

CCD LIGHTCURVE OF 95 ARETHUSA

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Fourier analysis of CCD-derived Rc-bandpass lightcurves produced a synodic period solution for 95 Arethusa of 8.705 ± 0.005 h.

95 Arethusa is a low albedo ($p_V < 0.07$) carbonaceous main-belt asteroid discovered in 1867 by Robert Luther. Studies over the past three decades (Carlsson and Lagervist, 1981; Harris and Young, 1983; Āurech *et al.*, 2011) indicate a sizeable ($D \sim 140$ km) minor planet with a synodic period ranging between 8.688 and 8.702 h. The observations were made with a 0.2-m $f/10$ catadioptric OTA equipped with an SBIG ST8-XME thermoelectrically-cooled CCD. This combination produced a field-of-view of about 14.3×21.5 arcmin, or 1.69 arcsec/pixel. Continuous exposures of 60 s with an Rc filter were made during each of four sessions in the period of 2012 Nov 10-17, producing a total of 893 images. Additional details of the observation and image reduction procedures used at UO can be found in Alton (2010).

The data for analysis were light-time corrected and reduced to instrumental magnitudes with *MPO Canopus* (Warner, 2010). At least four non-varying comparison stars were used to generate lightcurves by differential aperture photometry. Fourier analysis (Harris *et al.*, 1989) yielded a period solution from each folded dataset that was independently verified using *Peranso* (Vannmunster, 2006) as previously described (Alton, 2011). Relevant aspect parameters taken at the mid-point from each observing session are given in the table. Phased data are available upon request.

The Fourier analysis produced a folded lightcurve with a slightly longer period (8.705 h) than published values. The peak-to-peak amplitude of $A = 0.35$ mag (Rc) was greater than the range (0.24-

UT Date yyyy/mm/dd	Phase	LPAB	BPAB
2012/11/10 - 11/17	6.6-9.2	35.6-35.8	7.1-6.6

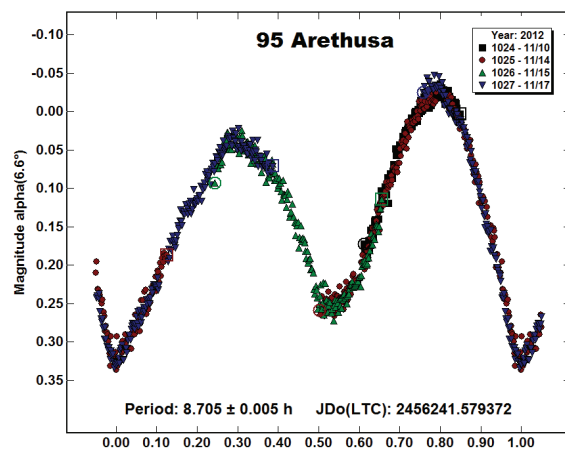
0.25 V mag) previously reported for this object (Carlsson and Lagervist, 1981; Harris and Young, 1983).

Acknowledgements

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LIGHTCURVE OF 2420 CIURLIONIS

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Lightcurve measurements of asteroid 2420 Ciurlionis are reported: $P = 12.84 \text{ h} \pm 0.02 \text{ h}$, $A = 0.48 \pm 0.08 \text{ mag}$.

CCD photometry observations of the asteroid 2420 Ciurlionis were made at the Shed of Science using an $f/8.5$ 0.35-m Schmidt Cassegrain (SCT) with an SBIG ST10XE CCD camera working at a scale of 0.94 arcsec/pixel. Exposures were taken through a Celestron UHC LPR filter. All images were dark and flat field corrected. Images were measured using *MPO Canopus* (Bdw Publishing) with a differential photometry technique. The data were light-time corrected. Period analysis was also done with *MPO Canopus*, which incorporating the Fourier analysis algorithm developed by Harris (Harris *et al.*, 1989).

The sessions were not linked from night to night so the results are subject to application of manual offsets to merge the observations. As a result our solution is not conclusive. Solutions of 16.0 h was considered but slightly less favorable due to small deviations at the end of the session on 11/13. Better coverage of this lightcurve is required for a definitive solution.

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