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PHOTOELECTRIC OBSERVATIONS OF CY AQUARI

The SX Phe-type star CY Aqr ($V_{\max} = 10^m.4$) has attracted considerable attention in the past because of its very short period. We obtained some 543 observations during October/November, 1983 in the V- and B-band (standard Corning filters) using a single channel photometer attached to the 60 cm RC telescope of the L.Figl-Observatory (University of Vienna). The comparison star was a star denoted "a" by Zissell (1968). This star is about 11' to the north-east of CY Aqr and similar in color; therefore no correction for differential extinction was necessary. Zissell found the intensity of this star to be constant. Because of the short period only either B- or V-filter was used for a single run. No transformation to the UBV system was made. The cycle repetition time of the observations was 2 minutes, combining 15 second integrations for sky, CY Aqr and comparison star; time accuracy of the measurements was kept below 1 second.

We were able to derive 12 times of maximum covering 41 days (671 cycles). Table I shows the time of the light maximum. No dependence of time of maximum on colors could be detected. O-C values are calculated with respect to three different ephemerides; O-C₁ refers to the ephemeris derived only from our own observations using a linear least square solution:

$$\text{Max.hel.} = 2445641^d.2942 + 0^d.06103822 . E \\ \pm 0.00009 \pm 0.00000044$$

O-C₂ uses the ephemeris given by Mahdy and Szeidl (1980) for observations after 1952; O-C₃ are based on new light elements using a quadratic term given by Rolland et al. (1984):

$$\text{Max.hel.} = \text{JH } 2440892^d.6370 + 0^d.061038318 . E - 4.53 \cdot 10^{-13} . E^2 .$$

Although sometimes variations in amplitude and shape of the light curve have been reported in the past, we could not find any significant change within the observing period. The mean

Table I

JD hel 2445000 +	O - C ₁	O - C ₂	E ₂	O - C ₃	Color
621.3351	+ 0. ^d 0004	- 0. ^d 0011	185341	+ 0. ^d 0013	V
629.3301	- 0.0006	- 0.0021	185472	+ 0.0003	V
631.2843	+ 0.0004	- 0.0002	185504	+ 0.0013	V
631.3453	+ 0.0003	- 0.0011	185505	+ 0.0012	V
635.3122	- 0.0002	- 0.0017	185570	+ 0.0007	B
635.3732	- 0.0003	- 0.0028	185571	+ 0.0006	B
641.2940	- 0.0002	- 0.0017	185668	+ 0.0007	B
641.3550	- 0.0002	- 0.0017	185669	+ 0.0007	B
645.2621	+ 0.0004	- 0.0009	185733	+ 0.0013	B
645.3225	- 0.0002	- 0.0017	185734	+ 0.0007	B
661.2532	- 0.0005	- 0.0020	185995	+ 0.0004	V
662.2920	+ 0.0007	- 0.0009	186012	+ 0.0016	V

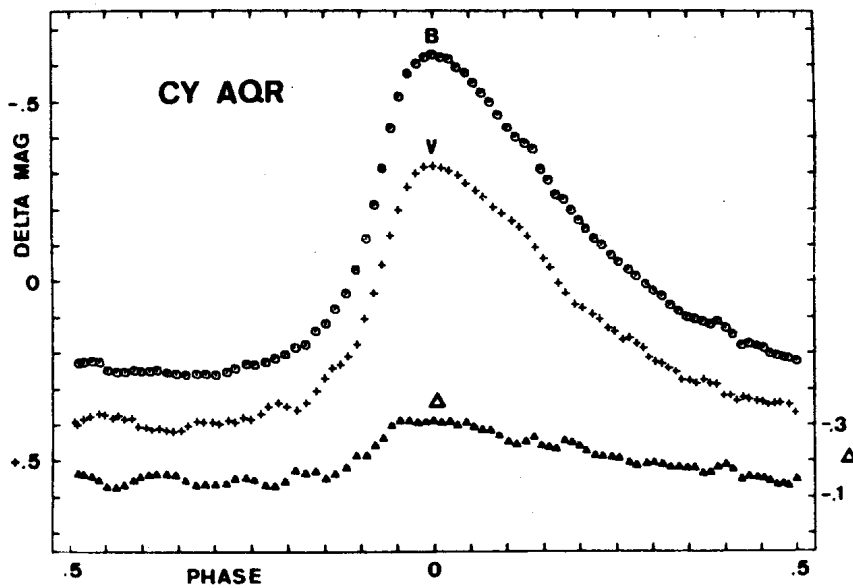


Figure 1

amplitudes in blue and visual light are $0^m.87$ and $0^m.73$ respectively. Figure 1 shows the mean light curves in blue and visual light and also for their differences (Δ).

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