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HY PAVONIS: PHOTOELECTRIC TIMES OF MINIMUM  
AND IMPROVED PERIOD

The variability of the short period eclipsing system HY Pavonis ( $\alpha = 20^{\text{h}} 18^{\text{m}} 06^{\text{s}}$ ,  $\delta = -73^{\circ} 51' 8''$ , 1950.0) was detected by Hoffmeister (1963) who suggested that it was an Algol-type eclipsing binary. Gessner and Meinunger (1974) obtained a photographic light curve with an amplitude of the order of 0.9 magnitudes. They found that the depths of both minima were almost equal so that they classified this star as a W UMa-type eclipsing binary. From their photographic observations 12 times of minimum were determined which yielded the following ephemeris:

$$\text{Min I} = \text{Hel. J.D. } 2436730.4586 + 0.^{\text{d}}351653 \text{ E} \quad (1) \\ \pm 0.0044 \quad \pm 0.000027$$

As no photoelectric data of this eleventh magnitude star have been published so far, we decided to include it in our short-period-eclipsing-binary observational program.

In this note we present 16 new photoelectric times of minimum obtained at El Leoncito (San Juan, Argentina) and at Bosque Alegre (Córdoba, Argentina) stations during the 1987 observing seasons. The observations carried out at El Leoncito were performed by means of a 76 cm. reflector telescope, an RCA 34031(A) photomultiplier refrigerated by Peltier effect and photon-counting electronics. At Bosque Alegre the observations were realized with a conventional design photometer and an RCA 1P21 photomultiplier refrigerated with dry ice attached to the 154 cm. reflector. In both observatories standard BV filters were employed.

The measurements were made differentially with respect to the comparison star designated as number 1 in our finding chart (Figure 1). All observations have been corrected for first and second order differential extinction. The comparison star is located approximately 5 minutes of arc south-west from HY Pav and consequently the corrections for differential extinction were small.

Table I. Photoelectric times of minimum light of HY Pavonis

Min	JD hel, 2440000.+	E	Q-C
I	6972.8229	0.0	0.00139
I	6972.8224	0.0	0.00094
I	6973.8762	3.0	-0.00024
I	6973.8762	3.0	-0.00030
I	7002.7128	85.0	0.00060
I	7002.7107	85.0	-0.00149
II	7002.8863	85.5	-0.00178
II	7002.8866	85.5	-0.00141
I	7008.6904	102.0	0.00006
I	7008.6897	102.0	-0.00064
I	7009.7454	105.0	0.00006
I	7009.7452	105.0	-0.00011
I	7022.7576	142.0	0.00107
I	7022.7590	142.0	0.00246
II	7023.6354	144.5	-0.00029
II	7023.6354	144.5	-0.00030

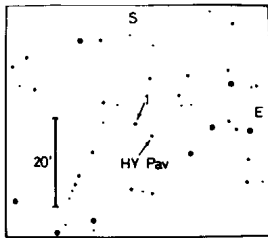


Figure 1. Finding chart of HY Pavonis

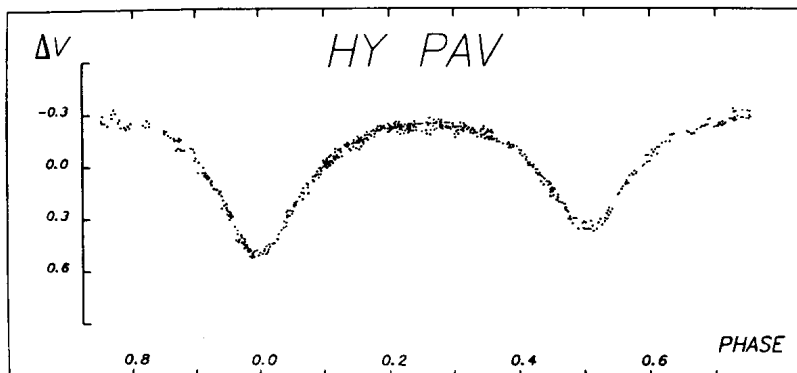


Figure 2. V light curve of the eclipsing binary HY Pavonis

From 735 observations for each (BV) passband we derived 16 times of minimum light. The bisection-of-chords method was used to determine 12 times of primary minimum and 4 of the secondary one. A linear least square solution using our photometric data yields the following updated ephemeris:

$$\text{Min I} = \text{Hel. J.D. } 2446972.82149 + 0.3516555 E \quad (2) \\ \pm 0.00027 \quad \pm 0.0000027$$

Table I lists the 16 times of minimum light reported in this note. The last two columns give the epoch number and the (O-C) residuals calculated from equation (2). Within the precision of the ephemeris determinations no variability of the period of the system can be asserted.

Although the light curve of the system (Figure 2) has not been completed yet, it shows the typical configuration of the W UMA-type systems. The difference between minima is about 0.15 magnitudes. The maxima clearly show the variation due to the deformation and reflection effects of the components.

This system will be observed again during the next observing season in order to complete the light curves and analyze them by means of a synthetic method of solutions.

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#### References:

- Hoffmeister, C., 1963, Veröffentlichungen der Sternwarte zu Sonneberg, Band 6, Heft 1, p. 50  
Gessner, H., Meinunger, I., 1974, Veröffentlichungen der Sternwarte zu Sonneberg, Band 6, Heft 5, p. 318