

minimum observed on May 16 showed for the first time the overlapping of this minimum with one of the shallow minima for the trimodal solution, or namely, a significant misfit. This greatly improved confidence in the bimodal solution, which was confirmed by subsequent observations. Once the secure period was found, it was gradually improved by adding new observations. The final result is composed of 15 independent segments (8 by Pilcher and 7 by Benishek, many of which are overlapping), that provide dense coverage of the complete bimodal lightcurve with $P = 19.891 \pm 0.002$ h and $A = 0.18 \pm 0.03$ mag. In conclusion, we point to this case as underlining the value and

efficiency of inter-longitude collaborations among observers in asteroid period determination work.

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LIGHTCURVE ANALYSIS OF MINOR PLANETS 427 GALENE AND 5489 OBERKOCHEN

Peter Caspari
BDI Observatory
PO Box 194 Regents Park
NSW 2143, AUSTRALIA
pcaspa@hotmail.com

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Minor planet 427 Ganele was observed over six nights in 2009 April and May and 5489 Oberkochen was observed over eight nights in 2008 August and September. Rotational periods of 3.705 h with $A = 0.6$ mag and 5.625 h with $A = 0.4$ mag, respectively, were determined. A is the peak-to-peak magnitude change.

Equipment and imaging techniques employed at BDI Observatory are as described in Caspari (2008). The resulting images were measured using *MPO Canopus* (Warner, 2009a), which uses differential aperture photometry to determine the values used for analysis.

427 Galene This is a main-belt object with a diameter of 33.8 ± 2.0 km based on an albedo of 0.26 ± 0.03 (Gray, 2008). It was selected since it had no known period and was in a favourable location for BDI Observatory considering light pollution and obstructions. The lightcurve exhibits a typical bimodal curve. Analysis found a synodic period of 3.705 ± 0.005 h and $A = 0.6$ mag.

5489 Oberkochen This is a main-belt object with an assumed diameter of 33 km based on an assumed albedo of 0.04 (Gray, 2008). This target was selected from the CALL's lightcurve targets page (Warner, 2009b) since it was relatively bright and in a favourable location for BDI Observatory. The target had no known period. The lightcurve exhibits a typical bimodal curve. The derived synodic period is 5.625 ± 0.005 h and $A = 0.4$ mag.

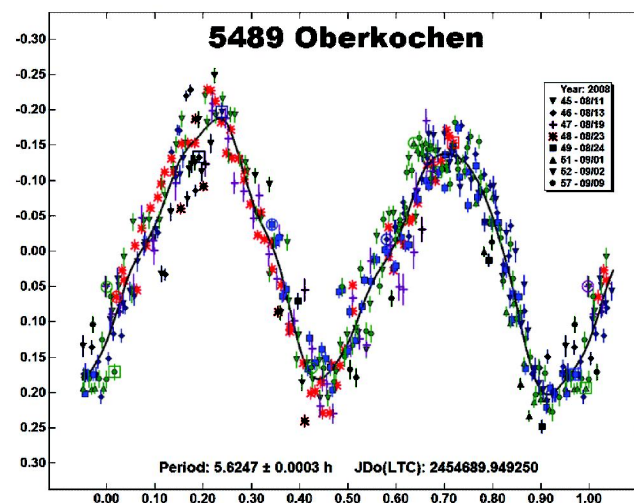
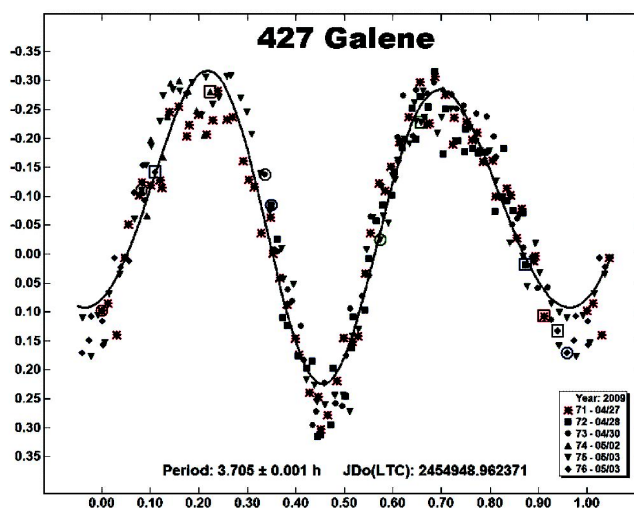
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ASTEROID LIGHTCURVE ANALYSIS AT THE VIA CAPOTE OBSERVATORY: 2ND QUARTER 2009

James W. Brinsfield
Via Capote Observatory
5180 Via Capote, Thousand Oaks CA 91320
jbrinsfi@gmail.com

