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A NEW VARIABLE STAR BD +2° 1867

During the observations of the eclipsing binary YY CMi, the star BD+2°1867, which served as a comparison star, turned out to be variable. No information about the variability of this star can be found in literature or in the Center of the Star Data in Strasbourg.

During the present and the previous observational seasons photoelectric observations of the new variable were performed in order to determine its variability type. The observations were carried out at the Astronomical Observatory of the Jagiellonian University in Cracow using the 50 cm Cassegrain telescope, as well as the mountain station Roztoki Gorne using a 20cm refractor. Differential measurements of the star were made with a V filter using BD+1°1994 as the comparison star. The light constancy of the comparison star was checked against BD+1°1989. The observations were corrected for atmospheric extinction using mean extinction coefficients for each observation site. A detailed description of both photometers and photometric systems was published by Flin et al. (1986). Data concerning the three stars mentioned above are given in Table I.

Table I

Data about the stars involved

star	BD	HD	ptm	ptg	Sp
new variable	+2°1867	66853	$9^m.1$	$9^m.4$	F2
comparison	+1°1994	67028	8.2	8.3	A2
check	+1°1989	66829	9.1	9.4	F

The new variable star usually changes its brightness with an amplitude of about $0^m.1$ within a period of about 3 hours. There were also nights when the star kept a nearly constant brightness. The light changes over six nights with the largest number of observations are presented in Figure 1. Time is expressed in fractions of a day and the brightness is given as the difference between the comparison and the variable star expressed in stellar magnitudes with zero point corresponding to the mean value for all differences (341 observational points).

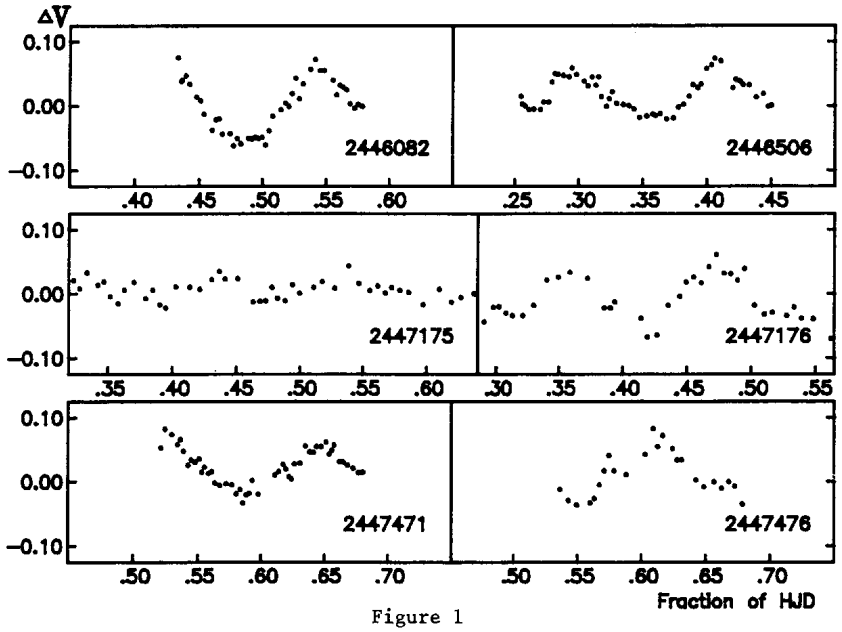

Figure 1

14 times of maxima were determined and the tentative elements for the new variable were estimated:

$$\text{Moment of maximum HJD} = 2446768.6343 \pm .0034 + 0^{d}.1194660 \pm 8 \cdot E$$

The times of maxima and the O-C calculated from the above formula are given in Table II.

Table II

HJD 24..	E	O-C	HJD 24..	E	O-C
45673.4835	-9167	-0.0057	46826.4703	484	0.0145
46082.4334	-5744	0.0120	46827.3923	492	-0.0192
46082.5411	-5743	0.0002	46851.4364	693	0.0122
46137.3662	-5284	-0.0096	46857.3970	743	-0.0005
46506.2970	-2196	0.0100	47176.3614	3413	-0.0104
46506.4058	-2195	-0.0005	47176.4728	3414	-0.0184

Taking into account the spectral type of the new variable and the amplitude changes, the authors suggest BD+2°1867 to be a δ Sct-type variable.

It would be advantageous to obtain as many observations as possible during one night. This is difficult at our Observatory because of its high latitude. For this reason observations made at lower latitudes are highly desirable.

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Reference:

Flin, P., Winiarski, M., Zola, St., 1986, I.B.V.S. 2678.