

ROTATIONAL PERIOD OF 1938 LAUSANNA

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We report photometric observations of the main belt asteroid 1938 Lausanna obtained on five nights in March and April 2014. We determine a synodic rotation period 2.748 ± 0.001 h and an amplitude of 0.12 ± 0.02 mag.

1938 Lausanna is a main belt asteroid discovered by P. Wild at Zimmerwald Observatory, Bern, on April 19, 1975. It is a typical main belt asteroid in an orbit with semimajor axis 2.24 AU, eccentricity 0.16 and a period of 3.34 years. The diameter is unknown but based on an absolute magnitude $H=12.6$, the likely diameter is in the range 6-19 km (Minor Planet Center 2013).

Observations were made on five nights between March 11 and April 5, 2014. At Lindby Observatory (K60) in southernmost Sweden, data were obtained with a 0.25-m f/10 Schmidt-Cassegrain (SCT) operating at f/4.6, Starlight Xpress SXV-H9 CCD camera and Clear imaging filter. The pixel scale was 2.3 arcsec and the exposure time 45 seconds. At Carpione Observatory (K49), near Florence, Italy, data were obtained using a 0.25-m f/10 SCT, SBIG ST9-XE CCD camera and Clear filter. The pixel scale was 1.6 arcsec and the exposure time 210 seconds. Lausanna culminated at an altitude of 34° at Lindby and 46° at Carpione.

Images were calibrated with bias, flats and darks. Photometric reduction to the R filter band was made with MPO Canopus software using the MPOSC3 star catalog and the Photometry Magnitude Method (Warner 2014).

In the analysis, 526 observations were used, reduced to 4.6° phase angle. The resulting light curve is double peaked and quite symmetric. The phased light curve period is 2.748 ± 0.001 h and the amplitude is 0.12 ± 0.02 mag. Very similar results were obtained by Skiff (2014) at Lowell Observatory during the same observing period. The MPC Asteroid Lightcurve Data File (2014) and LCDB (Warner et al. 2009) did not have any entries for this asteroid.

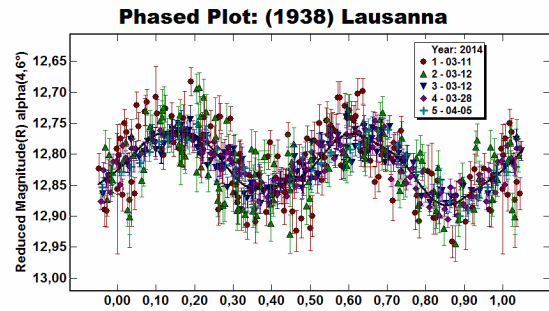


Fig. 1. Phased plot of 1938 Lausanna with 6th order fit, obtained from observations on 2014 March 11 (red circles) and 12 (green up triangles) at Lindby, and March 12 (blue down triangles), 28 (purple diamonds) and April 5 (cyan pluses) at Carpione. Zero phase occurred at JD 2456728.2988 (light time corrected).

References

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- Warner, B.D. et al. (2009). The asteroid lightcurve database, Icarus 202, 134-146. LCDB on-line database accessed 2014 July 22. http://minorplanetcenter.net/light_curve/
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