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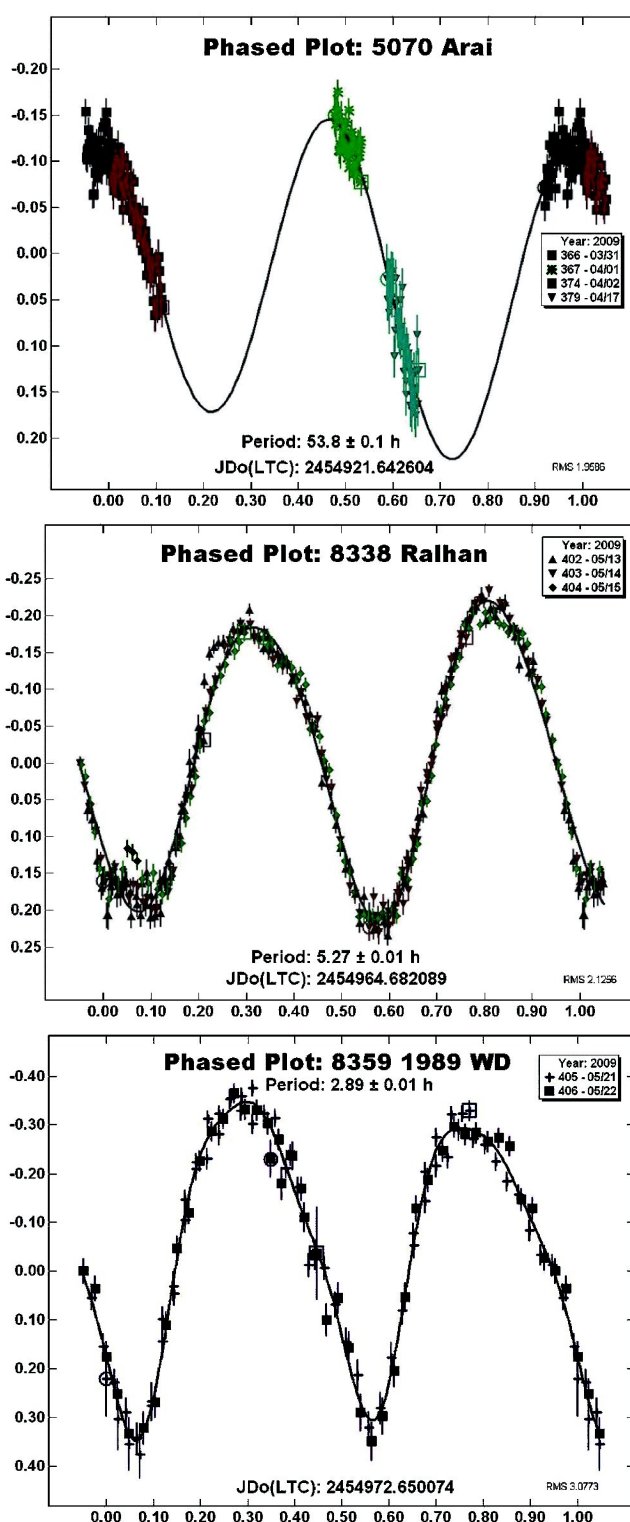
Three asteroids were observed and lightcurves were measured at the Via Capote Observatory from 2009 March through May. The resulting periods were: 5070 Arai (>48 h), 8338 Ralhan (5.27 h), and (8359) 1989 WD (2.89 h).

Observations of three minor planets were made using a Meade LX200 0.35-m Schmidt-Cassegrain (SCT) working at f/10. The CCD imager was an Alta U6 with a 1024x1024 array of 24-micron pixels. All observations were made unfiltered at 1x binning yielding an image scale of 1.44" per pixel and were dark and flat field corrected. Images were measured using *MPO Canopus* (Bdw Publishing) and differential photometry. The data were light-time corrected. Period analysis was also done with *Canopus*, incorporating the Fourier analysis algorithm developed by Harris (1989). Most target selections were made using the Collaborative Asteroid Lightcurve Link (CALL) web-site and "Lightcurve Opportunities" articles from the Minor Planet Bulletin. Priority was given to asteroids that did not have a published rotational period.

The results are summarized in the table below and include average phase angle information across the observational period. Where three numbers are indicated for phase angle, measurements of the target occurred over opposition. The middle value is the minimum phase angle observed and the two end values are the phase angles at the beginning and end of the observing campaign. Individual lightcurve plots along with additional comments, as required, are also presented. None of the three targets studied during the reporting period had published lightcurves. 5070 Arai was not fully characterized due to the limiting magnitude of the local sky conditions and hardware limitations. Phasing the data to the half period would suggest a period of greater than 48 hours and the data best fit a curve of 53.8 hours. The estimated magnitude of the curve exceeds 0.29.

References

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#	Name	Date (mm/dd) 2009	Data Points	Phase	L _{PAB}	B _{PAB}	Per(h)	PE	Amp(m)	AE
5070	Arai	03/31-04/17	218	12	168	-2	> 48	0.1	>0.29	
8338	Ralhan	05/13-01/15	331	7	229	8	5.27	0.01	0.44	0.02
(8359)	1989 WD	05/21-05/22	107	16	212	4	2.89	0.01	0.7	0.02