

ROTATION PERIOD DETERMINATION FOR 213 LILAEA

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CCD photometry of 213 Lilaea in April-May 2017
yields a synodic rotation period 12.042 ± 0.001 hours
and a lightcurve amplitude of 0.20 ± 0.02 magnitudes.

Two previously published rotation periods of 213 Lilaea are both based on sparse lightcurves covering only a short time interval. These periods are by Zeigler (1987), 7.85 hours; and by Di Martino et al. (1995), 8.045 hours. A. W. Harris and B. D. Warner examined the lightcurve by Di Martino et al. (1995), considered their 8.045 hour period to be unreliable, and recommended a more comprehensive study. Observations from a wide range of geographical longitudes (Franco in Europe, Phillips Academy Observatory in eastern North America, and Pilcher in western North America) were necessary to achieve full phase coverage for a period very nearly Earth commensurate.

Pilcher at Organ Mesa Observatory used a 35 cm Meade LX200 GPS, SBIG STL-1001E CCD, clear filter. Franco at Balzaretto Observatory used a 20 cm Meade LX200 SCT, SBIG ST7XME CCD. The Phillips Academy Observatory used a 40 cm DFM Engineering f/8 R-C, Andor Tech iKon DW 436C CCD, clear filter.

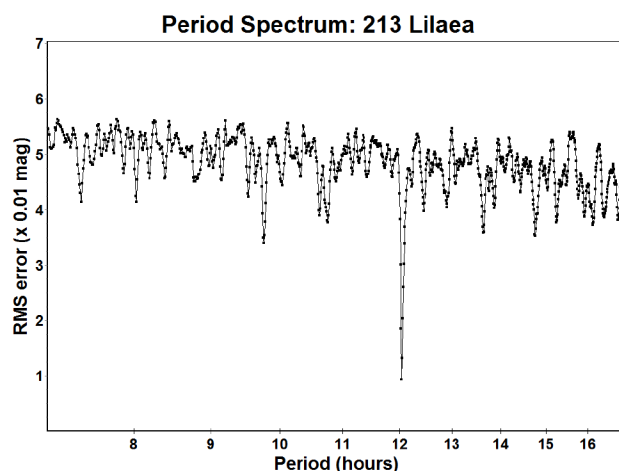
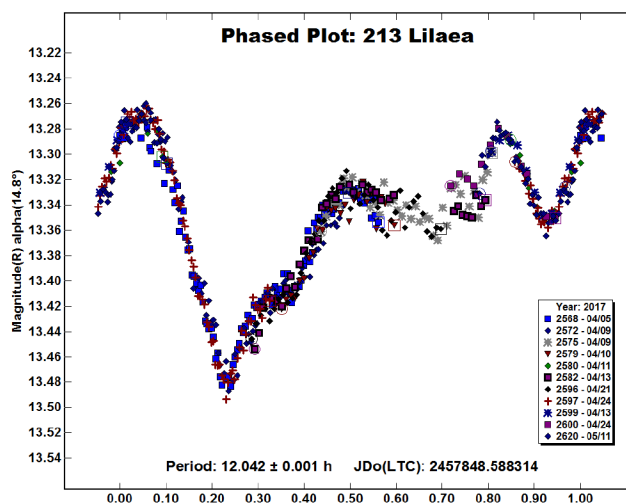
Observations on eleven nights 2017 Apr. 5 – May 11 provide a good fit to an irregular lightcurve with period 12.042 ± 0.001 hours, amplitude 0.20 ± 0.02 magnitudes. A period spectrum is also provided, and a period near 8.045 hours is definitively ruled out.

Acknowledgments

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References

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Number	Name	2017/mm/dd	Pts	Phase	LPAB	BPAB	Period(h)	P.E	Amp	A.E.
213	Lilaea	04/05-05/11	1342	14.8, 20.4	156	+5	12.042	0.001	0.20	0.02

Table I. Observing circumstances and results. Pts is the number of data points. The phase angle is given for the first date and last date. LPAB and BPAB are the approximate phase angle bisector longitude and latitude at mid-date range (see Harris *et al.*, 1984).