

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1199

Konkoly Observatory
Budapest
1976 November 4

FOUR COLOUR uvby PHOTOMETRY OF THE
TOTALLY ECLIPSING BINARY DX AQUARI

DX Aqr was observed on several nights in 1975 with the four-channel spectrograph-photometer on the Danish 50 cm reflector, Cerro La Silla, ESO, Chile (cf. Grønbech et al. 1976). All observations have been reduced to standard V magnitudes and standard four colour indices (b-y, m_1 and c_1). The late-type visual companion at 3".7 was included in the diaphragm. Andersen (private communication) has classified this companion as KOIII: from 20Å/mm coudé spectra.

The primary purpose of the observations was to improve the ephemeris given by Strohmeier (IBVS 164). One primary minimum was followed for five hours and closely covered with 27 points on the descending branch, five points in a total eclipse phase and 16 points on the ascending branch. The total eclipse lasts about 20 minutes from HJD = 2442687.690 to 2442687.704. Combining this minimum with Strohmeier's ephemeris gives an improved ephemeris

$$\text{HJD}(\text{Min.I}) = 2442687.697 + 0^d9450132 \cdot E.$$

This new photometric period agrees well with the period given by Paffhausen and Seggewiss (1976) from spectrographic observations and also with the period given in the third supplement to GCVS (3.ed.).

The ingress starts at about phase 0.83. In the table the photometric results inside and outside eclipse are given together with their mean errors. The strong change in the four colour indices during eclipse reflects the dominating influence of the visual companion. Because of this handicap no further photometry of this system is planned. The individual observations reported here are available upon request.

	Outside eclipse Phase 0.71-0.82 (4 observations)	Total eclipse Phase 0.993-0.007 (5 observations)
v	$6^m373 \pm 0^m005$	$6^m779 \pm 0^m001$
b-y	0.275 ± 0.003	0.411 ± 0.001
m ₁	0.145 ± 0.004	0.204 ± 0.002
c ₁	0.831 ± 0.003	0.659 ± 0.004

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