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UBV OBSERVATIONS OF ZZ CMi

ZZ CMi (BD +09<sup>o</sup>1633) is a poorly observed star. It is classified in the General Catalogue of Variable Stars as a semi-regular variable with a spectral type of M6I-IIep. On the base of 35 photographic observations covering a period of about 40 years Tshernova (1949) suggested a possible period of about 500<sup>d</sup> for the brightness variations. The spectroscopic observations of Sanford (1947) showed absorption features corresponding to a spectral class M6 and low excitation emission lines. Later Iijima (1984) noted the presence of high excitation emission lines of [OIII] and [NeIII]. Bopp (1984) reported H $\alpha$  variability and infrared photometry. Iijima (1984) and Bopp (1984) interpreted their observations as evidence that ZZ CMi is a symbiotic star.

We observed ZZ CMi photoelectrically during the period January - May 1991 as a part of the study of symbiotic and symbiotic-like stars carried out in the National Astronomical Observatory Rozhen. The observations were obtained with the 0.6m telescope and a single channel photon counting photometer. HD58367 (V=4.996, B-V=1.002, U-B=0.783) was used as the comparison star. The data processing and reduction to the standard UBV system are made with the software of Kirov, Antov and Genkov (1991). The internal accuracy

Table 1

<u>HJD2440000+</u>	<u>V</u>	<u>B-V</u>	<u>U-B</u>
8255.584	9.78	1.64	0.69
8262.353	9.57	1.57	0.88
8274.306	9.70	1.52	0.71
8275.529	9.74	1.54	0.71
8278.530	9.74	1.54	0.63
8291.495	9.94	1.45	0.50
8292.313	9.94	1.47	0.60
8308.356	10.13	1.45	0.43
8321.315	10.08	1.46	0.48
8337.338	9.75	1.49	0.47
8338.283	9.77	1.52	0.61
8339.360	9.76	1.50	0.44
8340.379	9.75	1.53	0.60
8341.284	9.76	1.52	0.51
8383.280	9.78	1.53	0.46

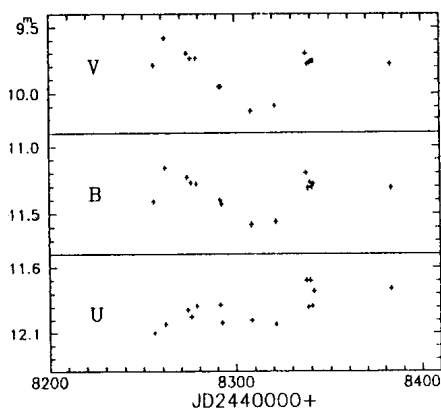


Figure 1

is  $\pm 0.03$  in V,  $\pm 0.04$  in B-V and  $\pm 0.05$  in U-B.

Table 1 summarizes our results. Obviously the colours do not correspond to the normal M6 giants (Allen, 1973). U-B is remarkably bluer and points to the presence of a hot source.

In Figure 1 the U, B and V magnitudes are shown. A minimum in the B and V bands at the end of February 1991 (JD2448310) is visible. The amplitude of the variation in B is smaller by about 0.1 than in V. The behaviour in U is different and the changes are not so strong.

Our UBV observations are in agreement with the supposition ZZ CMi to be a symbiotic binary system. The M giant dominates the radiation in B and V and probably semi-regular variability causes the changes in these bands. The brightness in U can be influenced by a less luminous hot companion.

Systematic observations are necessary to reveal the nature of this object.

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R. ZAMANOV and T. TOMOV

National Astronomical Observatory Rozhen  
P.O. Box 136, 4700 Smoljan, Bulgaria

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