

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

Number 1373

Konkoly Observatory  
Budapest  
1977 December 23

PHOTOMETRIC VARIATIONS OF THE B6 STAR HR 3440

HR 3440 (=HD 74071=GC 11917=51 G.Vel, Hogg 12 in IC 2391, B6V (Feinstein 1961)) was used as comparison star for the uvby measurements of HR 3413 by Hensberge et al. (1976), but the results did not allow to find the period. The situation remained the same after adding 13 measurements obtained later by Sterken (November 26 - December 3, 1975) still with HR 3440 as comparison star. But the periodic variation curves in uvby have now been established for HR 3413 (Renson et al. 1977) from observations with other comparison stars (HR 3300 and HD 73127). By subtracting these variations from the measured differences HR 3413-HR 3440, residual deviations are found, ascribable to HR 3440, which is thus slightly variable.

Use of the method described elsewhere (Renson 1977) with the residuals given by Sterken's measurements shows that the most probable period is somewhat more than  $0^d.261$ . Comparison with the residuals deduced from the 9 observations by Hensberge in January 1975, and from the 7 observations by Zuiderwijk in March 1975 (Hensberge et al. 1976) gives the value  $P=0^d.26145 \pm 0^d.00003$ .

The range is only a little more than  $0^m.02$  in y, b and v and  $0^m.03-0^m.04$  in u. Figure 1 is obtained from the Nov.-Dec. 1975 observations with the hereabove period. Phase 0.0 corresponds to JD 2442745.000. The ordinates are the magnitude differences HR 3440 - (HR 3300+HD 73127)/2. The curves show a secondary maximum, and are similar in all colours.

However the curves deduced from the measurements made in early 1975 are somewhat different: the maxima were then equal, and the minima different; the range seems somewhat larger in

Nov.-Dec. As far as it can be estimated despite the small number of observations, the shape of the curves changed somewhat even between January and March. Such variations of low amplitude and changing shape are rather common among early and mid B type stars (see e.g. references cited in Smith 1977). Several periods are probably present, the beats of which give rise to the observed changes.

Because of these changes, it is difficult to bring the curves deduced from the different series of measurements in accordance, and especially to distinguish between the main and secondary extrema. So the period could be  $0.26133^d$  instead of the value quoted above.

Sterken's measurements may be obtained by writing to the Commission 27 depository (librarian of the Royal Astronomical Society, Burlington House, London W1, England).

The observations being not numerous enough and badly distributed for studying a variation with a period as short as  $6\frac{1}{4}^h$ , the results cannot be considered as definitively established. More extensive measurements are necessary to establish the stability or instability of the variation. In order to study the possible variations in radial velocity and in line profiles, spectroscopic observations are also desirable.

P. RENSON

Institut d'Astrophysique de l'Université  
de Liège  
5, avenue de Cointe, B-4200 Cointe-Ougree,  
Belgium

C. STERKEN

Astrophysical Institute, Vrije Universiteit  
Brussel, Belgium

References:

- Feinstein, A., 1961, Publ.astron.Soc.Pacific 73, 410  
Hensberge, H., De Loore, C., Zuiderwijk, E.J. and Hammerschlag-  
Hensberge, G., 1976, Astron. and Astrophys. 48, 383  
Renson, P., 1977, Astron. and Astrophys., in print  
Renson, P., Manfroid, J. and Heck, A., 1977. Astron. and Astrophys.  
Suppl., in print  
Smith, M.A., 1977, Astrophys.J. 215, 574

