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LIGHT-CHANGES OF THE CENTRAL STAR OF PLANETARY NEBULA  
NGC 2346 IN JANUARY 1991\*)

NGC 2346 (215+3°01; AR<sub>1950</sub> = 7<sup>h</sup>06<sup>m</sup>49<sup>s</sup>.7, D<sub>1950</sub> = -0°43'29") is a bipolar planetary nebula the central star of which is known to be a spectroscopic binary with a period of about 16 days (Méndez, Niemela, 1981). The star has shown significant light-changes already in 1982 (see IBVS No. 2113) which belonged to an eclipsing phase between 1981 and 1986 due to a dust cloud (Méndez et al., 1982; Günter, 1990). Within the long-term programme "search for variability of central stars of planetary nebulae" we have observed again in January 1991 changes of the nuclear brightness of NGC 2346 (reported already in IAU Circ.No.5181) having a minimum on JD 2448267.6 ± 15.

Our photoelectric measurements were carried out at the European Southern Observatory, La Silla, Chile, using the 50 cm telescope and a pulse counting photometer (EMI 6256 photomultiplier, diaphragm 21 arcsec). They are summarized in Table I, where  $\bar{n}$  is the number of measurements used; the UBV magnitudes correspond to the central star only, i.e. after subtracting the nebular radiation in the corresponding diaphragms. The nebular brightness was found using measurements in four diaphragms as follows:  $V_{\text{neb}} = 15^{\text{m}}.10$ ,  $B_{\text{neb}} = 13^{\text{m}}.73$ ,  $U_{\text{neb}} = 13^{\text{m}}.30$  (standard diaphragm of dia. 21 arcsec). Stars in the E-regions Nos. 2-7 (Cousins, 1973; Vogt et al., 1981) served as photometric standards. Star "b" was used as a local comparison giving  $V = 11^{\text{m}}.021$ ,  $B-V = +0^{\text{m}}.360$ ,  $U-B = +0^{\text{m}}.115$  ( $n=19$ ) nearly identical with the brightness measured before.

We present the V light curve of the star in Fig.1. The depth of the minimum is very small,  $\Delta V = 0.09$  mag,  $\Delta B = 0.10$  mag, but significant because of the accuracy of our measurements being about ±0.01 mag. The duration of the minimum is about 3-4 days - in the remaining nights the star was nearly constant with the mean magnitudes  $V = 11^{\text{m}}.27$ ,  $B-V = +0^{\text{m}}.27$ ,  $U-B = +0^{\text{m}}.28$  which are very similar to those measured from 1987 to 1990.

The decline of the star belongs probably again to the occultation phase due to dust. Further observations will be necessary and some are planned for this year.

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\*) Based on observations collected at the European Southern Observatory, Chile

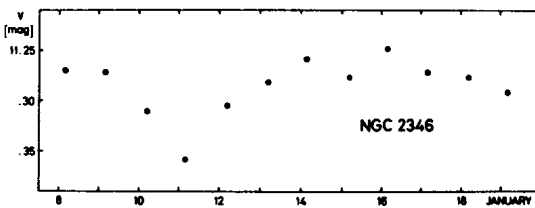


Fig.1 V light curve of the central star of NGC 2346 in January 1991

Table I Photoelectric observations of the central star of NGC 2346 in January 1991

JD 2440000+	V	B-V	U-B	n
8264.66	11.270	+0.288	+0.282	3
8265.67	11.272	0.255	0.272	7
8266.71	11.311	0.299	0.297	2
8267.66	11.358	0.288	0.304	9
8268.69	11.305	0.265	0.283	9
8269.70	11.282	0.281	0.286	8
8270.63	11.259	0.257	0.265	3
8271.69	11.277	0.263	0.266	3
8272.65	11.248	0.275	0.272	3
8273.67	11.272	0.275	0.276	3
8274.68	11.277	0.274	0.286	3
8275.67	11.292	+0.279	+0.289	3

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