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1 meter telescope in Kolonica saddle - technical parameters and observing programs

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Abstract. The actual technical status of the 1 meter Vihorlat National Telescope (VNT) at the Astronomical Observatory at Kolonica Saddle is presented. In the second part of the paper we present results of variable stars observations with the 1 meter telescope in recent years. We present a brief overview of most important observing programs.
Key words: telescopes – stars: binaries: close – cataclysmic variables

1. Technical status

The Vihorlat National Telescope (VNT) is the main instrument of the Astronomical Observatory at Kolonica Saddle. The diameter of the main mirror is 1000 mm. The focal length in the Cassegrain focus is 9000 mm. With a CCD camera FLI PL1001E used with binning 2x2 the resulting pixel scale is 1 px = 1.10″. Autoguiding of the VNT is carried out by a TV Guider constructed by M. Myslivec from Czech Republic. The remote control of focusing has big impact on the quality of observations. VNT has a focusing system based on synchronous motors on the secondary mirror.

2. Observing results

The first experimental electronic measurements with VNT were made in 2006. Both with CCD cameras and with a two channel photoelectric photometer. There are only few stars suitable for photoelectric photometer observation. Generally, the photometer is better when fast brightness changes (a time scale of seconds) must be recorded. Thus a majority of observations are done with the CCD detector.

2.1. Long term monitoring of selected intermediate polars

The goal of the campaign is to monitor the selected intermediate polars for spin period changes (Andronov *et al.*, 2003). A list of targets contains 20 objects. Fig. 1 presents a typical result. The data marked as CBA are taken from (Patterson *et al.*, 2011). After 8 years since the discovery of the intermediate polar

1RXS J070407.9+262501, the spin period shows a sinusoidal variation suggesting the presence of the third body in the system. To confirm this conclusion we need longer monitoring without observational gaps.

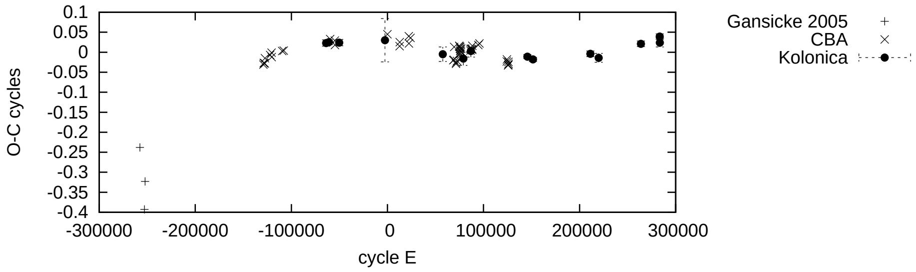

Figure 1. 1RXS J070407.9+262501, an O-C diagram of pulse maxima calculated with the linear ephemeris $BJD_{max} = 2454779.89647 + 0.0055633109.E$

2.2. Project Dwarf

The project is aimed at detection of circumbinary extrasolar planets using the timing of the minima of low-mass eclipsing binaries. There is a special web page dedicated to the campaign (http://astronomy.science.upjs.sk/projectdwarf/). The campaign started in 2011. A complete list of targets has 62 items. We use VNT for observations of half of them. The rest is observable even with a smaller 35 cm telescope.

2.3. Cataclysmic variable, seasonal campaigns

Our most intense observing campaign is aimed at a newly discovered, relatively bright polar OT_J071126.0+440405 with deep eclipses. This object was discovered in January 2009 by Catalina Sky Survey. In the active state there is a pre-eclipse dip at phase −0.13 interpreted as an eclipse caused by an accretion stream falling toward a white dwarf. Altogether 3 types of eclipses and 3 distinctly separate luminosity states were observed.

References

Andronov, I.L., Antoniuk, K.A., Augusto, P., Baklanov, A.V., Chinarova, L.L., Chochol, D., Efimov, Yu.S., Gazeas,K., Halevin, A.V., Kim, Y., Kolesnikov, S.V., Kudashkina, L.S., Marsakova, V.I., Mason, P.A., Niarchos, P.G., Nogami, D., Ostrova, N.I., Patkos, L., Pavlenko, E.P., Shakhovskoy, N.M., Tremko, J., Yushchenko, A.V., Zola, S.: 2003 *A&AT* **22**, 793

Patterson, J., Thorstensen, J.R., Sheets, H.A., Kemp, J., Vican, L., Uthas, H., Boyd, D., Potter, M., Krajci, T., Campbell, T., Roberts, G., Starkey, D., Goff, B.: 2011, *Publ. Astron. Soc. Pac.* **123**, 130

URL: Project DWARF, `http://astronomy.science.upjs.sk/projectdwarf/`