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LIGHTCURVE ANALYSIS FOR THREE MAIN BELT ASTEROIDS

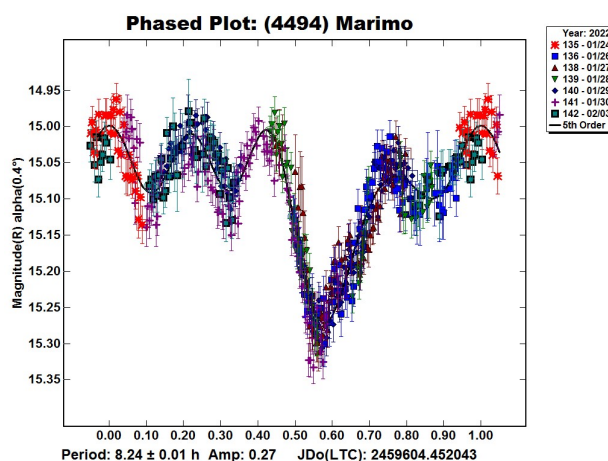
Giovanni Battista Casalnuovo
Filzi School Observatory D12
Laives, ITALY
gb.minorplanet@gmail.com

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Photometric observations of three main-belt asteroids 4494 Marimo, 5516 Jawilliamson, and (57754) 2001 VW12, were made at the Filzi School Observatory (School in country Laives - Italy) MPC Station D12.

CCD photometric observations, were made at the Filzi School Observatory, all are without filter (clear). All images were obtained with a 0.35-m reflector telescope reduced to $f/8.0$, a QHY9 CCD camera, and calibrated with dark and flat-field frames. The pixel scale was 1.56 arcsec when binned at 4×4 pixels. All exposures were 120 seconds. The computer clock was synchronized with an Internet time server before each session. Differential photometry and period analysis were done using *MPO Canopus* version 10.7.12.9 (Warner, 2018). Solar type stars from CMC15 catalog in R band were used as comparison stars.

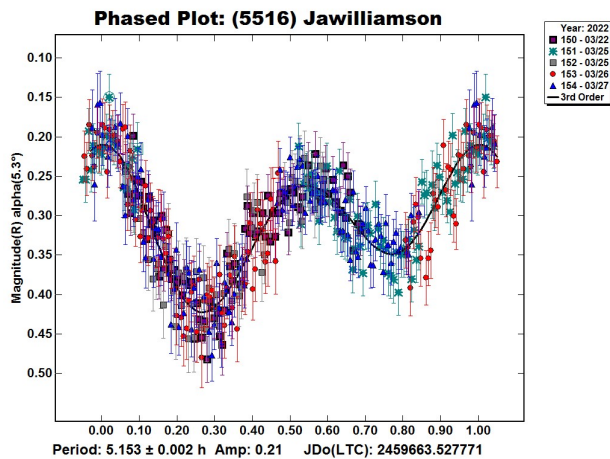
4494 Marimo. This main-belt asteroid was reported as a lightcurve photometry opportunity for 2022 January on the MinorPlanet.info web site (<https://www.minorplanet.info/php/callopplcdbquery.php>; hereafter referenced as MPI). It was discovered in 1988-10-13 by Ueda and Kaneda at Kushiro. It is a main-belt asteroid with a semi-major axis of 2.34 AU, eccentricity 0.12, inclination 2.47 deg, and orbital period of 3.58 yr. Its absolute magnitude is $H = 13.68$ mag. It was observed for seven nights (January-February 2022), the derived synodic period is $P = 8.24 \pm 0.01$ h with an amplitude of $A = 0.22 \pm 0.05$ mag. The lightcurve is asymmetric multimodal. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



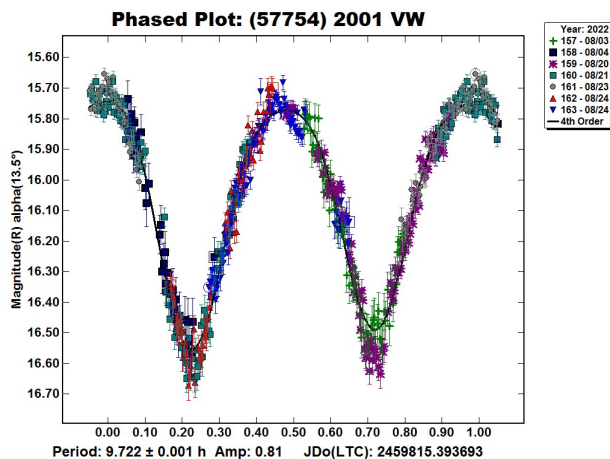
Number	Name	yyyy mm/dd	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
4494	Marimo	2022 01/24-02/03	0.5 5.5	124.6	-0.7	8.24	0.01	0.22	0.05	MB
5516	Jawilliamson	2022 03/22-03/27	5.5 4.9	185.9	7.0	5.153	0.002	0.17	0.04	MB
57754	2001 VW12	2022 08/03-08/24	13.8 10.2	326.9	13.2	9.772	0.001	0.77	0.04	MB

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).

5516 Jawilliamson. This main-belt asteroid was reported as a lightcurve photometry opportunity for 2022 March on the MPI. It was discovered in 1989-05-02 by E.F. Helin at Palomar. It is a main-belt asteroid with a semi-major axis of 2.58 AU, eccentricity 0.17, inclination 12.98 deg, and orbital period of 4.16 yr. Its absolute magnitude is $H = 13.39$ mag. It was observed for five nights (2022 March). The derived synodic period is $P = 5.153 \pm 0.002$ h with an amplitude of $A = 0.17 \pm 0.04$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



(57754) 2001 VW12. This main-belt asteroid was reported as a lightcurve photometry opportunity for 2022 August on the MinorPlanet.info. It was discovered in 2001-11-10 by LINEAR at Socorro. It is a main-belt asteroid with a semi-major axis of 2.35 AU, eccentricity 0.21, inclination 12.15 deg, and orbital period of 3.59 yr. Its absolute magnitude is $H = 14.36$ mag. It was observed for seven nights (2022 August). The derived synodic period was $P = 9.722 \pm 0.001$ h with a large amplitude of $A = 0.77 \pm 0.04$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



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