[redacted]

complex behavior with different maxima and bumps (Fig. 1) possibly attributed to an irregular shape of the asteroid. However, tumbling might also explain the irregular behavior. From the data shown in Figure 1, it is clear that the lightcurve is only partially sampled. Table II gives the observing circumstances and results. We rate this result U = 2 (see Warner et al., 2009). *This is not necessarily the value that will be assigned in the LCDB*.

New observations and additional data of 703 Noemi at future oppositions will be required in order to improve the current analysis and eventually confirm its very long rotation period. A sufficient number of sessions to include full coverage of at least two rotations based on the suspected period are needed to confirm that 703 Noemi belongs to the very slow rotators class of asteroids.

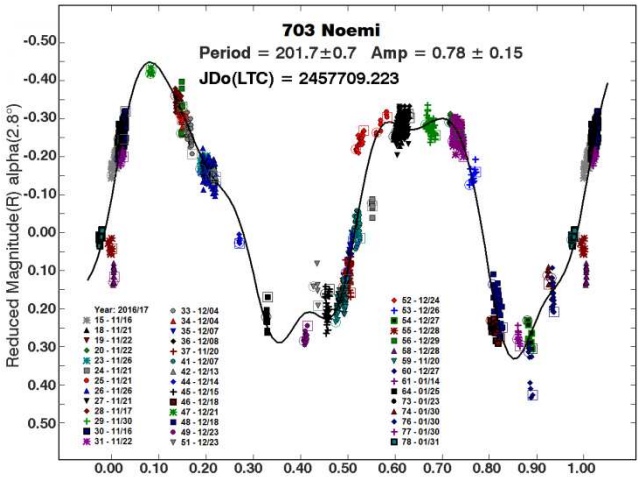

Fig.1. Lightcurve for asteroid 703 Noemi fit to a period of 201.7 ± 0.7 hours and with an amplitude of 0.78 ± 0.15 mag.

Acknowledgements

AN and AV are indebted to Brigida and Tatiana for their invaluable support.

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LIGHTCURVE ANALYSIS FOR TEN MAIN BELT ASTEROIDS

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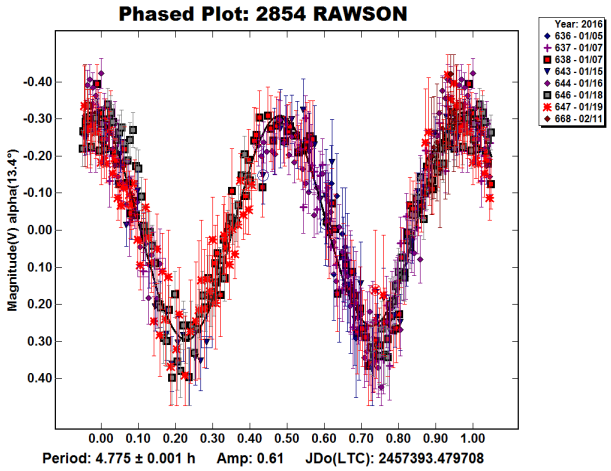
Photometric observations of ten main-belt asteroids, 2854 Rawson, 3113 Chizhevskij, 5318 Dientzenhofer, (5563) 1991 VZ1, 7143 Haramura, 10421 Dalmatin, (11386) 1998 TA18, (18429) 1994 AO1, (23496) 1991 VN3, and (31782) 1999 KM6 were made at the Eurac Observatory (MPC C62). Results of lightcurve analysis are presented.

CCD photometric observations of ten main-belt asteroids were made at the Eurac Observatory (MPC C62). Asteroids 2854 Rawson, 3113 Chizhevskij, 5318 Dientzenhofer, (5563) 1991 VZ1, 7143 Haramura, 10421 Dalmatin, (11386) 1998 TA18, and (23496) 1991 VN3, were observed in 2016 with filter V (except (23496) 1991 VN3 with filter R). The observations for (18429) 1994 A01 and (31782) 1999 KM6, were made in 2017 with filter R.

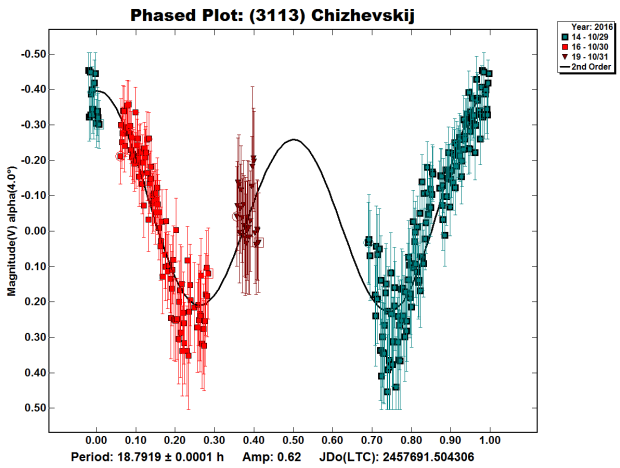
All images were obtained with a 0.30-m reflector telescope reduced to *f*/4.0, a QHY9 CCD camera, and then calibrated with dark and flat-field frames. The computer clock was synchronized with an Internet time server before each session. Differential photometry and period analysis were done using *MPO Canopus* version 10.4.3.17 (Warner, 2014).

