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PHOTOELECTRIC PHOTOMETRY OF NN CEPHEI

NN Cephei (BD + 61°2384 = HD 217796) is catalogued as RR? in the Second Supplement to the Third Edition of the General Catalogue of Variable Stars (1974). The eclipsing character of the system was firstly announced by Figer and Rolland (1977). They observed the system visually and gave the light elements as follows:

$$\text{Min I} = \text{JD Hel } 24\ 42\ 959.57 \pm 7 + 2^{d}.058 \pm 2 \,.E,$$

and suggested that the shape of the mean light curve is of β Lyrae type.

The first photoelectric minima, light elements and light curves were published by Güdür and Gülmen (1980). The new light elements were found as,

$$\text{Hel Min JD} = 24\ 44\ 507.4033 \pm 4 + 2^{d}.058305 \pm 5 \,.E$$

However, the light curve was not complete. For this reason we continued to observe the system with the same telescope and equipment at the Ege University Observatory. The comparison and check stars are taken to be the same stars (BD + 61°2388, BD + 61°2385) with the previous observations. The system is observed totally on 30 nights from July 1979 to October 1981, and 1177 and 1058 individual points were obtained in B and V colours, respectively. The extinction coefficients in separate colours for each night were calculated from the observations of comparison star using the conventional method, then all the differential observations (variable minus comparison) were corrected for the differential extinction.

The light and colour curves of the system are presented in Figure 1. The new photoelectric minima obtained in 1981 are given in Table I.

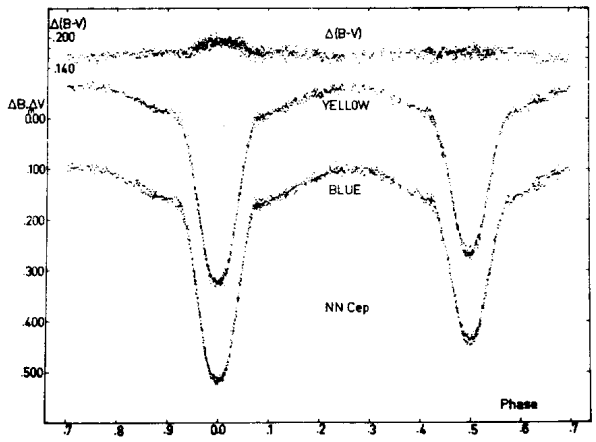

Figure 1

Table I

Times of minima of NN Cep

Hel Min JD	Min	Filter	O-C
24 44 824.3814	I	B,V	-0.0009
827.467	II	"	-0.003
859.3742	I	"	+0.0007
893.336	II	"	+0.001

The phases in Figure 1 and the O-C values in Table I were calculated by using the light elements given by Güdür and Gülmen (1980). The accuracy of these light elements are confirmed by the small O-C values in Table I. The light curves show a sinusoidal shape if we do not consider the eclipses. This is a very good example of the proximity effects. It is also seen that the light curves are of Algol type. There are no other complications in the light curves. The solutions are in progress.

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