

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

Number 2170

Konkoly Observatory  
Budapest  
1982 June 23  
HU ISSN 0374-0676

SUPPLEMENTARY STRÖMGREN PHOTOMETRY OF THE Ap STARS HD 30849  
AND HD 53116

Both Ap stars HD 30849 and HD 53116 have been observed earlier for photometric variability. The results were published by Hensberge et al. (1981). The stars were selected from the Vogt-Faúndez paper (1979) because of indication of pronounced variability. The observations of Hensberge et al. confirmed variability up to  $0^m.1$  in Strömgren v for HD 30849, and up to  $0^m.1$  in Strömgren u for HD 53116. The measurements were used together with the Vogt-Faúndez data to derive the period of variability, but no unique solution could be given. In the case of HD 30849, several rotation periods between 15.6 and 16 days could represent the data. In the case of HD 53116 two possibilities remained open: nearly 12 days or about 18.1 days. Both stars have been reobserved in 1981 in order to remove these ambiguities. The observations were obtained at the ESO 50 cm telescope, by Catalano (HD 30849) and Weiss (HD 53116) respectively, during observing time obtained by the European Ap Workgroup. The comparison stars of Hensberge et al. (1981) were used again, and differential magnitudes were calculated in the same way.

The new observations, given in Table I, are compatible only with

$$P = 15.865 \pm 0.005 \quad \text{for HD 30849}$$

$$P = 11.978 \pm 0.005 \quad \text{for HD 53116}$$

as the reader can check in the corresponding Figures 1 and 2.

Table I

| JD<br>2 444 000+ | HD 30849 - HD 31640 |                    |                    |                    | $\Delta a$ | $\phi$ for ( $\phi=0$ ) = HJD 2 444197.621+ |         |                    |        |
|------------------|---------------------|--------------------|--------------------|--------------------|------------|---|---------|--------------------|--------|
|                  | $\Delta u_{instr}$  | $\Delta v_{instr}$ | $\Delta b_{instr}$ | $\Delta y_{instr}$ |            | 15.865E<br>$\pm 0.005$                      | 15.600E | 15.731E            | 15.99E |
| 614.736          | 0.966               | 0.945              | 0.824              | 0.768              | -          | 0.292<br>$\pm 0.009$                        | 0.738   | 0.516              | 0.071  |
| 619.611          | 0.959               | 0.895              | 0.814              | 0.801              | 0.021      | 0.599<br>$\pm 0.009$                        | 0.051   | 0.825              | 0.376  |
| 625.560          | 1.008               | 1.005              | 0.836              | 0.800              | 0.032      | 0.974<br>$\pm 0.009$                        | 0.432   | 0.204              | 0.748  |
|                  | HD 53116 - HD 53238 |                    |                    |                    |            | $\phi$ for ( $\phi=0$ ) = HJD 2 444230.732+ |         |                    |        |
|                  | $\Delta u_{instr}$  | $\Delta v_{instr}$ | $\Delta b_{instr}$ | $\Delta y_{instr}$ |            | 11.978 $\pm$ 0.005                          |         | 18.105 $\pm$ 0.007 |        |
| 666.561          | 0.038               | 0.334              | -                  | -                  | -          | 0.386 $\pm$ 0.015                           |         | 0.072 $\pm$ 0.01   |        |
| 668.538          | 0.103               | 0.294              | 0.382              | 0.512              | 0.040      | 0.551 $\pm$ 0.015                           |         | 0.181 $\pm$ 0.01   |        |
| 670.531          | 0.102               | 0.301              | -                  | -                  | -          | 0.717 $\pm$ 0.015                           |         | 0.292 $\pm$ 0.01   |        |
| 672.535          | 0.088               | 0.289              | 0.381              | 0.528              | 0.046      | 0.885 $\pm$ 0.015                           |         | 0.402 $\pm$ 0.01   |        |

