COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS
Number 4803

Konkoly Observatory
Budapest
16 November 1999
HU ISSN 0374 – 0676

CCD OBSERVATION OF THE 1999 OUTBURST OF Var61 Her

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Var61 Her is a dwarf nova discovered by Antipin (1998), who found seven outbursts from 188 plates taken at Moscow and Crimea. The outburst amplitude larger than 5.8 mag (Antipin 1998) makes Var61 Her a possible candidate of large-amplitude SU UMa-type dwarf nova.

VSNET (Variable Star Network) members started a systematic monitoring of this object in 1998 May. Two further outbursts have been detected up to 1999 November. The first outburst in 1998 November was detected by Kinnunen (1998), which lasted at least 9 days. The second outburst was detected on 1999 October 31 (Jones and Muyllaert 1999). Upon this alert, we started time-resolved CCD photometry in order to check the possible presence of superhumps.

The observations were done using an unfiltered ST-7 camera attached to the Meade 25-cm Schmidt–Cassegrain telescope. The exposure time was 30 s. The images were dark-subtracted, flat-fielded, and analyzed using the Java^{TM}-based PSF photometry package developed by one of the authors (TK). The relative magnitudes of the variable were measured against GSC 2621.958 (USNO r-magnitude 10.5), whose constancy was confirmed by comparison with GSC 2621.990 (USNO r-magnitude 12.8).

The overall outburst light curve is shown in Figure 1. The nightly averages with errors are plotted. The light curve shows a relatively rapid, monotonous decline, which is unlike that of superoutbursts of SU UMa stars. The decline rate of the first three night is 0.46 mag d^{-1}, which is far larger than the typical decline rate of 0.1–0.2 mag d^{-1} in superoutbursts, and is far smaller than that ($\geq$ 1 mag d^{-1}) in normal outbursts. The decline rate suggests that Var61 Her is an SS Cyg-type (UGSS) dwarf nova.

The apparent lack of superhumps in time-resolved CCD photometry also supports the above classification of the dwarf nova. Figure 2 represents our time-resolved photometry, which only shows a monotonous decline. The low outburst frequency ($\sim$ 1 year interval) makes Var61 Her one of rather inactive SS Cyg-type dwarf novae. Being a relatively bright object, further investigation of system parameters is encouraged.

The authors are grateful to VSNET observers who contributed important observations. This work is partly supported by the Grant-in-Aid for Scientific Research (10740095) of the Japanese Ministry of Education, Science, Culture.

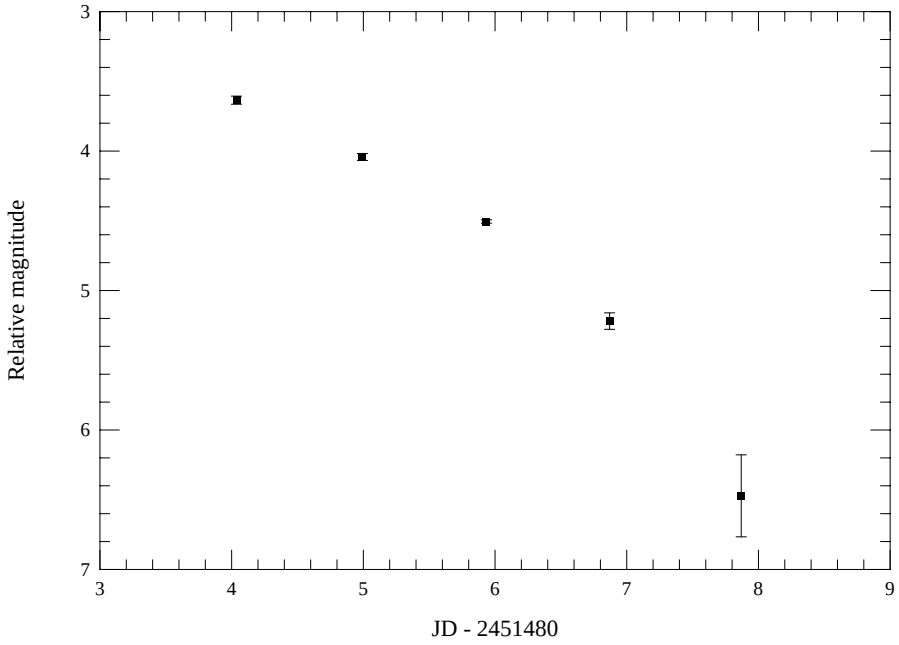

Figure 1. Outburst light curve of Var61 Her

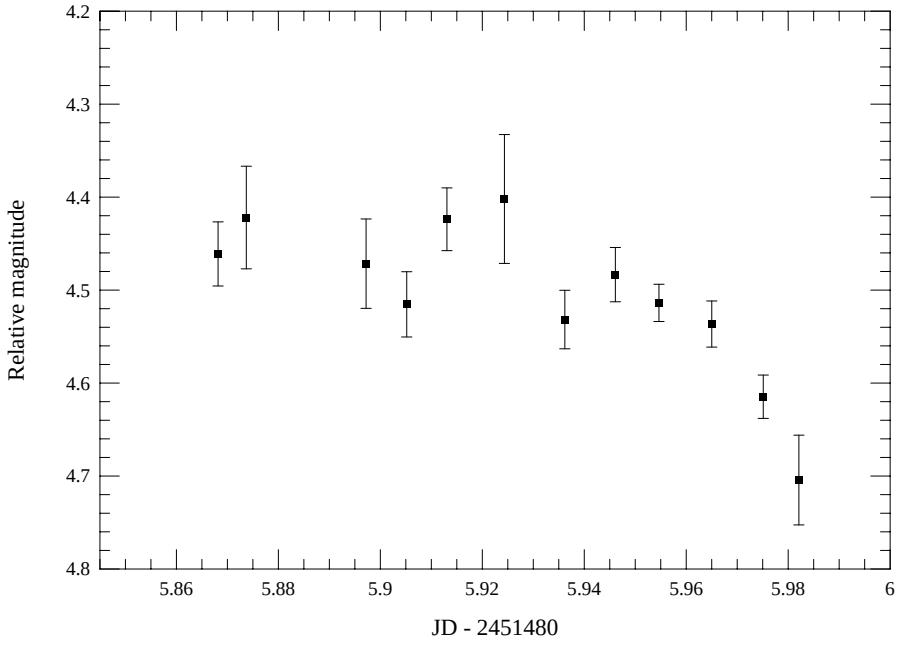

Figure 2. Light curve of Var61 Her on 1999 November 3

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