

A NEW BRIGHT ECLIPSING VARIABLE IN CEPHEUS

(BAV-Mitteilung Nr.64)

Variations in the light of HD 208106 (BD+61°2209, SAO 019685) were first recorded photoelectrically by Sörg and Wrandemark (1970). As NSV 13911 the star was included in the "New Catalogue of Suspected Variable Stars". The type of variability was unknown. Up to now, an investigation of the light variations seems not to have been undertaken.

The star was observed on 11 nights between Nov. 1990 and Aug. 1992 with the 8-inch Newtonian at the author's observing station at Eckental (Germany). The photometer was equipped with a 931A tube and Schott filters BG12 (1mm)+GG13 (2mm) for the B and GG14 (2mm) for the V colour. For a description see Gröbel (1992).

Nearby comparison and check stars (see Figure 1) with closely matching colour indices could be taken from Sörg and Wrandemark (1970):

	Star	$\alpha(1991)$	$\delta(1991)$	mag. V	(B-V)	(U-B)
Var.	HD 208106	21 ^h 51 ^m 34 ^s	61°41'	7.27-7.58	+0.14	-0.54
Comp.	HD 207951	21 ^h 50 ^m 27 ^s	61°45'	8.17	+0.14	-0.54
Check	HD 207308	21 ^h 45 ^m 29 ^s	62°15'	7.49	+0.25	-0.58

Recent observations and measurements on a standard cluster showed that at least for early type stars, the instrumental system matches the Johnson BV system quite well.

Each point of the lightcurve in Figure 2 is the mean of five consecutive measurements. A total of 210 points could be taken in both colours, 85 per cent of which show a standard deviation smaller than 0^m.015. Throughout the observation period, the magnitude difference check-comp. remained constant.

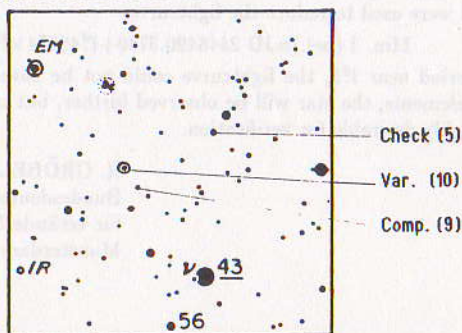


Figure 1. Finding chart for HD 208106. The numbers refer to designations given in the paper by Sörg and Wrandemark (1970).

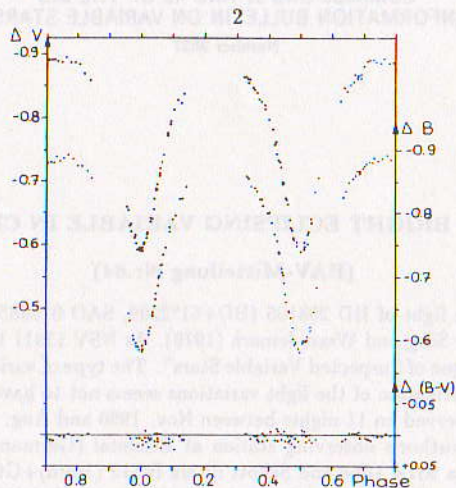


Figure 2. The differential B and V light and B-V colour curves of HD 208106.

Respectively four (1991) and two (1992) minima could be secured. Due to unequal coverage in the branches, they were determined with the tracing-paper method.

Minimum (hel.)	Epoch	
2448484.3938	-4	Min. I
48490.3731	0	Min. I
48498.6004	5.5	Min. II
48501.5903	7.5	Min. II
48843.3679	236	Min. I
48872.5381	255.5	Min. II

These minima are almost identical in depth and duration, so that minimum attribution is arbitrary. The following provisional elements could be calculated with the method of least squares and were used to reduce the lightcurve:

$$\text{Min. I (hel.)} = \text{JD } 2448490.3740 + 1^d 49574 \times E$$

Due to the period near $1^d 5$, the lightcurve could not be covered at one location. To refine the given elements, the star will be observed further, but observations from other longitudes are highly desirable for verification.

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References:

- Gröbel, R., 1992, BAV Rundbrief, 41, 2, 3/4
 Särg, K., Wramdemark, S., 1970, *Astron. Astrophys. Suppl. Ser.*, 2, 251