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**ROTATION PERIOD DETERMINATION
FOR ASTEROID 2023 DZ2**

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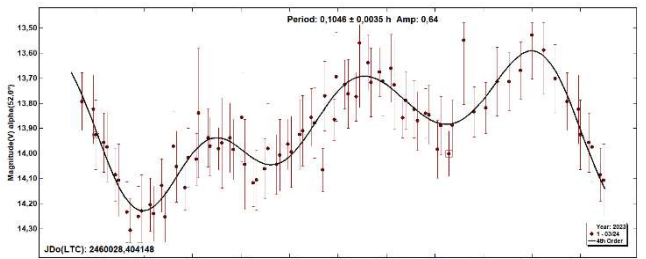
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Photometry of near-Earth asteroid 2023 DZ2 were conducted from the NOAK Observatory, located in Greece, to determine its synodic rotation period. The results are: $P = 0.1046 \pm 0.0035$ h, $A = 0.64$ mag.

All observations were performed at the NOAK Observatory, Ioannina Greece (MPC-International Astronomical Union code L02), using a 0.25m Newtonian Skywatcher optical tube operating at f/4.7. The optical tube is mounted on an NEQ6 Skywatcher robotic mount and equipped with ATIK 460exm CCD camera. It is a high Quantum Efficiency CCD. No filters used for better signal-to-noise. Exposure time for all the images was 5 seconds. The camera was binned at 2×2. The image scale after 2×2 binning was 1.57 arcsec/pixel and the field of view 35.9'×28.7'. In these fields, the asteroid and five comparison stars were measured for differential photometry.

All images were reduced in the standard manner using nightly flatfield files as well as dark-current and bias images. Photometric measurements and lightcurve analysis were performed using *MPO Canopus* (version 10.8.1.1; Warner, 2019). The *Cartes Du Ciel* was used as the planetarium software with the most recent ephemerides downloaded from MinorPlanetCenter and Artemis Capture was used for image capture.

2023 DZ2 was discovered by the Romanian-Spanish team Para-SOL (MPC 950). It is a near-Earth asteroid with a semi-major axis of 2.155AU, eccentricity 0.539, inclination 0.081deg, and an orbital period of 3.16 years. Its absolute magnitude is $H = 24.235$ (JPL, 2023). The period analysis shows a solution for the rotational period of $P = 0.1046 \pm 0.0035$ h with an amplitude $A = 0.64 \pm 0.03$ mag.



References

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Number	Name	yyyy mm/dd	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
2023	DZ2	2023 03/26	92.8	232.4	-0.7	0.1046	0.004	0.64	0.03	Apollo

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