

ROTATIONAL PERIOD AND LIGHTCURVE OF 7910 ALEKSOLA

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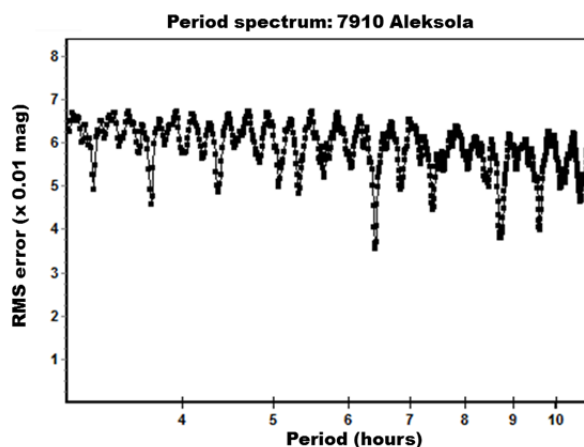
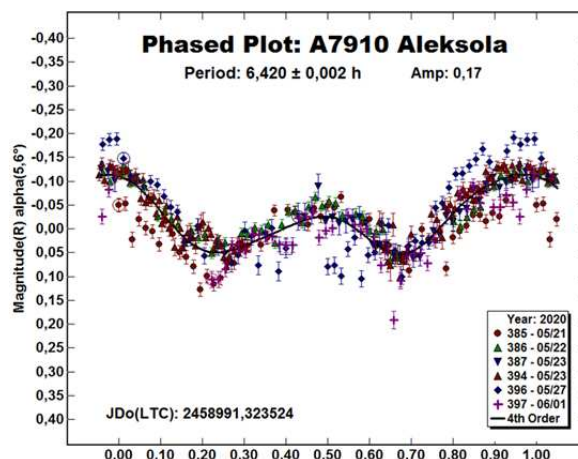
The lightcurve and rotation period determination for 7910 Aleksola are reported. The results are: $P = 6.420 \pm 0.002$ h and $A = 0.17$ mag.

The aim of this research is to find the rotational period and lightcurve of main-belt asteroid 7910 Aleksola. CCD photometric observations of 7910 Aleksola were carried out by means of Elianto observatory located in the south of Italy (Pontecagnano) using a 0.3-m Newton telescope operating at f/4 equipped with a Moravian KAF1603 ME CCD camera (1536×1024 array of 9-micron pixels) with a clear filter. A session of the measurements was also carried out at ‘Nastro Verde’ observatory located at Sorrento (Naples), Italy by means of a 0.35-m Schmidt-Cassegrain telescope operating at f/6.3 using a SBIG ST-10 XME CCD camera with 2148×1472 array of 6.8-micron pixels with a clear filter.

All images were astrometrically aligned, dark and flat-field corrected using *Maxim DL* software. *MPO Canopus* (Warner, 2017) was used to measure the magnitudes, perform Fourier analysis, and produce the final lightcurve. In particular, data were reduced in *MPO Canopus* using differential photometry. Night-to-night zero-point calibration was accomplished by selecting up to five comparison stars with near-solar colors using the “comp star selector” feature. To analyze the data points ATLAS star catalog (Tonry et al., 2018) was used for determining the comparison star magnitudes. The “StarBGone” routine within *MPO Canopus* was used to subtract stars that occasionally merged with the asteroid during the observations. *MPO Canopus* was also used for rotation period analysis. The software employs a FALC Fourier analysis algorithm developed by Harris (Harris et al., 1989).

7910 Aleksola was discovered at Nauchnyj on 1976 April 01 by N. S. Chernykh. It is a main-belt asteroid with a semi-major axis of 2.248 AU, orbital period of 3.4 years, eccentricity of 0.138 and inclination of 8.363 deg. This five-kilometer-asteroid has an absolute magnitude of 13.6 and a geometric albedo of 0.20 (JPL, 2020). CCD photometric observations were performed between 2020 May 22 and 2020 June 1. Six observation sessions were produced for lightcurve analysis to collect 342 data points and adopting an exposure time ranging between 120 s and 360 s.

Our data analysis gave a period of 6.420 ± 0.002 h accompanied by an amplitude of 0.17 mag. The period found is in excellent agreement with a recently report (Páll, 2020). The amplitude found in our case is larger if compared with the one (0.13 ± 0.03) measured by the same authors while is closer to that reported (0.18 ± 0.01) on the web by Pravec (Pravec, 2020).



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Number	Name	20yy mm/dd	Pts	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
7910	Aleksola	20/05/22-20/06/01	342	5.58-9.71	239.9	8.1	6.420	0.02	0.20	0.01	MB

Table I. Observing circumstances and results. The phase angle is given for the first and last date. L_{PAB} and B_{PAB} are the approximate phase angle bisector longitude and latitude at mid-date range (Harris et al., 1984). Grp is the asteroid family/group (Warner et al., 2009).

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ASTEROID PHOTOMETRY AND LIGHTCURVE ANALYSIS AT GORA’S OBSERVATORIES – PART II.

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Synodic rotation periods and amplitudes are reported for
414 Liriope, 949 Hel, 952 Caia, and 1145 Robelmonte.

In this work, we present periods and amplitudes of lightcurves for 414 Liriope, 949 Hel, 952 Caia, and 1145 Robelmonte. These results are the product of a collaborative work by GORA (Grupo de Observadores de Rotaciones de Asteroides). In a recent publication (Colazo et al., 2020), we limited our observations to asteroids with well-defined periods, as part of a preliminary learning. Now, we have focused the study on more complex objectives, which allowed us to provide novel data of scientific relevance. The observatories and equipment used are listed in Table 1.