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HN CYGNI : THE STAR ERRONEOUSLY CLASSIFIED AS A DWARF NOVA

The variability of HN Cyg (294.1929 Cyg) was discovered by Hoffmeister (1930). Wachmann (1966) published four moments of the maxima, and the star was classified in GCVS as UG:. Bruch *et al.* (1987) reported two additional outbursts. However, Munari *et al.* (1990) derived the spectral type of *M* 6.5 and reclassified the object as the Mira.

The star was observed among the UG-type variables on 232 archive plates of Sternberg State Astronomical Institute (Andronov and Sidorova, in press), using the comparison stars of Wachmann (1966). The histogram (Fig.1) is not characteristic for Dwarf Novae, nor is the light curve. The brightness changed from 14.8^m to 16.5^m (pg), its mean value $\langle m \rangle = 15.75^m$ and the mean-squared deviation $\sigma_m = 0.33^m$.

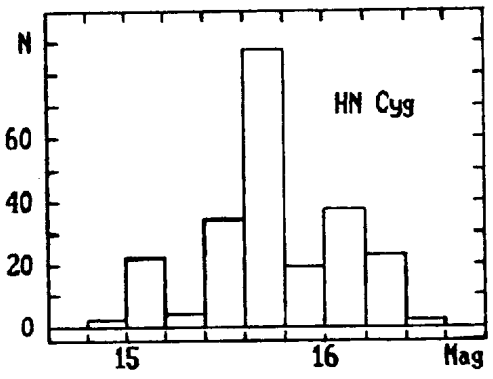

Fig. 1. The histogram of the brightness of HN Cyg. The distribution of the magnitude is nearly symmetrical.

To find the possible period, the brightness was fitted by

$$m(t_1) = a_0 + a_1 \sin(2\pi t_1/P) + a_2 \cos(2\pi t_1/P).$$

As the test function, we used the function

$$S(1/P) = \sigma_c^2(1/P) / \sigma_o^2 = 1 - \sigma_{o-c}^2(1/P) / \sigma_o^2$$

Two prominent peaks were found at the periodogram (Fig.2a), corresponding to the periods P_1=72.73^d and P_2=820^d. From the nonlinear two-frequency least-squares fit we obtained P_1=72.84 ±0.04^d and P_2=828±6^d with the corresponding amplitudes 0.26± 0.023^m and 0.23±0.025^m and moments of maxima at T_1=2440280±1^d and T_2=2440376±13^d.

The periodogram for the residuals (O-C) shows no significant peaks (Fig. 2b). No periodic waves were found from the periodogram analysis of separate seasons for P>0.1^d.

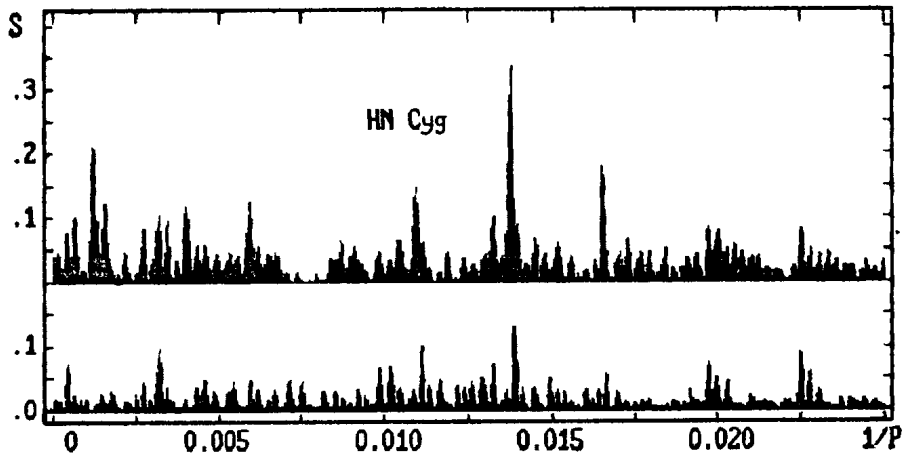

Fig. 2. The periodograms for the observations of HN Cyg (up) and for the residuals from the two-frequency fit (down).

I. L. ANDRONOV
Department of Astronomy, Odessa State University
Odessa 270014 USSR

References

Bruch, A., Fischer, P.-J., Wilmsen, U.: 1987.-As.Ap.Suppl. 70,481.

Hoffmeister, C.: 1930, Sonn. Mitt. No. 17

Munari, U., Claudi, R., Bianchini, A.:1990, IBVS No. 3496

Wachmann, A.A.: 1966, Bergd. Abh. 6, No. 4, 283