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NEW VARIABLE STAR IN CEPHEUS

The H α -emission survey in the emission nebula NGC 7129 of Semkov and Tsvetkov (1986) has revealed an interesting irregular variable star. On objective prism plates the star has very strong H α -emission and was included on the list of such stars with the number 7. The coordinates of the star are:

$$\alpha = 21^{\text{h}}39^{\text{m}}3, \delta = 66^{\circ}22', (1950.0)$$

The identification chart of the new variable star is shown in Fig.1.

The UBV photographic observations were made with the 50/70/172 cm Schmidt telescope of the Rozhen Astronomical Observatory of the Bulgarian Academy of Sciences during the period September 1984 - August 1992 (Table 1). At our disposal there are also three plates taken on J.D. 2444493.4, 2444495.4 and 2444497.4 which were obtained with the 100/130/210 cm Schmidt telescope of the Byurakan Astrophysical Observatory of the Armenian Academy of Sciences by M. Tsvetkov. The photometric standards in the open cluster NGC 7142 (Hoag et al. 1961) were used.

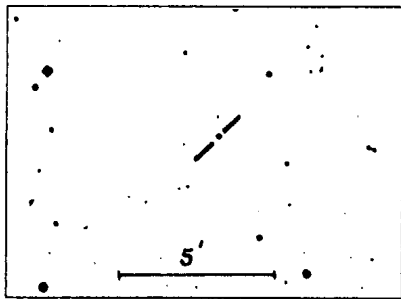


Figure 1. Identification chart of the new variable star as a reproduction from the 60 minute exposure photographic plate in R-light. North is on the top, East - on the left.

Table 1. Photometric behaviour of the new variable star in the period 1980-1992

J.D.	U	B	V	J.D.	U	B	V
244...	mag	mag	mag	244...	mag	mag	mag
4493.4	-	15.7	-	8207.3	-	15.9	-
4495.4	-	-	14.1	8290.2	-	15.4	-
4497.4	15.3	-	-	8291.2	-	16.4	-
5960.3	15.6	-	-	8328.7	-	15.4	-
5961.3	-	15.6	-	8329.6	-	-	14.4
6564.5	-	15.5	14.2	8330.5	-	16.4	14.0
6712.4	-	-	14.5	8363.4	14.6	15.6	14.2
7000.4	-	-	14.0	8364.5	-	15.6	14.2
7001.4	-	15.3	-	8366.5	-	15.6	-
7002.4	-	-	14.3	8367.5	-	15.6	14.1
7065.3	-	15.8	-	8378.4	-	16.0:	-
7065.4	15.6	15.9	14.2	8379.5	15.6	16.3	-
7123.4	-	15.7	-	8380.5	-	15.8	-
7208.2	-	15.8	-	8382.5	-	15.7	-
7209.2	-	15.8	-	8385.4	15.0	15.5	-
7305.5	-	15.6	-	8408.5	15.4	-	14.1
7334.5	-	15.4	-	8409.5	14.3:	15.7	14.4
7362.4	-	15.7	-	8411.5	-	-	14.5
7384.4	15.5	16.2	13.7	8430.5	16.5	16.0	-
7385.4	15.0	16.6	14.2	8431.5	15.6	16.4	-
7386.4	-	15.9	-	8462.4	-	-	14.9
7388.5	-	15.9	-	8464.4	-	-	14.7
7443.3	15.2	15.3	-	8468.5	15.3	16.1	-
7448.4	-	16.6	-	8469.3	16.2	15.6	14.3
7474.3	-	15.5	14.4	8478.4	15.1	16.0	14.3
7475.2	-	15.4	-	8511.4	15.5	15.8	14.3
7627.5	-	15.4	-	8513.3	14.9	16.0	-
7644.4	-	15.0	-	8515.4	-	15.8	-
7707.4	-	15.9	-	8547.4	15.2	16.3	14.2
7707.5	-	17.0:	-	8563.3	15.2	15.8	14.9
7733.3	-	15.7	-	8629.2	-	15.5	14.5
7774.3	15.0	15.6	14.3	8663.6	14.2	15.3	13.8
7777.4	-	15.9	-	8687.6	14.8	15.3	14.4
7829.3	15.9	15.8	-	8694.5	-	15.3	13.9
7830.3	15.6	16.5	-	8719.5	-	15.5	-
7831.3	-	15.7	14.3	8720.5	-	-	13.6
7924.3	15.8	-	-	8734.4	-	-	13.8
7926.6	-	15.5	14.3	8735.4	-	15.2	13.9
7947.6	-	15.3	-	8753.5	-	15.4	14.2
7948.6	14.8	15.0	-	8825.4	-	-	14.2
7956.6	-	15.6	-	8828.4	-	16.2	-
7979.5	-	15.4	-	8855.4	-	15.7	14.0
8071.4	-	15.6	-	8857.4	-	15.5	14.1
8071.5	-	16.1	-	8860.4	15.5	15.6	-
8072.4	-	15.9	14.1	8861.3	-	15.4	14.1
8129.4	-	16.2	-	8862.4	-	15.6	-

