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VARIATION OF THE CP2 STAR BD+24⁰ 3675 *

The star BD+24⁰3675 was found to be a CP2 star by Bidelman (1983). He classified it as a Si type by means of objective-prism plates. For this reason the star was placed on a list of CP2 stars to obtain Strömngren, H β and Δ_a indices (Schneider (1986)). The Δ_a index was introduced by Maitzen (1976) to measure the flux depression at λ 5200 which characterizes chemically peculiar early type (CP2) stars.

The observations were carried out in August 1985 with the 1m telescope of the Wise Observatory/Israel. For details of the instrumentation and reduction see Schneider (1986).

After three nights it was found that this star has the most outstanding Δ_a value ever measured, but with a scatter larger than expected. This indicated variability, therefore, the observations were continued until the end of the campaign.

Although no comparison star was measured the accuracy of the absolute photometry is very good.

First the average of the magnitudes and the indices were calculated. Then the means was subtracted from the data and a sine fit was placed through the residuals to estimate the frequency for each channel. A mean frequency was calculated by averaging the single frequencies weighted with the deviation from the fits. This yielded a period of $7.52 \pm .3$ days.

* Based on observations collected at The Florence and George Wise Observatory, Tel Aviv University, Israel.

variations of star BD+24°3675

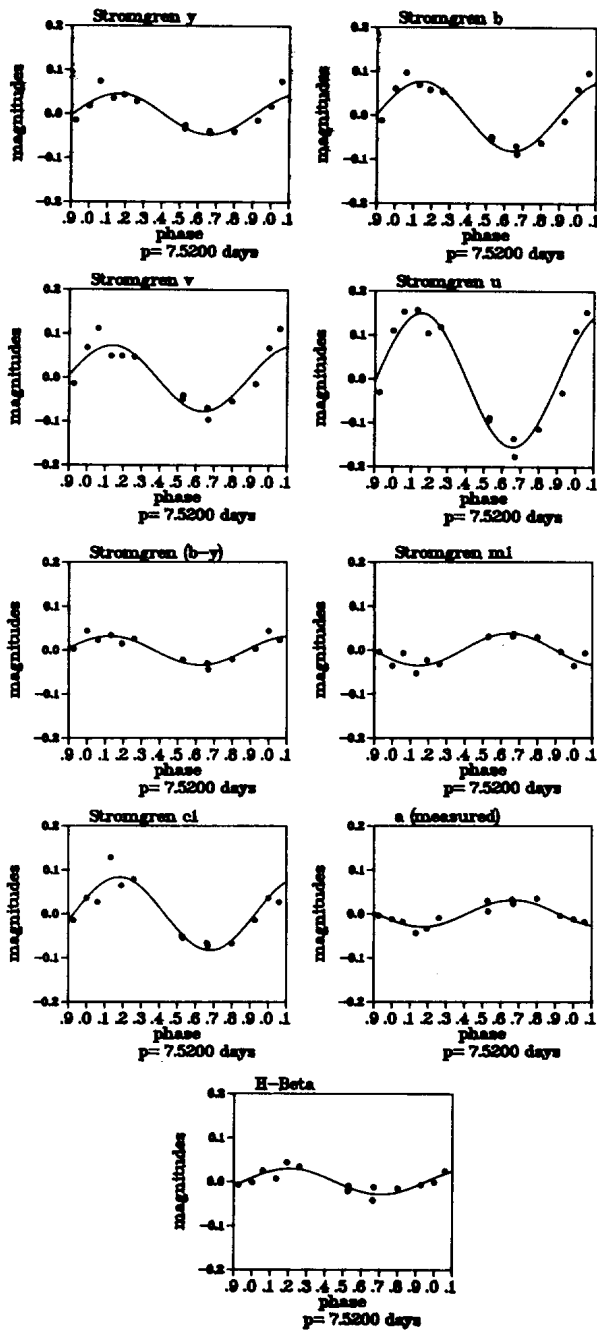


Figure 1

Table I

	mean	ampl	average
y :	9.941	.093	.014
b :	9.996	.158	.016
v :	10.230	.150	.023
u :	11.015	.152	.026
b-y :	.54	.066	.010
m ₁ :	.180	.074	.011
c ₁ :	.551	.167	.020
H _B :	2.767	.059	.011
a :	.101	.062	.010

Table II

y	b	v	u	b-y	m ₁	c ₁	a	H _B	J.D.	φ
17	61	68	110	43	36	35	-13	-1	6302.306	.00
35	69	49	157	33	53	128	-45	7	6303.297	.13
28	54	47	118	25	32	78	-10	35	6304.256	.26
-34	-56	-49	-94	-23	30	-52	29	-21	6306.265	.53
-26	-48	-40	-88	-23	31	-56	05	-10	6306.235	.53
-39	-69	-69	-136	-31	31	-67	32	-42	6307.290	.66
-44	-88	-96	-177	-45	37	-73	22	-12	6307.328	.67
-41	-62	-54	-114	-22	30	-68	34	-15	6308.314	.80
-15	-12	-14	-31	2	4	-15	-5	-7	6309.272	.93
74	97	112	153	22	7	26	-19	25	6310.270	.06
43	58	49	104	14	23	64	-35	44	6311.262	.19

Table I gives the mean values and the amplitudes derived from the fit with the mean period. In the third column the average of the residuals after pre-whitening is listed, which is a criterion for the quality of the fit. Table II shows the residuals (mean-obs.) in millimag, Julian Date of the observations and the derived phase. The phases were calculated by using

$$J.D. = 2446302.306 + 7.52 \cdot E$$

In Fig.1 all residuals were plotted against the phase. Note that the m and the a index is in antiphase with the other quantities.

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