2854 Rawson This main-belt asteroid was reported as a lightcurve photometry opportunity for 2016 January on the MinorPlanet.info

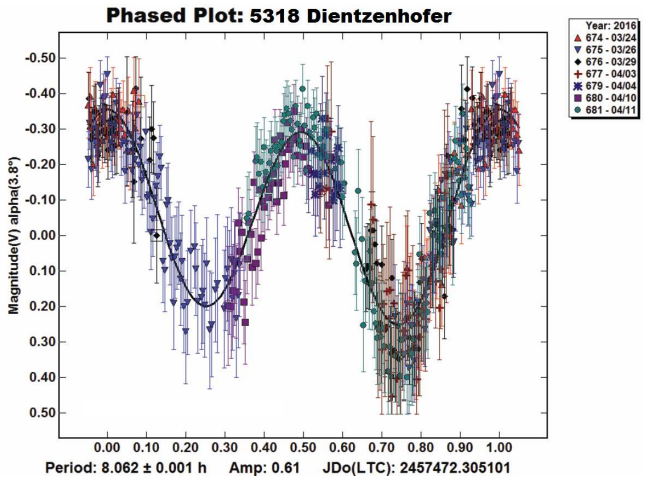
web site (*http://www.MinorPlanet.info*; hereafter referenced as MPI). The derived synodic period was P = 4.775 ± 0.001 h with an amplitude of A = 0.61 ± 0.09 mag. Black *et al.* (2016, Oakley Southern Sky Observatory in New South Wales, Australia), reported a period of 4.7755 h with A = 0.61 ± 0.08 mag., in agreement with the result given here.



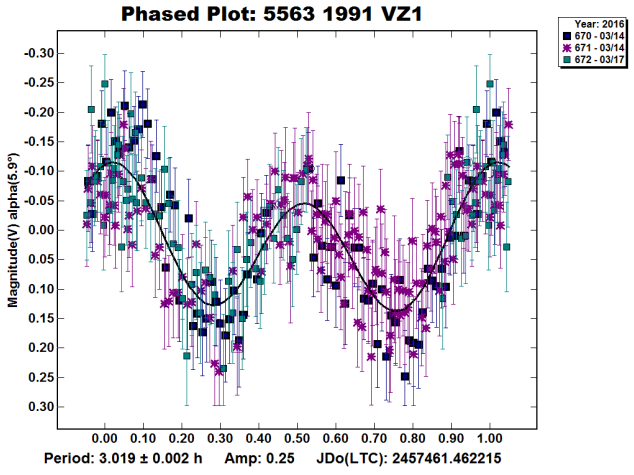
3113 Chizhevskij is a main-belt asteroid that was reported as a lightcurve photometry opportunity for 2016 October (MPI). The derived synodic period was *P* = 18.7919 ± 0.0001 h with an amplitude of *A* = 0.62 ± 0.09 mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid. Unfortunately, for bad weather, it was followed for 3 nights only, therefore, the derived synodic period result is not secure.



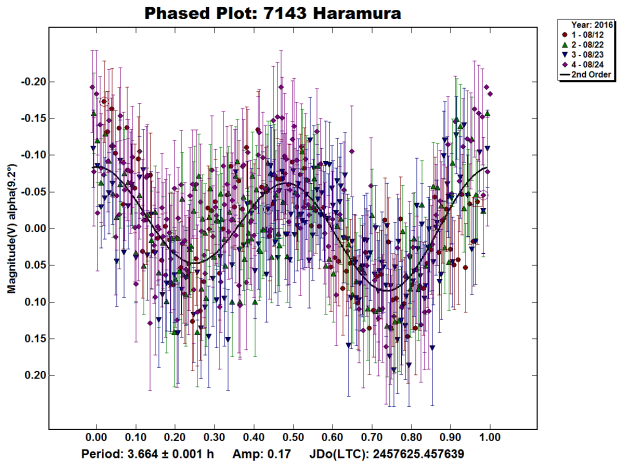
5318 Dientzenhofer The main-belt asteroid 5318 Dientzenhofer was reported as a lightcurve photometry opportunity for 2016 March. The derived synodic period was *P* = 8.062 ± 0.001 h with an amplitude of *A* = 0.61 ± 0.15 mag. Salvaggio *et al.* (2016) reported a period of 8.062 h with A = 0.82 mag., which is in agreement with the result given here.