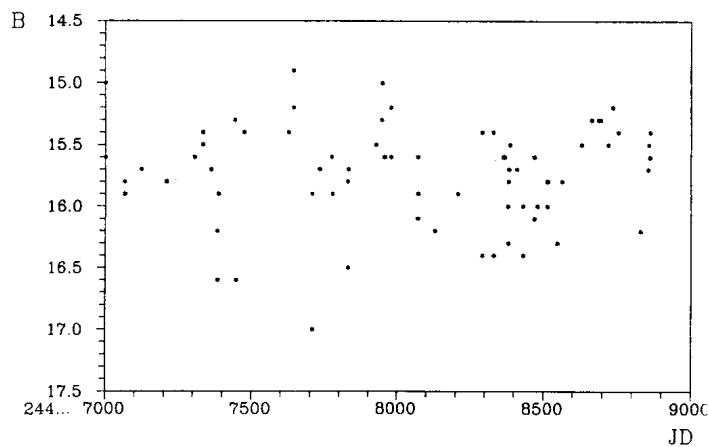


Figure 2. Light curve of the new variable star during the period July 1987 - August 1992 in B-light.

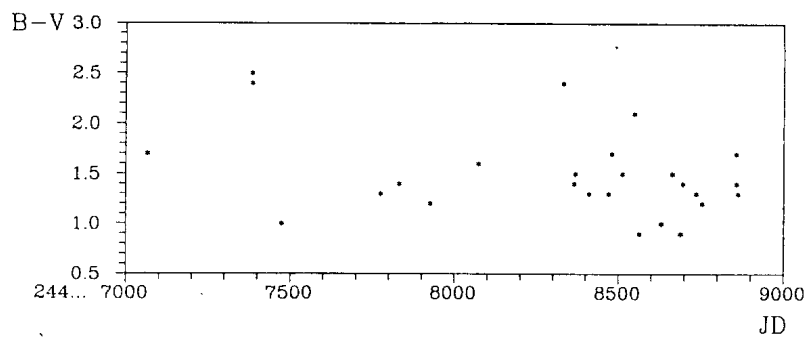


Figure 3. The B-V colour index of the new variable star during the period July 1987 - August 1992.

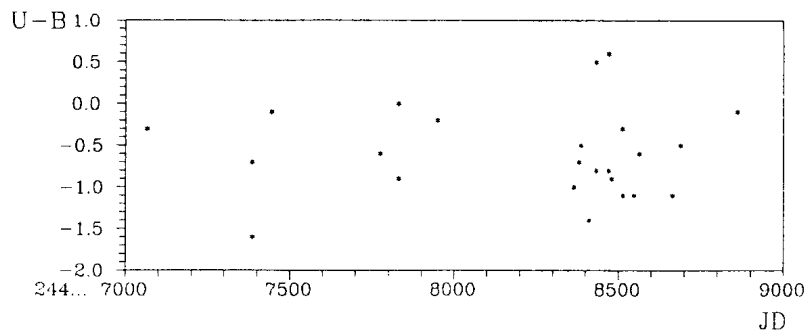


Figure 4. The U-B colour index of the new variable star during the period July 1987 - August 1992.

The observing data suggests that the star brightness ranges from $14^m.9$ to $17^m.0$ in B- light (Fig. 2). The variations in U- and V- light are similar ones. The colour index B-V varies about the value $1^m.5$ (Fig. 3), and the colour index U-B about $-0^m.6$ (Fig. 4). Having in mind the presence of the strong H α -emission and the comparatively quick irregular variations it is possible to suspect the T Tauri type of variability. We plan to do CCD spectral observations in order to clarify the nature of the star.

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REFERENCES

- Hoag, A. A., Johnson, H. L., Iriarte, B., Mitchell, R. T., Hallam, K. L., Sharpless, S.,
1961, *Publ. U. S. Naval Obs., Second Series*, 17, 349.
Semkov, E. H., Tavetkov, M. K., 1986, *Star Clusters and Associations*,
Publ. of the Ast. Dep. Eötvös Univ., Budapest, 8, 141.