

ROTATION PERIOD DETERMINATIONS FOR 392 WILHELMINA AND 864 AASE

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Synodic rotation periods and amplitudes are found for 392 Wilhelmina 13.058 ± 0.001 hours, 0.10 ± 0.01 magnitudes; and 864 Aase 3.2324 ± 0.0001 hours, 0.38 ± 0.03 magnitudes.

Observations to produce period determinations for 392 Wilhelmina and 864 Aase were made at the Organ Mesa Observatory with a 35.4 cm Meade LX200 GPS S-C and SBIG STL 1001-E CCD, 60 second exposure times, unguided, clear filter. Photometric measurement and lightcurve construction are with *MPO Canopus* software. To reduce the number of points on the lightcurves and make them easier to read data points have been binned in sets of 3 with maximum time difference 5 minutes.

392 Wilhelmina. Previous rotation period determinations have been made by Harris et al. (1999), 8.54 h; Behrend (2001), 8.54 h; Gil-Hutton and Canada (2003), 17.961 h; and Garceran et al. (2016), 16.98 h. New observations on 6 nights 2016 Aug. 17 – Sept. 20 provide a good fit to an irregular lightcurve with period 13.058 ± 0.001 hours, amplitude 0.10 ± 0.01 magnitudes. This rotation period disagrees with all previous published periods. A good fit can also be found to a trial double period of 26.119 hours, for which the two sides of the lightcurve are almost identical to each other and to the 13.058 hour lightcurve. The 26.119 hour lightcurve would require an asteroid with an irregular shape and also be symmetrical about a 180 degree rotation. The probability for a real asteroid to have such high symmetry is negligible and the double period can be safely rejected. A period spectrum between 8 hours and 20 hours is also presented. Trial lightcurves plotted to all the minima in the period spectrum except 13.058 hours showed large misfits among the several sessions. The 13.058 hour period can be considered secure.

864 Aase. The only previously published period is 3.2329 hours by Kryszczyńska et al. (2012). New observations on 5 nights 2016 June 18 – July 10 provide a good fit to an almost symmetrical bimodal lightcurve with period 3.2324 ± 0.0001 hours and amplitude 0.38 ± 0.03 magnitudes. This is in excellent agreement with Kryszczyńska et al.

References

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