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NSV 470 AND NSV 12665

The star NSV 470=BV 637=CoD -48°338=HD 8093 at  $01^{\text{h}}17^{\text{m}}.4$ ,  $-48^{\circ}33'$  (1950), was reported by Strohmeier et al. (1965) as photographically variable with  $m_{\text{pg}}=8.8$ ,  $A_{\text{pg}}=0.3$ , type A2. Kholopov (1982) and Diethelm and Tjemkes (1984, =DT) give type FO. The latter found, from eight photoelectric 5-colour observations within 10 days,  $V=8.74$ ,  $B-V=0.36$ , and no variability.

We collected two photoelectric observations with the 20" of the South African Astronomical Observatory at Sutherland. For the transformation to the UBV system we used E region stars of the list of Menzies et al. (1980). The results (Table I) agree with those of DT if similar transformation differences are assumed as in the case of NSV 14164 which we also observed (Pfleiderer and Marx 1985). That is, we cannot confirm photoelectric variability but rather find constancy within about  $0^{\text{m}}.01$ .

The star was measured with a cat's eye photometer on 305 exposures of the Sonneberg archive taken between 1934 and 1959. Figure 1 gives a histogram of the results. From the variance, we estimate the accuracy to be  $0^{\text{m}}.13$  for  $m_{\text{pg}}$  and  $0^{\text{m}}.06$  for  $m_{\text{pv}}$ . The corresponding normal distributions fit the data reasonably well except that a significant number of additional faint observations occurs. We consider this as a verification of the variability. The amplitude is estimated to be  $0^{\text{m}}.4$  in  $m_{\text{pg}}$  and perhaps less in  $m_{\text{pv}}$ .

All attempts to find a period failed however. The number of data when the star was dim (about 15 of 221 for  $m_{\text{pg}}$ , about 6 of 84 for  $m_{\text{pv}}$ ) suggests a minimum duration of about 1/15 of the period. Half of these data are preceded or followed by another plate taken within about 1 hour. In no case another low brightness is found. In three cases, three plates per night exist of which only the middle one gives low brightness. This suggests that the minimum does not last longer than about 2 hours, and that the period is quite short. Contrarily, the constant off-minimum brightness would suggest a detached eclipsing system the period of which must be at least several days. Our only explanation is that some of the low brightness data do not indicate a minimum but are rather erroneous. This is not surprising in view of the fact that due to an unsuitable position of the star on the exposures its images are more or less distorted.

