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SEARCH FOR VARIABILITY OF THE SR-CR-EU STAR HD 8783¹⁾

In a recent paper by Maitzen and Vogt (1983) the late type Ap-star HD 8783 was shown to exhibit a marked variation in the photometric index a which is a measure of the strength of the λ 5200 broad band flux depression (Maitzen, 1976). From a preliminary analysis Maitzen and Vogt concluded that the period should be either very close to 1 day or 20 days. In order to establish the period of this star we monitored its photometric behaviour in two runs of 10 days each, separated by one year. Comparison stars were HD 8353 and HD 8781. The first run was carried out at the ESO-50cm telescope on La Silla in 1981 from Nov. 3 till Nov. 14. From 10 observations (all taken on different nights) we obtain the following mean differences and standard deviations:

HD 8783 - HD 8353:

u: 0.425 (8.2) v: 0.143 (5.2) b: 0.236 (8.6) y: 0.359 (6.9)

HD 8783 - HD 8781:

u: -0.250 (10.5) v: -0.494 (9.8) b: -0.391 (12.1) y: -0.251 (13.7)

The values in brackets are the standard deviations of a single measurement in units of 0.001 mag.

The second run was performed at the 1m Yale telescope on Cerro Tololo from Oct. 28 till Nov. 7, 1982. On ten different nights 14 differential measurements were taken, but only in the u and v- filters:

HD 8783 - HD 8353:

u: 0.414 (7.9) v: 0.146 (11.3)

HD 8783 - HD 8781:

u: -0.255 (15.8) v: -0.480 (11.4)

On Oct. 29, 1982 we obtained a clear increase of the differential magnitudes in u and v for the comparison star HD 8781 while those obtained with HD 8353 remained essentially constant. Therefore we have to discard HD 8781 as rather short period variable. Its spectral type is F0 II/III according to the

1)Based on observations collected in part at ESO- La Silla and at the Cerro Tololo Interamerican Observatory which is operated by AURA, Inc. under contract with the National Science Foundation.

Michigan catalogue (Houk and Cowley, 1975) and its position in the instability strip is indicated.

One additional measurement has been obtained on Dec. 19, 1982 at the Danish 50 cm telescope on La Silla:

HD 8783 - HD 8353:

u: 0.416 v: 0.140 b: 0.232 y: 0.358

HD 8783 - HD 8781:

u: -0.252 v: -0.494 b: -0.390 y: -0.252

Thus, measurements at 3 different epochs indicate that HD 8783 is virtually constant, the differences in u being caused by slightly different observer systems rather than by intrinsic variations. The periods suggested by Maitzen and Vogt (1983) cannot represent any sensible light variations in HD 8783.

This situation is however puzzling: variability in the index a cannot be denied, it is even very large considering the rather low absolute value of the peculiarity index Δa of HD 8783 ($\Delta a = 0.023$), but there is no counterpart of variability in uvby.

Except for one control measurement on 1982, Nov. 7 in the second run mentioned ($\Delta a = 0.031$ supporting the value of Maitzen and Vogt) no other Δa -observations were obtained.

In order to resolve the enigmatic case of HD 8783 we propose to further monitor this star both in uvby and the filters of the a-index (Maitzen, 1976). We deem it also of importance to monitor this star spectroscopically and to derive $v \sin i$.

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