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V, I_C OBSERVATIONS OF THE VARIABLE ANTIPIN V71

BACHER, A.; LEDERLE, C.; GRÖMER, G.; KAPFERER, W.; KAUSCH, W.; KIMESWENGER, S.

Institut für Astrophysik, Leopold-Franzens-Universität Innsbruck, Technikerstr. 25, A-6020 Innsbruck, Austria
e-mail: stefan.kimeswenger@uibk.ac.at

The variable star Antipin V71 was discovered on the Moscow plate collection (Antipin 2000). We crossidentify the object with the star USNO SA2 1500-00018885. The star is given there with $15\overset{\mathrm{m}}{.}7$ and $15\overset{\mathrm{m}}{.}0$ in the red and the blue passbands, respectively. Accurate astrometry based on a local USNO SA2 frame relative to the surrounding astrometric stars AC2000 451 (= Tycho-2 1053516), AC2000 191 and AC2000 332 (= Tycho-2 1053462) leads to

$$\alpha_{\mathrm{J2000.0}} = 00^{\mathrm{h}}00^{\mathrm{m}}52\overset{\mathrm{s}}{.}901 \pm 0\overset{\mathrm{s}}{.}025, \qquad \delta_{\mathrm{J2000.0}} = 62^{\circ}25'14\overset{''}{.}84 \pm 0\overset{''}{.}3.$$

CCD photometry of this rapid variable ($P = 0\overset{\mathrm{d}}{.}0865524$, Antipin 2000) was obtained at the Innsbruck 60-cm RC telescope during two runs October 20, 2000 (MJD 51838) and December 5, 2000 (MJD 51884) using Johnson V and Cousins I_C filters. Eight stars, later absolute calibrated as tertiary standards at the end of the second run, were chosen to obtain differential photometry. The exposure time was 200 and 150 seconds in V and I_C, respectively. Due to cirrus clouds on October 20 sometimes the exposure were extended up to 600 seconds in V.

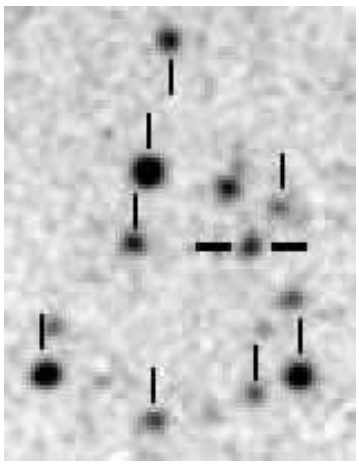

Figure 1. The $2\overset{'}{.}8 \times 3\overset{'}{.}7$ field around Antipin V71 (thick horizontal bar) and the comparison stars used for the differential photometry (N is up, E is left)

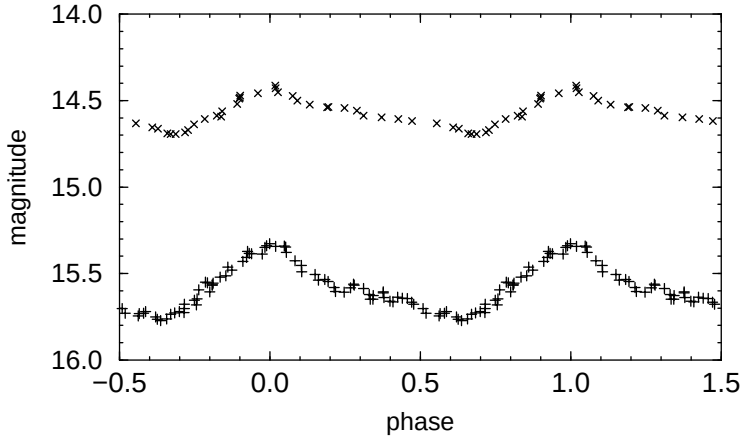

Figure 2. The V (+) and the $I_{\rm C}$ (×) light curve of the target

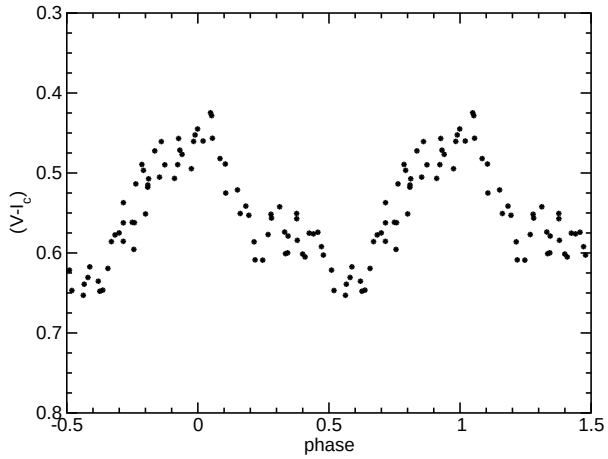

Figure 3. The change of the $V - I_{\rm C}$ color as function of the phase

For the source extraction we used SExtractor (Bertin & Arnouts 1996). The absolute calibration was obtained by 55 frames of the stars HR 670, 7891, 8585, HD 58142 and HD 204414 taken on December 5.

The light curve clearly shows an asymmetrical behavior. We assume Antipin V71 to be a high amplitude δ Sct type star (HADS). There is a slight bump at phase of about 0.3 to 0.5. The light curve does not change during the whole set of observations covering more than 500 pulsations in total. Antipin (2000) obtained a first light curve by using 856 photographic plates obtained in the years 1948 to 1994. Thus he was able to accurately derive the period. We obtained, using the original period, a slightly different phase of maximum light

$$\text{Max.} = \text{HJD } 2441186.458 \pm 0.001 + 0\overset{\text{d}}{.}0865524 \times E.$$

References:

Antipin, S.V., 2000, *IBVS*, No. 4939
Bertin, E., & Arnouts, S., 1996, *A&AS*, **117**, 393