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PERIODIC LIGHT VARIABILITY OF PG1711+336

PG1711+336, a cataclysmic variable candidate, is identified on the print given in the paper by Green et al. (1982), where it is stated that weak hydrogen emissions have been observed in the spectrum of this object.

250 brightness estimates on the plates of the Sternberg Institute's collection (J.D. 2417823-45470) show slow variation in the range 12.5-13.2 B. The following table gives the limits of brightness variations for some time intervals.

Interval of JD24...	B	n
17823-19626	12.9-13.1	15
40062-40065	12.5-12.7	10
40387-41547	12.6-12.8	210
45357-45470	13.1-13.2	5

During 1983 pulse-counting photoelectric photometers with a 48 cm reflector and with a 60 cm reflector were used and 49 WBVR measurements* and 35 UBV measurements (J.D. 2445442-546) were obtained, respectively. Positions of the variable (dots) and of a number of neighbouring stars (open circles) are shown in the two-colour (W-B, B-V) diagram (Fig.1.). It is obvious that the interstellar reddening is small (E_{B-V} does not exceed 0.1). Hence, the object has a strong ultraviolet excess, its position in the diagram corresponds to the position of very hot cataclysmic stars.

The period analysis of our photoelectric observations shows that all of them satisfy the following elements:

$$JD_{\text{Min } e} = 2445527.283 + 0^d.115883 \cdot E.$$

The mean V light curve plotted with this period (P_1) is shown in Figure 2. The colour indices do not depend obviously on the phase. The dispersion of

* W-magnitudes have a response curve similar to that described by Straižys (1977).

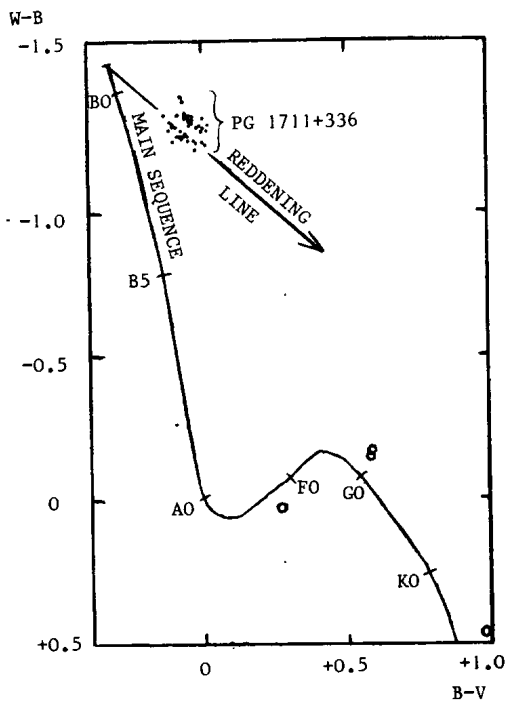


Figure 1

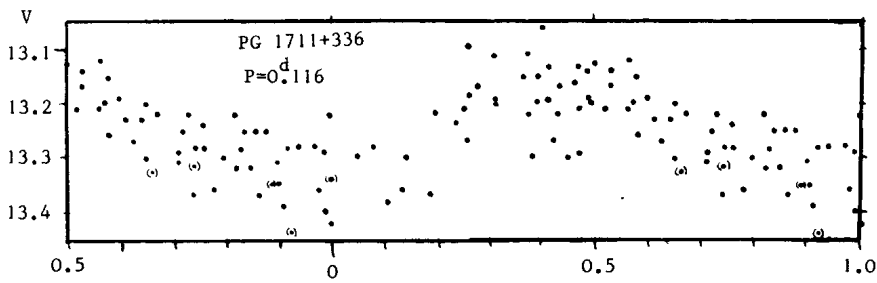


Figure 2

data points about the mean curve exceeds the observational inaccuracies and is due to instabilities of the light curve. One should note that another value of the period, $P_2 = 0.131117$ ($1/P_1 - 1/P_2 = 1d^{-1}$), also gives a satisfactory light curve with somewhat greater dispersion of data points about the mean curve.

The light curve we obtained is probably due to the orbital motion in a close binary system which is typical of dwarf novae and other cataclysmic variables. One can see that eclipses are not observed, and the variations are caused by the reflection effect or by a partial eclipse of the gaseous accretion stream falling on the compact component.

Summarizing, our observations confirm that the object belongs to cataclysmic stars. One should, however, note that no bursts characteristic of the majority of cataclysmic stars were observed in PG1711+336.

To clarify the nature of this object and to find definitely which of the period values, P_1 or $2P_1 = 0.232766$ is the orbital one, further spectroscopic and photoelectric observations are necessary.

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References:

- Green R.F., Ferguson D., Liebert J., Schmidt M., 1982: Publ.Astr.Soc.Pacific
94, 560
Straižys V., 1977: Multicolor Stellar Photometry, Mokslas Publishers, Vilnius