

HR 7308, A SHORT PERIOD CEPHEID WITH VARIABLE AMPLITUDE

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HR 7308 is a F6 Ib-II star of 6th magnitude. Semi-regular photometric variations were detected by Breger (1969), Percy et al. (1979) find that this star is a new small-amplitude Cepheid, and Burki and Mayor (1980) obtain a period of 1.49107 d. and detect a strongly variable amplitude.

The radial velocity of HR 7308 was measured 168 times with the spectrophotometer CORAVEL (Baranne et al., 1979) between May 1977 and July 1980. The measurement uncertainty, resulting from the photon noise, the scintillation and instrumental causes, is typically 0.43 km/sec in the case of HR 7308. Figure 1 shows that the peak-to-peak amplitude has decreased from 20.0 km/sec in July 1978 to 3.7 km/sec in May 1979. From this epoch, the amplitude has continuously increased up to 10.9 km/sec in July 1980.

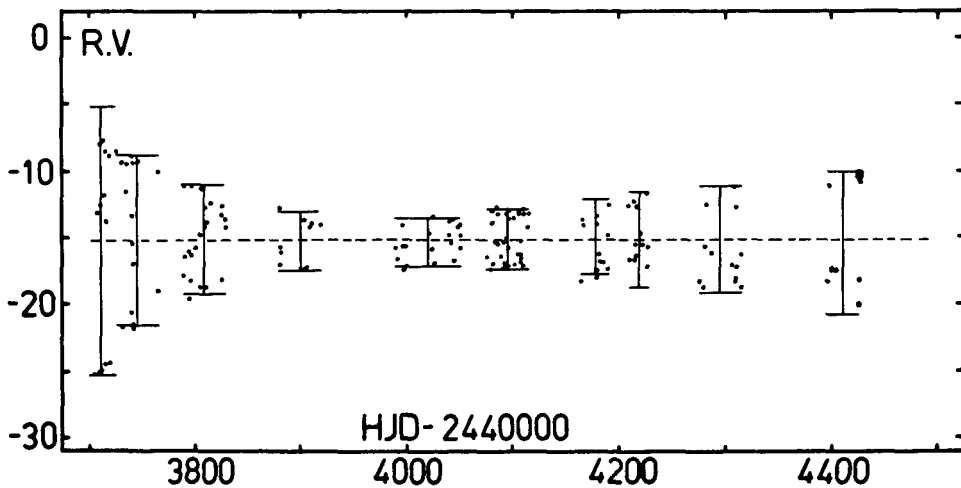


Figure 1

On Figure 2, the radial velocity curve with $P=1.49107$ d. is shown at 3 different epochs : in July 1978 when the amplitude was large, in May 1979 when it was the smallest and in last July when it was increasing. The solid lines are sin-curves fitted by a least squares method and the residual dispersion around these curves is less than 0.4 km/sec.

Actually, there is no reason to believe that the star is not a population I Cepheid. If this classification is correct, HR 7308 would be the pop I Cepheid with the shortest period actually known, and this is the first time that a strong amplitude variation is observed in such a star.

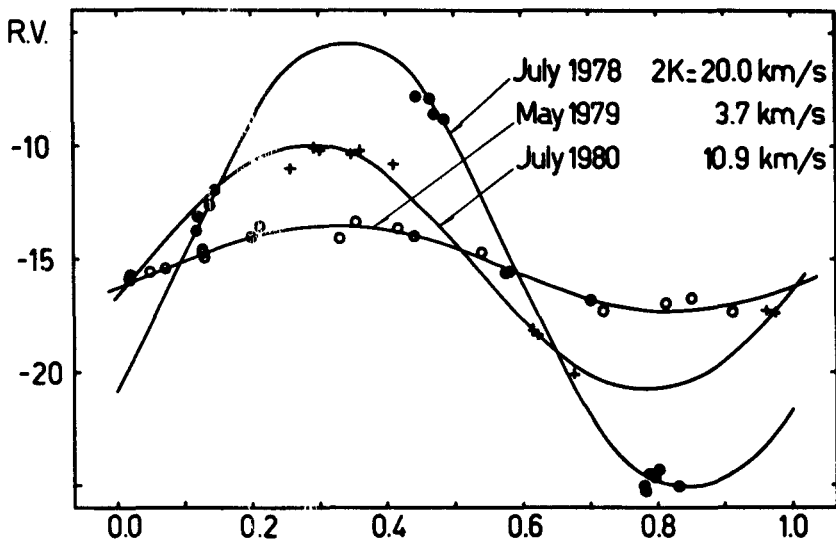


Figure 2

REFERENCES

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