

# Photometric follow-up observations of the new FUor candidate HBC 722

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We report results from photometric observations of the new FUor candidate HBC 722 discovered in the region of NGC 7000/IC 5070 (ATEL #[2801](#) and #[2808](#)). Our observations were performed with the 50/70 cm Schmidt telescopes of the National Astronomical Observatory Rozhen (Bulgaria) and the 1.3 m RC telescope of the Skinakas Observatory of the Institute of Astronomy, University of Crete (Greece). Our recent data suggest that the rise in brightness continues and a small reflection nebula around HBC 722 became visible.

Using our observations from 2007, 2008 and 2009 a sequence of fifteen reference stars in the field around HBC 722 was calibrated in BVRI. A table with the photometric magnitudes of reference stars and a finding chart are available upon request from [esemkov@astro.bas.bg](mailto:esemkov@astro.bas.bg). All our frames obtained in the time of outburst are measured using the new comparison sequence. To minimize the light from the surrounding nebula and to avoid the brighter stars in the background we use the following parameters. The object is measured with 4" radius aperture and the background is taken between radii 13" and 19". The reported in ATEL #[2801](#) values of V-R, R and V are not correct due to the erroneous data from the catalog used as reference. On 2010 Aug 24, the maximal brightness of HBC 722 was registered with the following magnitudes:

I=11.71, R=12.79, V=13.81, B=15.32

Comparing the recent magnitudes with the pre-outburst observations from 2009 Jul. 17 and 31, we obtain the following values for the amplitude of the outburst:

Delta I=3.6, Delta R=4.2 and Delta V=4.6.

Simultaneously, the value of the color index V-I changes from 3.10 (Jul. 2009) to 2.10 (Aug 2010), i.e. the star has become considerably bluer during the outburst. We consider that our recent photometric results support the FUor hypothesis of the outburst.