

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 3598

Konkoly Observatory
Budapest
6 May 1991

HU ISSN 0374 - 0676

PHOTOGRAPHIC OBSERVATIONS OF V651 Mon DURING 1988-89

The central star of planetary nebula PK215+3⁰1 (V651 Mon) has been found to have unstable eclipses since 1981 (Kohoutek, 1982). Since then many authors have made a lot of photometric observations. They have revealed that this object has fast and complex variations in the light curves. We reported previously the photographic observations of the central star of planetary nebula PK215+3⁰1 for 1981-1986 (Hao, 1987) and 1987 (Hao, 1988). From these observations we have found that its drastic eclipsing light variations, started in 1981, decreased rapidly in 1986 and the eclipse became almost unseen in the light curves of 1987.

Since then we continued the photographic observations during 1988-1989, using the 60/90/180cm Schmidt camera at Xiongliong station of the Beijing Observatory. The observing method and reduction techniques were used as previously described (Hao, 1987).

The new photographic and photovisual observations for V651 Mon during 1988-1989 are presented in Table I. In this table the phases are calculated using the same ephemeris as before (Hao, 1987). In order to make a comparison with the observations in 1987 we also present the light curve of 1987 in Figure 1. The light curves of 1987, 1988, 1989 are plotted on the same magnitude scale.

From these observations we can state that the brightness variations of the central star of planetary nebula PK215+3⁰1 have an obvious difference between 1987 and 1988. We found that the eclipse events nearly unseen in the light curve of 1987 reappear in the light curves of 1988. The amplitude of the light fluctuations is about 1.1 mag and the "eclipse" occupied roughly 40% of the orbital period. The maximum brightness (m_{pg}) in 1988 was brighter than in 1987. From these it is reasonable to think that the binary central star of planetary nebula V651 Mon might undergo another mass ejection from the sdO component during 1987-1988.

From the observations of 1989 it can be stated that the eclipse event existed in 1989 and its amplitude was about the same as in 1988.

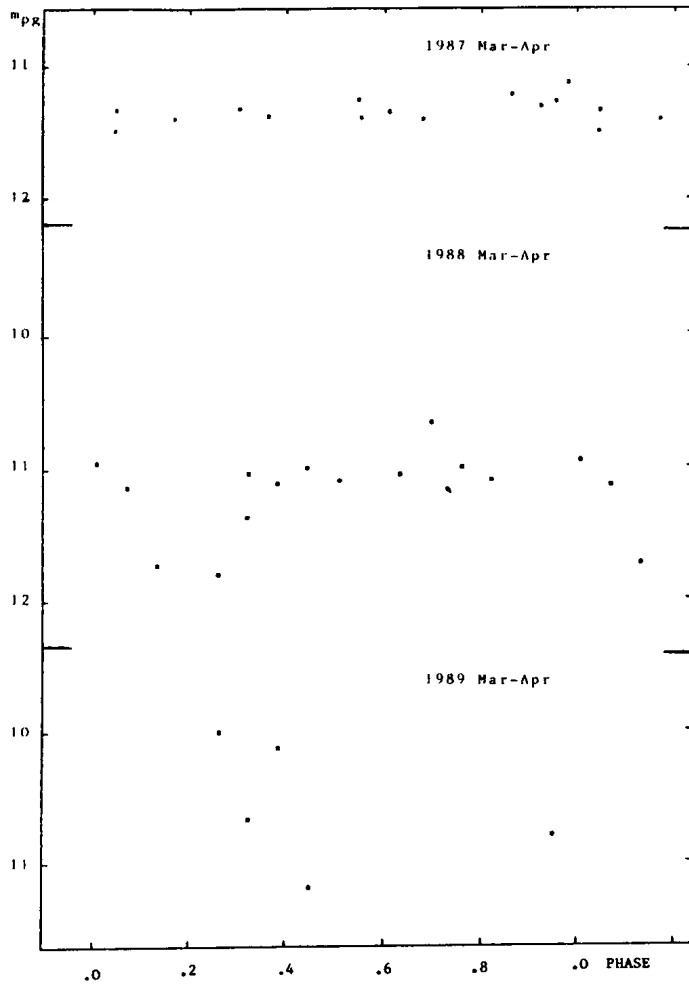


Figure 1. The light curves of V651 Mon

Table I. The Observations of V651 Mon

No.	Plates No. QA-	J.D.hel. 2447000+	M _{pg}	Phase
1	1027	259.325	11.38	0.319
2	1030	260.320	11.12	0.382
3	1031	261.301	11.00	0.443
4	1034	264.331	11.06	0.633
5	1035	265.312	10.67	0.694
6	1038	266.323	11.00	0.758
7	1039	267.364	11.10	0.820
8	1040	270.309	10.96	0.007
9	1043	271.325	11.14	0.071
10	1044	272.317	11.74	0.133
11	1045	274.309	11.80	0.258
12	1048	275.318	11.05	0.322
13	1049	276.306	10.17:	0.383
14	1052	278.319	11.04:	0.509
15	SD-2906	642.344	10.67	0.322
16	-2907	643.345	10.12	0.385
17	-2908	644.349	11.19	0.448
18	-2909	652.349	10.80	0.949
19	-2911	657.345	10.00:	0.262
			M _{pv}	
20	QA-1028	259.334	11.00	0.320
21	1029	260.302	11.03	0.380
22	1032	261.313	11.20	0.444
23	1033	264.506	11.24	0.644
24	1036	265.326	11.05	0.695
25	1037	266.309	11.29	0.757
26	1041	270.325	11.40	0.008
27	1042	271.310	11.50	0.070
28	1046	274.323	11.51	0.259
29	1047	275.307	11.60:	0.321
30	1050	276.319	11.11	0.384
31	1051	278.309	11.52:	0.509
32	SD-2910	657.358	10.96	0.263

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References:

- Hao, X.-L.: 1987, IBVS No.3014.
Hao, X.-L.: 1988, IBVS No.3271.
Kohoutek, L.: 1982, IBVS No.2113.

ERRATUM

In the No.3515 issue of the IBVS, in Figure 2 the lowest panel shows the magnitudes of HK Aqr (Gl 890). The star name HR Aqr is erroneously drawn in the Figure.

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