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1983-84 OBSERVATIONS OF THE BRIGHT ECLIPSING BINARY I Per

After the observations carried out in 1981-82 (Poretti, 1982), in 1983-84 I Per \equiv V 436 Per has been followed more intensively at Merate Observatory. In this occasion I used the Marcon 50 cm telescope equipped with a Lallemand photomultiplier and a standard V filter and I adopted the same comparison stars, HR 540 and 4 Per. New measures were obtained during the minima and at maximum light. I notice that it is not easy to ensure a satisfactory coverage of the light curve around the minima because the period is very close to 26 sidereal days.

Instrumental ΔV differences were converted into standard ΔV differences by means of the V and B-V values given by Hoffleit (1982) for a dozen of standard stars measured in the course of the program. ΔV 's were transformed into V magnitudes assuming $V = 6.45$ for the comparison star HR 540. Results are described below; phases are referred to the ephemeris (North et al., 1981)

$$\text{Min I} = \text{JD } 2443562.853 + 25.9359 \times E$$

MAXIMUM LIGHT - The 12 normal points (on the whole 118 V measures) are listed in Table I. The suspected variation (Kurtz, 1977 and Poretti, 1982) does not seem to be present. The mean magnitude is 5.553 (standard deviation 0.005 mag.).

PRIMARY MINIMUM - In two occasions (JD 2445715 and 2445741) the first contact of the primary (or short) minimum was detected, with a drop of 0.21 mag. in 0.13 d. The first contact takes place at 0.9925 phase.

On these two nights 126 V measures were performed.

SECONDARY MINIMUM - The observations cover the central phase of the eclipse: the variation is very slow, but the eclipse does not seem total.

The minimum magnitude is 5.74, with an amplitude of 0.19 mag.: the minimum is slightly asymmetrical. Tentatively, two timings of minima are proposed: 2445648.444 ± 0.003 and 2445674.386 ± 0.002 . Their phases are, respectively, 0.4133 ± 0.0001 and 0.4135 ± 0.0001 .

On these two nights 184 V measures were performed.

Table I

Mean magnitudes of 1 Per at maximum light. σ is the standard error.

Mean J.D.	V	σ
2 445 621.37	5.556	0.003
625.38	5.547	0.006
627.35	5.557	0.002
.47	5.554	0.002
634.35	5.554	0.002
.46	5.559	0.002
635.43	5.558	0.002
641.37	5.556	0.004
647.42	5.540	0.003
677.36	5.548	0.004
.38	5.552	0.004
704.24	5.553	0.003

Table II

Mean magnitudes of 4 Per. σ is the standard error.

Mean J.D.	V	σ
2 445 621.38	5.009	0.005
625.38	5.012	0.006
627.35	5.020	0.002
.47	5.024	0.002
634.35	5.026	0.002
.46	5.025	0.003
635.43	5.018	0.002
641.38	5.012	0.003
647.42	4.990	0.002
648.39	4.995	0.002
.52	4.994	0.002
674.39	5.010	0.002
677.36	5.009	0.004
.38	5.008	0.003
704.24	5.013	0.004
715.36	5.016	0.003
741.30	5.022	0.003

The 17 normal points (on the whole 191 V measures) of 4 Per are listed in Table II they show a scatter 2 times greater than 1 Per ones. As a matter of fact, the mean magnitude is 5.012 and the standard deviation is 0.011 mag. A slight variability of 4 Per is suggested: the magnitudes quoted by Blanco et al. (1968) seem to confirm it. 4 Per is known as a spectroscopic binary (Hoffleit, 1982) and its radial velocity is variable (Abt et al., 1972).

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References:

- Abt, H.A., Biggs, E.S., 1972, Bibliography of Stellar Radial Velocities
Blanco, V.M., Demers, S., Douglass, G.G., FitzGerald, M.P., 1968, Publ. of
the USNO, Second Series, vol. XXI
Hoffleit, D., 1982, The Bright Star Catalogue
Kurtz, D.W., 1977, PASP, 89, 939
North, P., Rufener, F., Figer, A., Maurin, L., 1981, I.B.V.S. No. 2036
Poretti, E., 1982, I.B.V.S. No. 2239