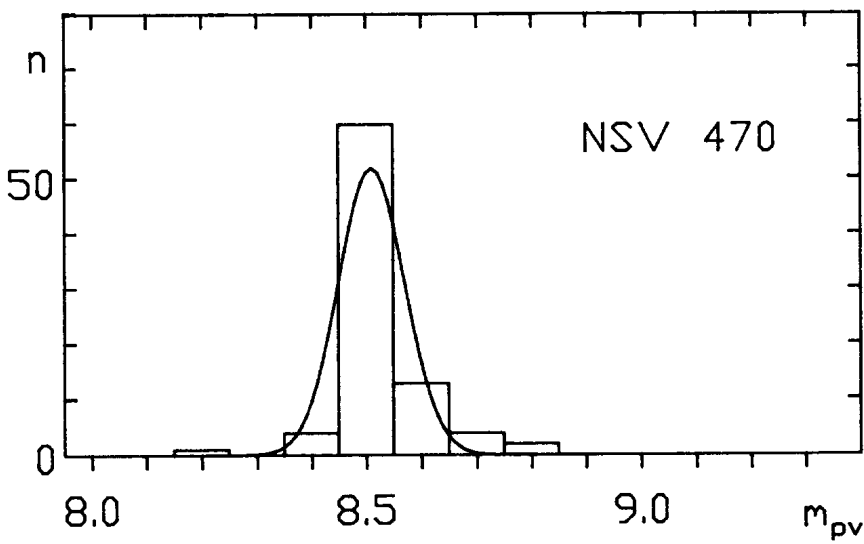
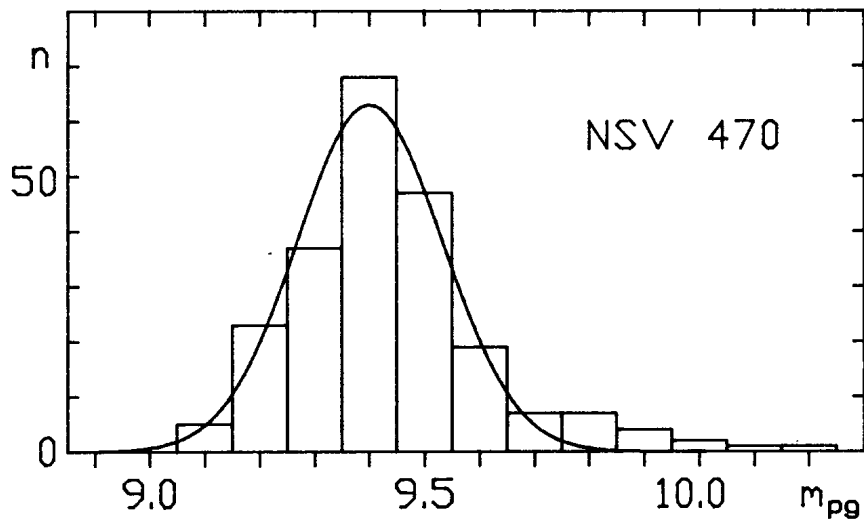


Figure 1a and b: Histograms of photographic data of NSV 470, with  $\Sigma n (pg) = 221$ ,  $\Sigma n (pv) = 84$ . The widths of the normal distributions drawn are  $0^m13 (pg)$  and  $0^m06 (pv)$ .

Table I. Photoelectric observations of NSV 470

HJD	V	B-V	U-B	V-R	V-I
2445906.690	8.764	0.328	0.018	0.190	0.382
18.659	8.787	0.324	0.013	-	-

Table II. Photoelectric observations of NSV 12665

HJD	V	B-V	U-B
2445905.257	8.222	0.425	0.022
.271	8.217	0.431	0.031

The star NSV 12665=BV 1477 Sgr=COD  $-42^{\circ}14615$  ( $8^m.8$ )=CAP  $-42^{\circ}8972$  ( $7^m.6$ )=HD 189306 (F2) at  $19^{\text{h}}57^m.6$ ,  $-42^{\circ}18'$  (1950) was reported by Strohmeier (1971) to be photographically variable with  $A_{pg}=0^m.3$ . Kholopov (1982) gives  $m_{\text{max}}=8.0$ . DT found, from 11 photoelectric 5-colour observations within 11 days,  $V=8.16$  (with slight variability within a few hundredth of a magnitude), and  $B-V=0.47$  (constant).

Our two photoelectric observations with the above-mentioned telescope (Table II) confirm the differences between DT and us in the transformation to the UBV system. Applying these, it seems that B-V agrees with DT within  $0^m.01$ , while we find V to be dim. by  $0^m.02$  or  $0^m.03$ , corroborating the slight variability found by DT.

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## References:

- Diethelm, R., Tjemkes, S., 1984, Inf.Bull.Var. Stars No. 2503  
 Kholopov, P.N., (ed.), 1982, New catalogue of suspected variable stars, Nauka, Moscow  
 Menzies, J.W., Banfield, R.M., Laing, J.D., 1980, SAAO Circ. No. 5.p.149  
 Pfleiderer, M., Marx, S., 1985, Mitt.Astron. Ges. 63, 201  
 Strohmeier, W., 1971, Inf.Bull.Var.Stars, No. 562  
 Strohmeier, W., Knigge, R., Ott, H., 1965, Inf.Bull.Var.Stars, No.107