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ON THE He WEAK VARIABLE HD 28843

Photometric observations of HD 28843 (= HR 1441) in the *uvby* system have led to the derivation of a period of 1.37390 ± 0.00015 d (Manfroid and Mathys, 1984). The observations covered a time span of less than two years, from January 1976 to November 1977.

Contrarily to what was stated by Manfroid and Mathys, the star was already known as a variable as early as 1966 (Cousins, 1966). In fact, eight observations in the *V* band are available. These *V* data can be used to refine the period determination. *V* and *y* magnitude can be compared directly. Several frequency peaks are obtained when performing the analysis of the complete set of data, both by a Fourier-Deeming technique and by the method of minimization of the standard deviation of the observations from a least-square fit by a sine wave and its first harmonic (Mathys and Manfroid, 1984). Unlike the former, the latter method allows in the present case to determine unambiguously the best value of the frequency ($f = 0.727901 \pm 0.000006$ d⁻¹; the relevant part of the periodogram is shown on Fig. 1).

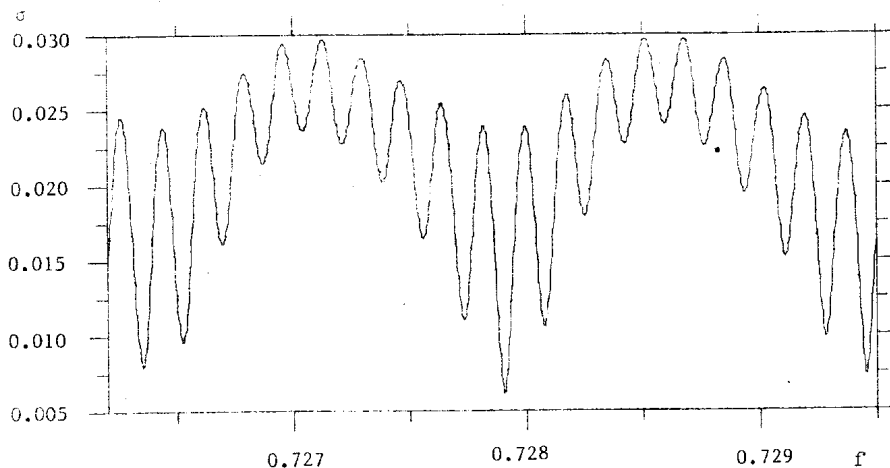


FIG. 1 — Part of the periodogram of HD 28843 showing the most probable values of the frequency

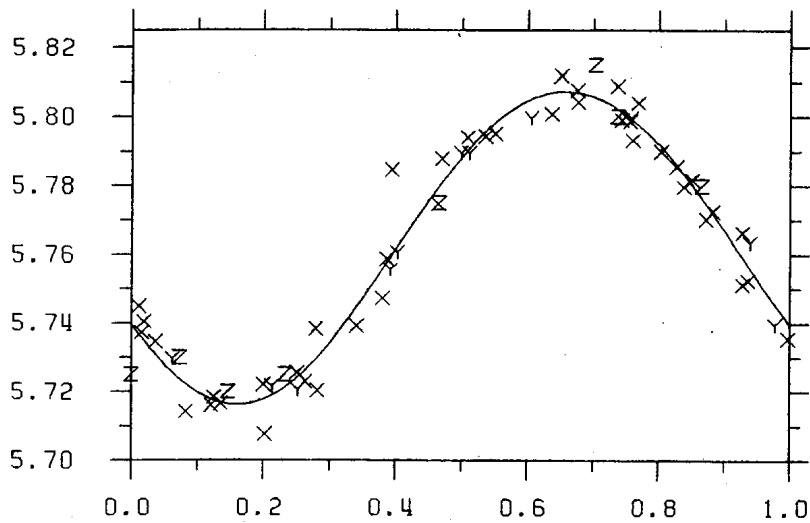


FIG. 2 — Phase diagram for HD 28843 with the period $P = 1.373813$ d. Phase origin is JD 2,437,647.336. The solid curve is a least-square fit of the observations by a sine wave and its first harmonic. Z: AWJC's 1966 V data. Y: Pedersen and Thomsen's y observations, January–February 1976 (Pedersen and Thomsen, 1977). X: JM and GM's y measurements, November 1977

A study of the phase diagrams confirms that the alternative values 0.726347 and 0.729453 d^{-1} are much less good. Hence we adopt

$$P = 1.373813 \pm 0.000012 \text{ d}$$

as the most probable value of the period of HD 28843. The phase diagram obtained with that period is shown on Fig. 2, together with a least-square fit of the data by a sine wave and its first harmonic.

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