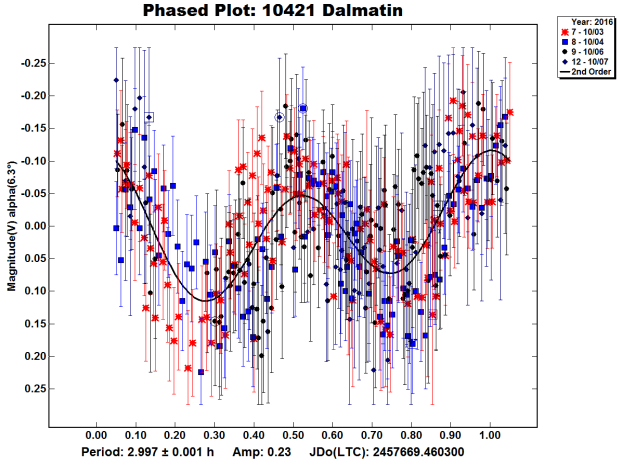
(5563) 1991 VZ1 The main-belt asteroid (5563) 1991 VZ1 was reported as a lightcurve photometry opportunity for 2016 March (MPI). The derived synodic period was P = 3.019 ± 0.002 h with an amplitude of A = 0.25 ± 0.09 mag. A synodic period of 3.223 h with an amplitude of A = 0.30 were found by Behrend 2016, *https://obswww.unige.ch/~behrend/page5cou.html#005563*



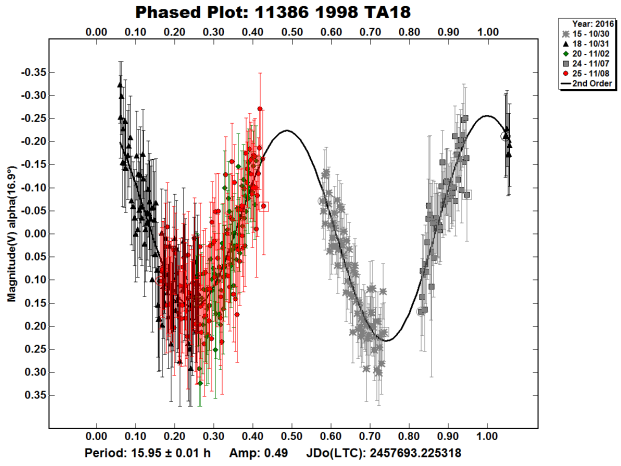
7143 Haramura The main-belt asteroid 7143 Haramura was reported as a lightcurve photometry opportunity for 2016 August (MPI). The derived synodic period was $P = 3.664 \pm 0.001$ h with a amplitude of $A = 0.17 \pm 0.08$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



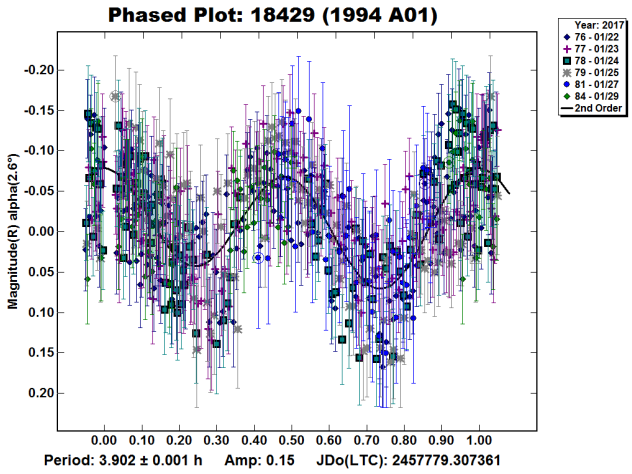
10421 Dalmatin This was a lightcurve photometry opportunity for 2016 October (MPI). Analysis found a synodic period of $P = 2.997 \pm 0.001$ h with an amplitude of $A = 0.23 \pm 0.09$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



