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ROTATION PERIOD DETERMINATION FOR ASTEROID 12919 TOMJOHNSON

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Photometric observations of the main-belt asteroid 12919 Tomjohnson were conducted in order to determine its synodic rotation period. We found P = 8.147 ± 0.001 h, A = 0.51 ± 0.03 mag.

CCD photometric observations of the main-belt asteroid 12919 Tomjohnson were carried out in July 2022 at the Astronomical Observatory of the University of Siena (K54), a facility inside the Department of Physical Sciences, Earth and Environment (DSFTA, 2022). We used a 0.30-m *f*/5.6 Maksutov-Cassegrain telescope, SBIG STL-6303E NABG CCD camera, and clear filter; the pixel scale was 2.30 arcsec when binned at 2×2 pixels and all exposures were 300 seconds.

Data processing and analysis were done with *MPO Canopus* (Warner, 2018). All images were calibrated with dark and flat-field frames and the instrumental magnitudes converted to R magnitudes using solar-colored field stars from a version of the CMC-15 catalogue distributed with *MPO Canopus*. Table I shows the observing circumstances and results.

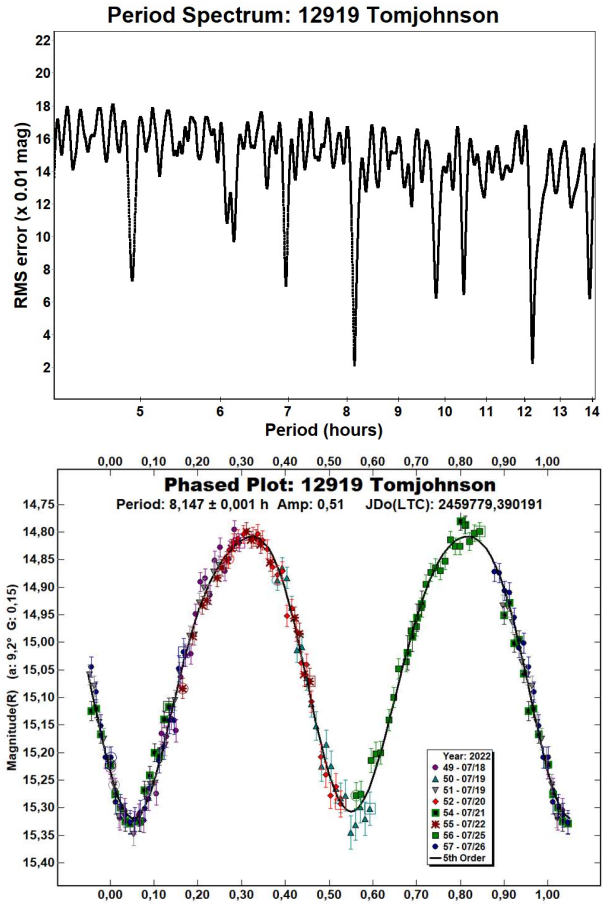
A search through the asteroid lightcurve database (LCDB; Warner et al., 2009) indicates that our result may be the first reported lightcurve observations and results for this asteroid.

12919 Tomjohnson (1998 VB6) was discovered on 1998 November 11 at Catalina by the Catalina Sky Survey and named in honor of Thomas J. Johnson who developed a technique for creating Schmidt telescope correctors that allowed the mass production of Schmidt-Cassegrain telescopes. It is an inner main-belt asteroid with a semi-major axis of 2.274 AU, eccentricity 0.218, inclination 6.368°, and an orbital period of 3.43 years. Its absolute magnitude is H = 14.02 (JPL, 2022). The WISE/NEOWISE satellite infrared radiometry survey (Masiero et al., 2011) found a diameter D = 4.882 ± 0.468 km using an absolute magnitude H = 13.7.

Observations were conducted over four nights and collected 191 data points. The period analysis shows a bimodal solution for the rotational period of P = 8.147 ± 0.001 h with an amplitude A = 0.51 ± 0.03 mag. This target was observed within the Photometric Survey for Asynchronous Binary Asteroids under the leadership of Petr Pravec from Ondřejov Observatory, Czech Republic (Pravec et al., 2006; Pravec, 2022web) and their independent analysis confirmed our results.

Number	Name	2022/mm/dd	Phase	L_{PAB}	B_{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
12919	Tomjohson	07/18-07/26	9.2,6.7	306	7	8.147	0.001	0.51	0.03	MBI

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).



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