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## Photometric monitoring of short-period eclipsing binaries discovered at Astronomical Observatory on Kolonica Saddle

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We analyzed the photometric data obtained for 4 short-period EW-type binary systems discovered at Astronomical Observatory at Kolonica Saddle using different instruments between 2009 and 2019. The stars USNO-B1.0 1411-0397871 (VSX J213321.5+510857) and USNO-B1.0 1411-0397855 (VSX J213320.0+510819) are W UMa type eclipsing binaries. These stars got GCVS names V2833 Cyg and V2832 Cyg respectively. V483 And (Kol003) and USNO-B1.0 1236-0432303 (VSX J200553.2+334157, Kol009) are also EW-type binaries.

The largest set of photometric data used in this research was obtained with the 1m Vihorlat National Telescope at the Astronomical Observatory on Kolonica Saddle, Slovakia (VNT). V2832 Cyg and V2833 Cyg were also observed with 60 cm Zeiss Cassegrain telescope at the Observatory and Planetarium of M. R. Stefanik in Hlohovec, Slovakia. Some time series were obtained using Meade LX-200 instrument at the same observatory. In 2014- 2016 we gathered photometric observations of V2832 Cyg and V2833 Cyg with the the 40 cm Maksutov telescope at the Astronomical Observatory of the Jagiellonian University in Krakow, Poland.

The reduction, consisting of calibration of scientific images for bias, dark and flat-field and extraction of instrumental magnitudes, was carried out with the MUNIWIN software or CoLiTecVS.

Using O-C analysis, we determined more accurate values of the orbital period and initial epochs of these systems. Using New Algol Variable method, we determined phenomenological characteristics of light curves. Its worth to mention that for V2833 Cyg Lafler-Kinman-Kholopov method applied for long time series allowed to derive the same value of the period, which was obtained later using O-C analysis. We confirm the presence of O'Connell effect in the V483 And. The spots may explain asymmetric light curves and significant changes of the shape from season to season. Light curves of V2832 Cyg, V2833 Cyg and VSX J200553.2+334157 are stable. No variations of the orbital period found.

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