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

Number 2746

Konkoly Observatory
Budapest
12 June 1985

HU ISSN 0374 - 0676

A FUOR-LIKE NEW VARIABLE STAR IN ORION

R.Sh. Natsvlishvili from the Abastumani Observatory, Georgia, U.S.S.R., published in July, 1984, in the IBVS No. 2565 an interesting note dealing with non-stable stars in the Orion Nebula Region. His new variable star No. 24 is "characterized by Fuor-like variability in smaller scale and at maximum it has a very strong Hα emission".

We were very much interested in this particular star and reviewed the large Tonantzintla Schmidt camera plate collection obtained in different colors - with and without the objective prism - which covers the Orion Nebula Region starting in 1944 and ending in 1984. Unfortunately, we did not observe the Orion region during the 1982 winter months nor during the 1983 Orion seasons. Apart from the Tonantzintla Observatory photographic material we have at our disposal some of the Mt. Palomar 48" Schmidt camera photographs (blue and red) taken on March 20/21, 1950, and the corresponding ones to the already well known National Geographic Society - Palomar Observatory Sky Survey collection taken in November, 1955. Besides it is important to add single image plates in the B, R, I colors and 3 multiple image plates (U-B-V) secured by one of us (G.H.) at Mt. Palomar during the October and November months in 1958 plus 1 U-B-V plate in February, 1963. Finally in March 20 and 21 of this year M. Peimbert, using the 2.1 m telescope at KPNO and the intensified dissector scanner IIDS and two gratings covering the wavelength ranges λλ3400-5200, λλ5600-7400, secured good spectrophotometric information on the Abastumani variable star No. 24.

In this preliminary note and based on the observations briefly mentioned before we can present the following general conclusions:

1. The Abastumani star No. 24 was a variable star of small amplitude (no more than 1 magnitude) in the UBVRI colors, at least during the lapse comprised between 1944 up to the beginning of 1982.
2. During the prolonged minima the smoothed average magnitudes were:
   U ≃ 18.5; B ≃ 18.6; V ≃ 17.5;
   R ≃ 16.4; I ≃ 15.2.

3. The small dispersion objective prism spectra (Tonantzintla Schmidt camera) did show with certainty that during minima a very weak Hα emission line (W $\lambda \lesssim 10$ Å) appeared. At the same time the red and near infrared spectra were difficult to classify although it can be guessed a late K or early M type. Of course this particular star could not be classified during minimum light as an advanced T Tauri object.
4. It seems that during and after the outburst a rather strong Hα emission line appears, according to Natsvlishvili's information.
5. The spectra obtained at the Kitt Peak Observatory by one of us (M.P.) in March 20 and 21, 1985, corresponds to a rather advanced T Tauri type star with very strong H and CaII emission lines and the metallic emission features are very conspicuous. Of course, the flourescent FeI emission lines λλ4063-4132 are easily detected. No [S II] or [O I] emission lines were detected, but the HeI and [CaII] emission lines seem to be present.
6. Although in the visual, blue and ultraviolet part of the spectrum (1985) the absorption lines seem to be masked, in the red TiO absorption broad bands are detectable and provide a base to classify the star No. 24 as of early M type.
7. The magnitudes of the star in March 20/21, 1985, derived from the spectrophotometric observations are as follows: U = 17.4±0.2; B = 17.5±0.2; V = 16.4±0.2; R = 14.8±0.3.
   From an extrapolation of the observations it is predicted that I ~ 13.6± 0.3.
8. In a multiple exposure ultraviolet color plate obtained at Tonantzintla on the 27/28 of January, 1982 (limiting magnitude U = ~17.5) the Abastumani variable star No. 24 is not visible at all but in another multiple exposure ultraviolet photograph secured on the night of 23/24 January, 1984, U ≤15.5.

More detailed information and some provisional remarks will be given elsewhere in the near future. We hope that at the Abastumani and the Byurakan Observatory, as well as at other observatories, there are available photometric and spectroscopic observations obtained during the 1982-1985 period and previous to the 1982 outburst of the variable star No. 24.

E. CHAVIRA
Tonantzintla Observatory
(INAOE)
Puebla, Pue.

M. PEIMBERT
Instituto de Astronomia
(UNAM)
México, D. F.

G. HARO
Instituto de Astronomia
(UNAM)
México, D. F.