVS* No.2495.
 Meinunger, L., 1983, *MVS*, 9, H.4, 92.
 Mendoza, E., 1972, *Bol. Obs. Tonantzintla y Tacubaya*, 6, 211.
 Rigollet, R., 1947, *Astronomie*, 61, 247.
 Slovak, M.H., 1982, *J. AAVSO*, 11, 67.