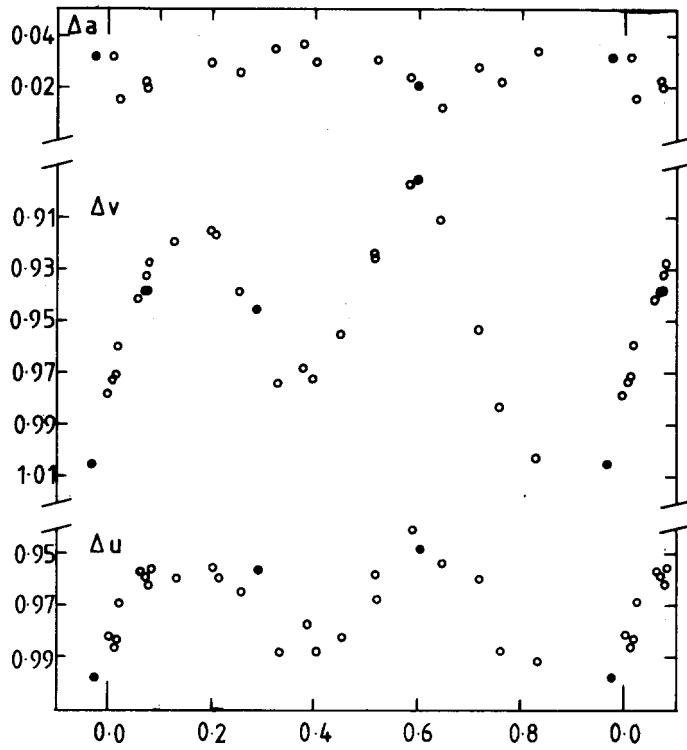


Fig. 1 Differential observations  $\Delta v$  and  $\Delta u$  in the sense HD 30849 - HD 31640, and the variation of the peculiarity index  $\Delta a$  (Maitzen, 1976) according to the ephemeris ( $\phi=0$ ) = HJD 2 444 197.621 + 15.865 E. The new observations are indicated by filled circles.

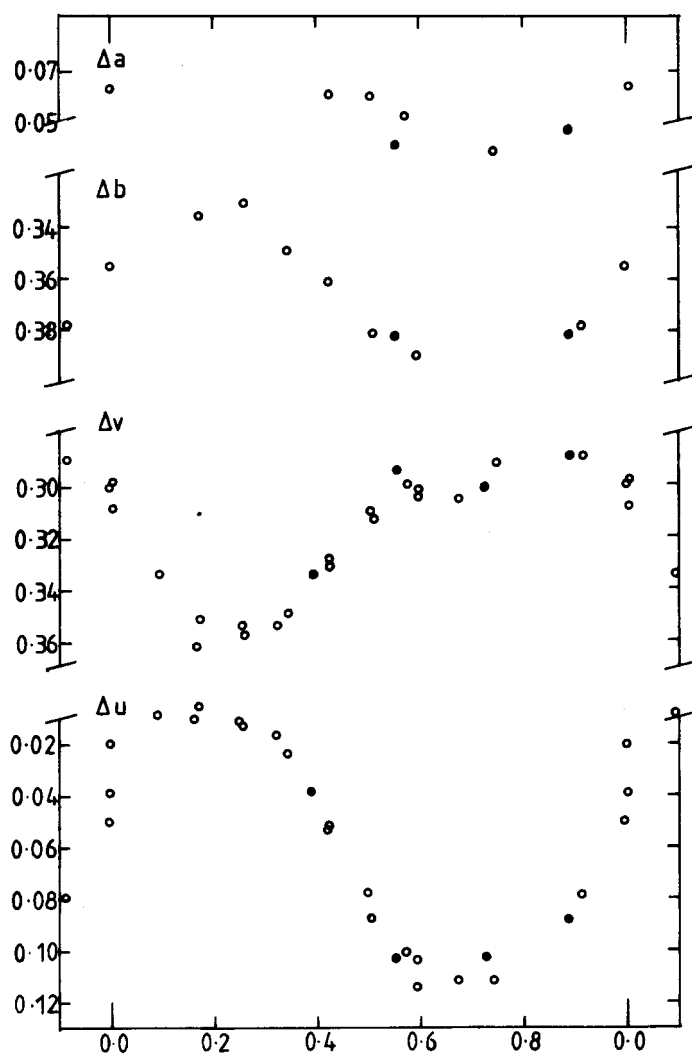


Fig. 2 Differential observations  $\Delta b$ ,  $\Delta v$  and  $\Delta u$  in the sense HD 53116 - HD 53238, and the variation of the peculiarity index  $\Delta a$  (Maitzen, 1976) according to the ephemeris ( $\phi=0$ ) = HJD 2 444 230.732 + 11.978 E. Symbols have the same meaning as in Figure 1.

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#### References :

Hensberge, H., Maitzen, H.M., Deridder, G., Gerbaldi, M.,  
Delmas, F., Renson, P., Doom, C., Weiss, W.W., Morguleff, N.:  
1981, Astron.Astrophys.Suppl. 46, 151.

Maitzen, H.M. : 1976, Astron.Astrophys. 51, 223.

Vogt, N., Faúndez, M. : 1979, Astron.Astrophys.Suppl. 36, 477.