

LIGHTCURVE AND ROTATION PERIOD OF
2266 TCHAIKOVSKY

Luyi Wang

Shanghai Starriver Bilingual School

Room 1902, No. 20, Lane 58, Kangjian Road, Shanghai, CHINA

Louise_wang2007@outlook.com

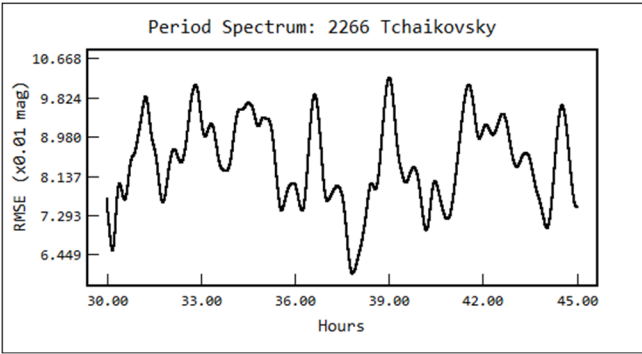
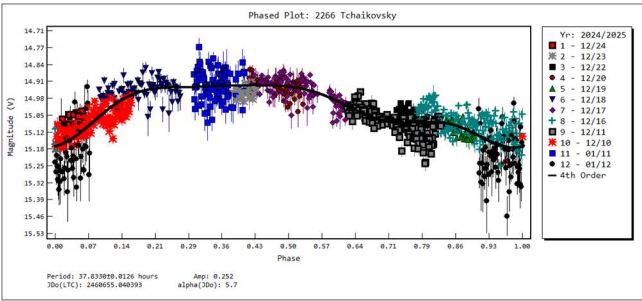
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Twelve sets of photometric observations of the main-belt asteroid 2266 Tchaikovsky were obtained from 2024 December 10th to 2025 January 12th. Using *Tycho Tracker* software, we plotted the lightcurve of 2266 Tchaikovsky and measured its rotation period to be 37.8330 ± 0.0126 h with a lightcurve amplitude of 0.252 mag., in agreement with its tabulated value.

All observations of 2266 Tchaikovsky reported here were performed at the Luyi Wang Observatory, Sichuan, China, using a 0.28m reflector operating at $f/2.2$ and equipped with QHY268C CCD. No filters used for better signal-to-noise. 974 observations were taken in 12 nights and exposure times for these observations contain 120, 180, and 300 seconds. The camera was binned at 2×2 pixels. The image scale after 2×2 binning was 2.50 arcsec/pixel and the field of view $130.1' \times 86.9'$.

Tycho Tracker was used for the data analysis and measurement. Calibration frames were applied and the images aligned prior to measuring. The V magnitudes from APASS DR-9 catalog were used for the comparison stars.

2266 Tchaikovsky is a main-belt asteroid, discovered at Nauchnyj on 1974-11-12 by L.I. Chernykh. According to the asteroid lightcurve database (LCDB; Warner et al., 2009), the mean absolute magnitude is $H = 10.89$ and with phase slope parameter $G = 0.12$. We used these values in our analysis. A fourth-order Fourier lightcurve was fit to $P = 37.8330 \pm 0.0126$ h with an amplitude $A = 0.252 \pm 0.058$ mag for a light-time corrected zero-point of JD = 2460655.04. These results agree with the value reported by Warner (2011); however, we consider there remains a possibility of $P = 75.9$ h, which needs more observations to confirm.



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References

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Number	Name	yyyy mm/dd	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.
2266	Tchaikovsky	2024 12/10-2025 01/12	5.7, 16.3	67	5	37.8330	0.0126	0.2519	0.0580

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).