

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 3246

Konkoly Observatory
Budapest
3 October 1988
HU ISSN 0374-0676

RADIAL VELOCITIES OF THE BINARY STAR HD 37020 (ϑ^1 Ori A)

HD 37020 was discovered as an eclipsing binary by Lohsen (1975). Baldwin (1976) and Franz (1977) estimated its period $P=65.4325$ days. A tentative spectroscopic orbit was determined by Lohsen (1976) using the radial velocity data available in the literature and Baldwin's period.

Systematic observations of HD 37020 were made at the Brera-Merate Observatory, using the 137 cm Ruzs telescope and the B&C spectrograph mod. 31523.

The average of 13 photographic spectra taken in the range 3700-4700 Å allowed a re-classification of HD 37020 as a B3 III-IV star. Spectra were also taken in the sub-range 4050-4450 Å using a Reticon device (Bonanno et al., 1984); in both cases the reciprocal dispersion was 35Å/mm. Nebular lines were adopted as a reference for radial velocities; at last, photographic and Reticon results are perfectly compatible.

Orbital elements (Table I) and a velocity curve (Figure 1) were obtained, assuming the light minimum as phase zero and a period of 65.4325 days. Radial velocities are listed in Table II.

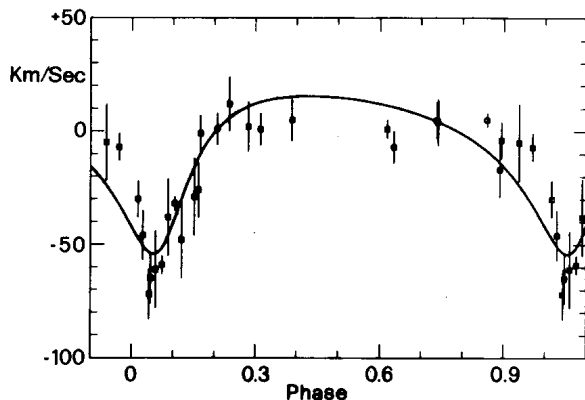


Figure 1

Table I

$$a_1 \sin i = 0.184 \text{ A.U.}$$

$$e = 0.476$$

$$\omega = 201^{\circ}.7$$

$$V_0 = 3.9 \text{ km/sec} + V_n (**)$$

$$T_0 = \text{J.D. } 2444201.623$$

(**) V_n is the radial velocity of the Orion Nebula

Table II

Julian Date	Velocity	Error	Julian Date	Velocity	Error
2446819.41	-26	+/- 12	2447184.33	5	+/- 8
822.39	1	7	192.28	5	3
824.28	12	12	194.27	-17	12
827.28	2	11	197.36	-5	17
829.29	1	7	203.26	-46	11
834.29	5	9	204.27	-72	11
849.32	1	4	205.27	-61	17
850.31	-7	7	206.30	-59	4
857.31	4	10	207.30	-38	17
867.33	-4	8	208.28	-32	3
872.29	-7	6	209.30	-48	17
875.30	-30	8	211.31	-29	17
877.32	-65	11	212.29	-1	8

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References:

- Baldwin, M., 1976, I.A.U. Circular, No. 3004.
 Bonanno, G., Falomo, R., Ascione, A. and Bergamini, U., 1984, Brera Technical Report No. 2.
 Franz, O.G., 1977, I.B.V.S., No. 1274.
 Lohsen, E., 1975, I.B.V.S., No. 988.
 Lohsen, E., 1976, I.B.V.S., No. 1211.