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UBVR PHOTOMETRY OF NQ Her

NQ Her was observed on 23 nights during the period from June to December 1979 using the 50-cm reflector of the Mountain Station "Terskol" of Main Astronomical Observatory of the Ukrainian Academy of Sciences.

The data were obtained with a single-channel photon-counting automatic photometer with a PEM-79 uncooled photomultiplier tube. The photometer employed a combination of glass filters designed to match the standard UBVR system. Differential measurements were made using BD+18°3580 (7<sup>m</sup>.6, Sp A3) as comparison star and BD+18°3582 (7<sup>m</sup>.2, Sp A2) as check.

The average standard deviations of a single measure of the comparison star in U, B, V and R filters are:

$$\sigma_U = 0^m.016 ; \quad \sigma_B = 0^m.012 ; \quad \sigma_V = 0^m.010 ; \quad \sigma_R = 0^m.010$$

respectively. The measurements showed that the magnitude differences between the comparison and check stars were constant:

$$\Delta U = 0^m.618 \pm 0^m.010 ; \quad \Delta B = 0^m.728 \pm 0^m.009 ; \quad \Delta V = 0^m.636 \pm 0^m.005 ; \quad \Delta R = 0^m.508 \pm 0^m.004$$

The mean V magnitude and the colour indices U-B, B-V, and V-R of the comparison star have been determined from observations of UBVR standard stars:

$$V = 8^m.034 ; \quad U-B = 0^m.033 ; \quad B-V = 0^m.351 ; \quad V-R = 0^m.381 .$$

The instrumental magnitudes have been converted into standard magnitudes with the help of several standard stars chosen from the list of Johnson et al. (1966). Due to the angular proximity of the variable and comparison star no corrections for differential extinction were necessary. The mean V magnitude and the mean colour indices U-B, B-V, and V-R of all the observations of the variable star are given as follows:

$$V = 8^m.463 ; \quad U-B = -0^m.044 ; \quad B-V = -0^m.028 ; \quad V-R = 0^m.089 .$$

No brightness variations have been detected within the errors. It was not possible to extract any periodicity from our observational data. For the phase computations the elements of Kukarkin et al. (1970) are used:

$$J.D.(V_{\min.}) = 2426894.433 + 0^d.870218 E$$

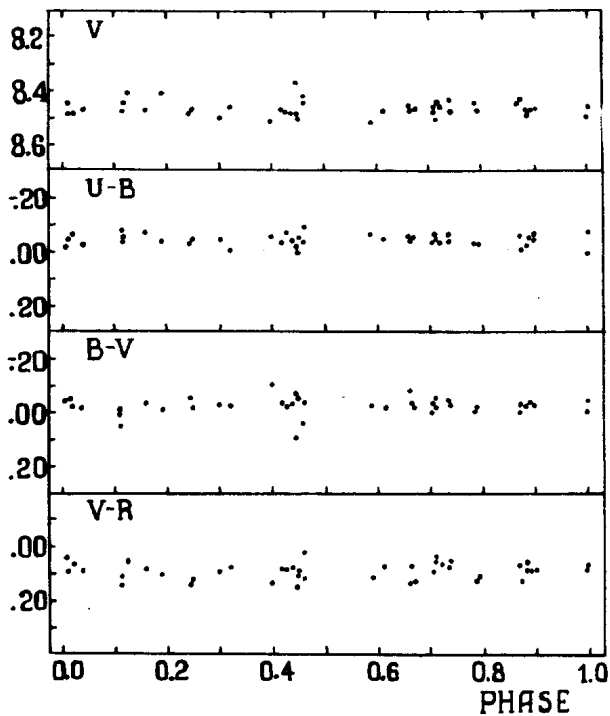


Figure 1

In Figure 1 the observations in V light and the colours U-B, B-V, and V-R are plotted versus phase. The inspection of Fig. 1 leads to the conclusion that NQ Her did not show any variability with the period of  $P = 0.870218^d$ . Our results agree with those obtained by Rossati (1964), Schneller (1965), Popovici (1971), Blanco (1971), Bozkurt et al. (1975) and Padalia (1975).

However, the absence of any notable brightness variation in NQ Her at present is not an evidence of the constancy of NQ Her in general. It is possible that a weakening of the variable star photometric activity followed the active phase when the photographic observations had been made.

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