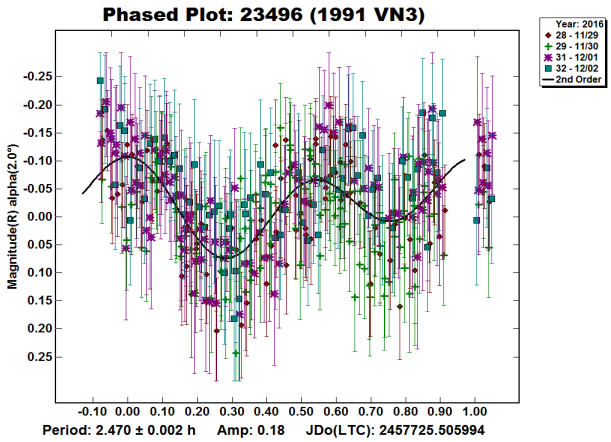
(11386) 1998 TA18 This was a lightcurve photometry opportunity for 2016 October (MPI). The derived synodic period was P = 15.95 ± 0.01 h with an amplitude of A = 0.49 ± 0.12 mag. Pravec et al. (2016) reported (11386) 1998 TA18 with a period of 15.959 h and amplitude of A = 0.65 mag. Papini *et al.* (2017) reported a periods of 15.943 h, and Behrend (2016) reported a period of 15.962 h (*https://obswww.unige.ch/~behrend/page5cou.html#011386)*.



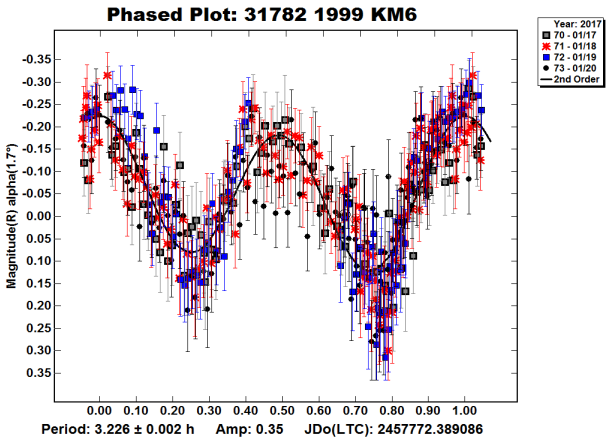
(18429) 1994 A01 The main-belt asteroid (18429) 1994 A01 was reported as a lightcurve photometry opportunity for 2017 January (MPI). The derived synodic period is $P = 3.902 \pm 0.001$ h with an amplitude of $A = 0.15 \pm 0.05$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



(23496) 1991 VN3 The main-belt asteroid (23496) 1991 VN3 was reported as a lightcurve photometry opportunity for 2016 November (MPI). The derived synodic period was $P = 2.470 \pm 0.002$ h with an amplitude of $A = 0.18 \pm 0.04$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



(31782) 1999 KM6 The main-belt asteroid (31782) 1999 KM6 was reported as a lightcurve photometry opportunity for 2017 January (MPI). The derived synodic period was $P = 3.226 \pm 0.002$ h with an amplitude of $A = 0.35 \pm 0.12$ mag. There were no entries in the LCDB (Warner et al., 2009) for this asteroid.



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THE ROTATION PERIODS OF ASTEROIDS 4668 RAYJAY, 5152 LABS, 6581 SOBERS, AND 14917 TACO

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Photometric observations of four asteroids were made over 14 nights from 2016 September to November. The measured synodic periods were: 4668 Rayjay, 6.506 ± 0.001 h; 5152 Labs, 3.8801 ± 0.0001 h; 6581 Sobers, 6.635 ± 0.001 h; and 13917 Taco, 9.7078 ± 0.0001 h.

CCD photometric observations of four asteroids were made from the Phillips Academy Observatory. They were chosen for their appealing names, relatively bright magnitudes, and high declinations. All observations were made with a 0.40-m *f*/8 Ritchey-Chrétien by DFM Engineering and Andor Tech iKon DW436 CCD camera with a 2048x2048 array of 13.5-micron pixels. The resulting image scale was 0.86 arcseconds per pixel. All images were dark and flat-field corrected and guided.

MPO Canopus (Warner, 2013) was used to make photometric measurements of the images using differential photometry as well as to generate the final lightcurves. Comparison stars were chosen to have near solar-color using the Comp Star Selector tool in *MPO Canopus*. In addition, brighter comparison stars were favored. Data merging and period analysis were also done with *MPO Canopus* using an implementation of a Fourier analysis algorithm by Harris (FALC; Harris et al., 1989). The combined data set was analyzed by students in an astronomy research class taught by Caroline Odden.

4668 Rayjay. The lightcurve of 4668 Rayjay was determined from three nights of data from 2016 October. A search of the asteroid lightcurve database (LCDB; Warner et al., 2009) and other sources revealed no previous entries. The resulting lightcurve was found to have amplitude 0.63 mag and period 6.506 ± 0.001 h. The lightcurve was compiled by J. Jusuf.