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A NEW RED VARIABLE STAR

During the photographic photometry of the Hα emission stars in the region of the open cluster Tr 37 (Kun, 1986) a new variable star was found on the plates taken with the 60/90/180 cm Schmidt telescope of Konkoly Observatory. The coordinates of the star (see the identification chart) are:

$$\alpha(1950)=21^h40^m56^s.3,\ \delta(1950)=+57^\circ06'28''.5.$$

Variability of the star was established from the following observations:

Date of observation	JD	Measured magnitude R	V	B
28 June 1968	2440035.49	-	17.0	-
31 Oct. 1972	2441622.43	$13^m.2$	-	-
20 Oct. 1985	2446359.39	14.7	$18^m.0$	invisible
16 June 1986	2446597.49	-	$15^m.5$	$18^m.6$
14 Sep. 1986	2446687.49	-	$15^m.0$	-

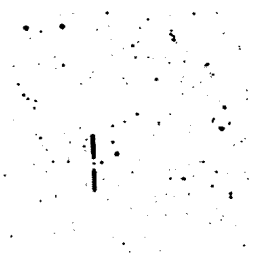

Figure 1. The identification chart. North is at the top and east is to the left. The size of the chart is 15'X15'.

The photographic R, V and B magnitudes were determined using Lichtbuer's (1982) photoelectric sequence. The magnitudes listed here were averaged from two plates taken on the same night. A red-filtered objective prism plate obtained on 13th August 1986 shows this star brighter than the star

which is situated immediately to the west of it whereas the Palomar Observatory Sky Survey red print shows the reverse situation. Our objective prism plate shows a TiO band characteristic for an M type star as well.

An IRAS point source is to be found at the coordinates $\alpha(1950)=21^h40^m59^s.1$ and $\delta(1950)=+57^o06'20''$, and it is thought that this infrared emission might well come from the red star. We cannot, however, exclude the possibility that the far infrared source is the neighbouring star which, according to Marschall and van Altena (1987), is a member of Tr 37 and may thus be a pre-main-sequence star having infrared excess.

Obviously this limited amount of information is insufficient for characterizing the nature of the star. The red colour and the large amplitude suggest that the new variable is probably a Mira type star, similarly to the red variables found in this region by Friedemann et al. (1977) and by Pfau and Friedemann (1980). The most important questions to be answered include the determination of the period of the light variation if it exists, and to decide whether the star is a member of Tr 37 or not. Examination of the archival plate material of other observatories would probably shed more light on the nature of this star.

M. KUN

Konkoly Observatory
H-1525 Budapest,
P.O. Box 67, Hungary

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