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PHOTOMETRIC OBSERVATIONS OF THE SUSPECTED VV CEPHEI STAR BD +61°219

The star BD +61°219 has been classified as a VV Cephei binary by Mme Barbier (1971) on the basis of spectrographic evidence. As this star lies in a field patrolled since the end of 1965 with the 20 cm astrograph of the Teramo Observatory, I have examined its photometric behaviour during these years. On the 81 available plates the magnitude of the star has been determined with a Zeiss G2 Schnellphotometer using 6 comparison stars whose photographic magnitudes had been calibrated photoelectrically; the results are given in the following table, the mean internal error of one magnitude being ±0.05:

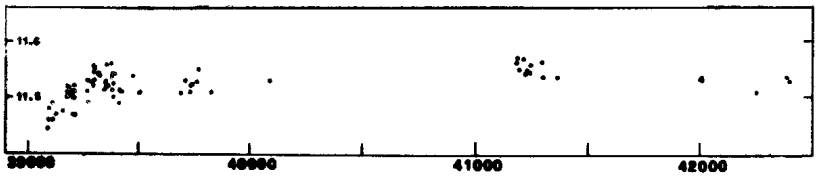
J.D. 24	m_{pg}	J.D.	m_{pg}	J.D.	m_{pg}
39089.3	11.80	39295.6	11.20	39505.4	11.45
090.3	11.70	298.5	11.30	684.5	11.45
093.5	11.60	298.6	11.25	712.6	11.35
107.3	11.55	299.5	11.25	732.4	11.45
114.4	11.70	300.5	11.35	734.5	11.40
126.4	11.65	320.5	11.30	740.5	11.40
154.3	11.60	321.5	11.30	761.4	11.35
172.4	11.50	326.5	11.30	767.5	11.25
175.3	11.45	348.4	11.45	827.5	11.45
175.4	11.40	350.5	11.35	40090.5	11.35
181.4	11.50	351.6	11.40	41183.4	11.20
184.3	11.40	352.6	11.40	188.4	11.15
198.3	11.50	353.5	11.20	193.5	11.25
200.3	11.45	361.6	11.40	214.3	11.15
202.3	11.65	376.4	11.20	221.5	11.30
203.3	11.50	377.4	11.30	236.4	11.25
206.3	11.50	379.4	11.45	243.4	11.30
207.3	11.40	382.5	11.30	245.4	11.20
209.3	11.65	384.5	11.50	297.5	11.15
211.3	11.45	385.5	11.40	301.4	11.30
215.3	11.65	392.5	11.30	365.4	11.30
264.6	11.45	412.4	11.45	42003.3	11.35
267.6	11.35	413.5	11.55	007.3	11.30
268.6	11.55	414.6	11.45	010.3	11.35
270.6	11.35	417.5	11.45	252.4	11.45
293.6	11.40	476.4	11.30	385.3	11.30
294.6	11.40	501.4	11.45	398.2	11.35

At the beginning of the observations, from about J.D. 39100 to 39300 (November 1965 - July 1966), the light curve shows a rising

of $0^m.4$; afterwards the star seems to stay at maximum brightness with some fluctuations between $11^m.2$ and $11^m.4$ but unfortunately the observations are too scanty to draw a certain conclusion. The initial rising might be the final phase of an eclipse, the slow recovery of the maximum brightness after the fourth contact being characteristic of some VV Cephei eclipsing variables as in the case of AZ Cassiopeiae (Tempesti 1968); if this conjecture is right, the period should be not shorter than 3500 days.

Photoelectric observations performed in two nights with a 40 cm refractor give, by comparison with the very close Johnson's standard star BD $+61^\circ 195$, the following magnitude and colour:

$V = 9^m.46 \pm 0.03$ $\quad$ $B - V = +2^m.14 \pm 0.05$



Photographic light curve of BD $+61^\circ 219$

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References:

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Tempesti, P., 1968, Atti dell'XI Convegno della Soc.Astron.Italiana Teramo, Note e Comunicazioni N. 44.