

THREE ASTEROIDS FROM ETS CORN: 461 SASKIA, 3800 KARAYUSUF AND (42701) 1998 MD13

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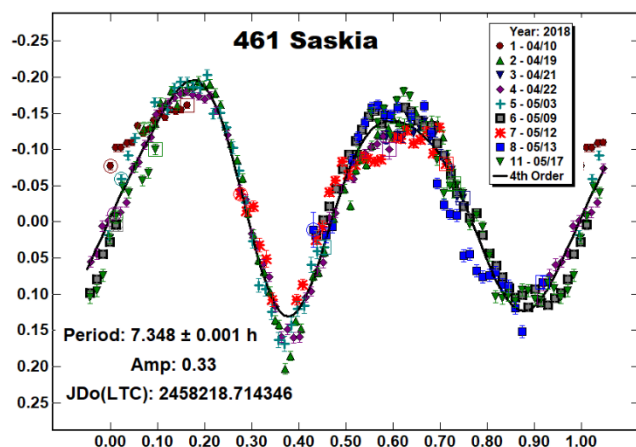
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In the second quarter of 2018 we obtained lightcurves for three asteroids. 461 Saskia, 3800 Karayusuf and (42701) 1998 MD13. 461 Saskia and 3800 Karayusuf are spin-shape candidates and (42701) 1998 MD13 is a first time observation for a lightcurve determination.

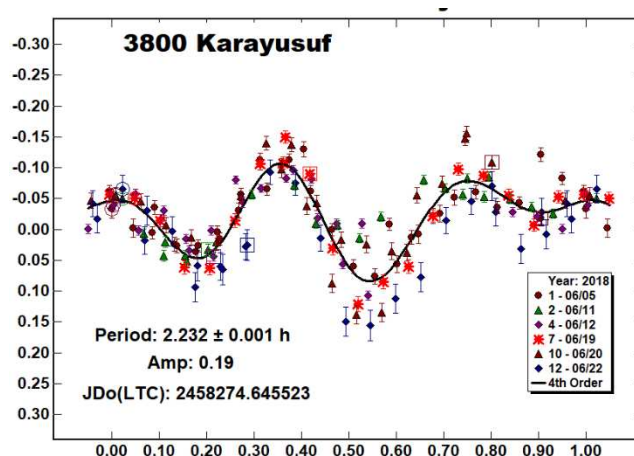
Our observations of the three asteroids reported here were obtained with two Celestron 0.35-m telescopes equipped with SBIG STL1001E CCD camera systems at the Etsorn Campus Observatory. (Klinglesmith and Franco, 2016). The images were processed and calibrated using MPO Canopus 10.7.2.0 (Warner, 2017). Exposures were between 300 and 420 seconds through clear filters depending on the brightness of the asteroids. The multi-night data sets for each asteroid were combined with the FALC algorithm (Harris et al., 1989) within MPO Canopus to provide synodic periods for each asteroid.

Discovery information was obtained from the JPL Small Bodies Node (JPL, 2017). Table I contains the observation circumstances and results. Table II is a compilation of the previously obtained lightcurves with their references.

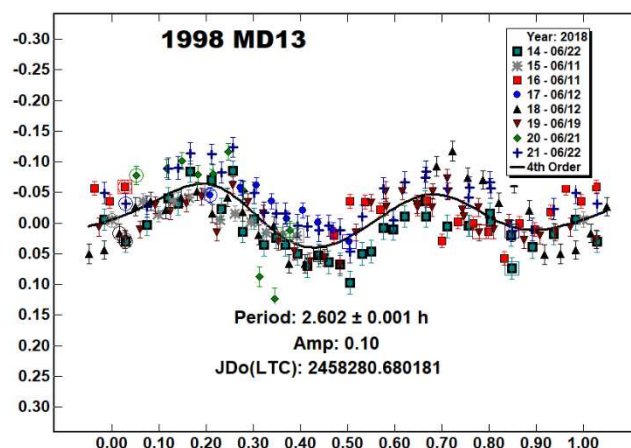
461 Saskia is a main-belt asteroid discovered by M. Wolf at Heidelberg on 1900 Oct 22. It is also known as 1900 FP. We observed it on 9 nights between 2018 Apr 10 and May 17. We obtained a synodic period of 7.348 ± 0.001 h, with an amplitude of 0.33 mag.



3800 Karayusuf is a Mars-crossing asteroid discovered by E. F. Helin at Palomar Observatory on 1984 Jan 4. We observed it on 6 nights between 2018 Jun 05 and Jun 22. We obtained a synodic period of 2.232 ± 0.001 h, with an amplitude of 0.19 mag.



(42701) 1998 MD13 is a main-belt asteroid discovered by LINEAR at Socorro on 1998 Jun 19. We observed it on 6 nights between 2018 Jun 11 and Jun 22. We obtained a synodic period of 2.602 ± 0.001 h, with an amplitude of 0.10 mag.



Acknowledgements

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Number	Name	2018 mm/dd	Pts	Phase	L _{PAB}	B _{PAB}	Period(h)	P.E.	Amp	A.E.	Grp
461	Saskia	04/10-05/17	264	3.1, 14.4	192	1	7.348	0.001	0.33	0.05	MB-O
3800	Karayusuf	06/05-06/22	151	26.0, 32.0	234	13	2.232	0.001	0.10	0.05	MC
(42701) 1998	MD13	06/11-06/22	161	14.2-18.2	242	12	2.602	0.001	0.19	0.05	

Table I. Observing circumstances and results. Pts is the number of data points. The phase angle is given for the first and last date. L_{PAB} and B_{PAB} are the approximate phase angle bisector longitude and latitude at mid-date range (see Harris *et al.*, 1984). Grp is the asteroid family/group (Warner *et al.*, 2009).

Number	Name	References	Date	L _{pab}	B _{pab}	Phase	Period	Amp.
461	Saskia	This paper	2018 Apr 29	192	1	8.6	7.348	0.33
		Buchhelm 2006	2006 Ja 08	96	-2	5.3	7.34	0.25
		Behrend 2007	2007 Apr 20	197	1	4.8	7.348	0.36
		Klinglesmith 2017	2016 Dec 14	89	-2	3.2	7.348	0.28
3800	Karayasuf	Klinglesmith 2013	2013 May 12	230	2	0.7	7.349	0.26
		This paper	2018 Jun 18	234	13	29.0	2.232	0.10
		Warner 2008	2008 Mar 30	180	28	27.8	2.2319	0.15
		Warner 2010	2013 Mae 19	186	28	27.2	2.232	0.15
		Warner 2014	2014 Mar 16	199	26	32.1	2.231	0.19
		Skiff 2018	2018 May 10	227	22	22.3	2.225	0.15
		Warner 2018	2018 Jun 03	232	16	25.4	2.238	0.18

Table II. Summation of solar bisector angles, phase angles, periods and amplitudes for the asteroids in this paper.

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