

allowed us to find the color index of $V-R = 0.34 \pm 0.04$ (mean of 19 values). This value is consistent with a low albedo C-type asteroid (Shevchenko and Lupishko, 1998).

H and G Parameters. The absolute magnitude (H) and slope parameter (G) were found using the H-G Calculator function of *MPO Canopus*. For each lightcurve the R mag was measured as half peak-to-peak amplitude with Peranso (Vanmunster, 2010) via polynomial fit. We have achieved $H_R = 11.72 \pm 0.03$ mag and $G = 0.06 \pm 0.04$ (Figure 2) that we convert to $H_V = 12.06 \pm 0.05$ mag, adding the V-R color index value. The G value is also consistent with a C-type asteroid (Shevchenko and Lupishko, 1998).

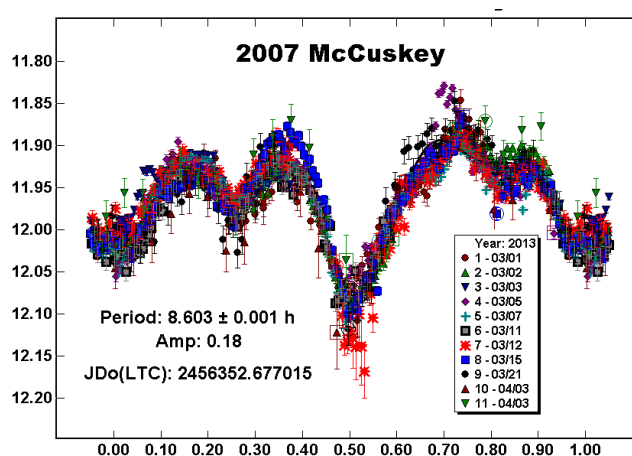
For a C-type asteroid, the geometric albedo is $p_V = 0.06 \pm 0.02$ (Shevchenko and Lupishko, 1998). Using this result, we can estimate the diameter D with the formula by Pravec and Harris (2007):

$$D_{(km)} = \frac{1329}{\sqrt{p_V}} 10^{-0.2H_V} \quad (1)$$

This leads to an estimated diameter $D = 21 \pm 4$ km, a value that is close to the WISE mission value of 25.73 ± 0.09 km.

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Changing the period of that 2000 plot resulted a lightcurve covering 40 percent of the period (Figure 2) and shows that each of the sessions never exceeded an observing run of 5 hours. All seven sessions covered the same portion of the rephased lightcurve. Given the good fit of the 2012 data to the 25.230 h period, and the 2:3 aliases of the 2000 data, this period is preferred.

The 2012 data was obtained between phase angle 15 and 7.6 with a phase angle bisector longitude (PABL) of 157 and a phase angle bisector latitude (PABB) of 10. 1,471 data points over eight nights were obtained.

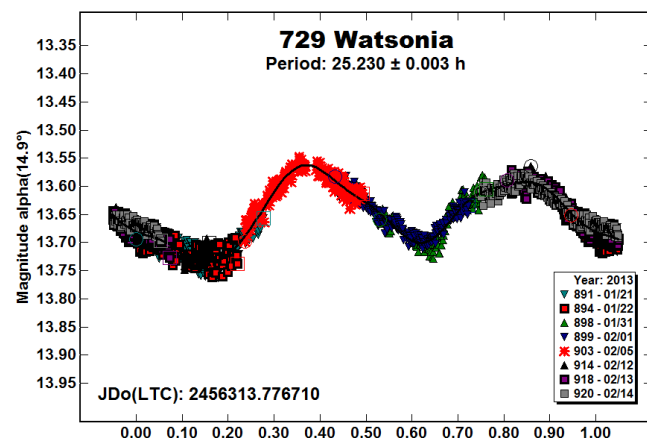


Figure 1: Lightcurve of 729 Watsonia using 2012 data from Santana Observatory.

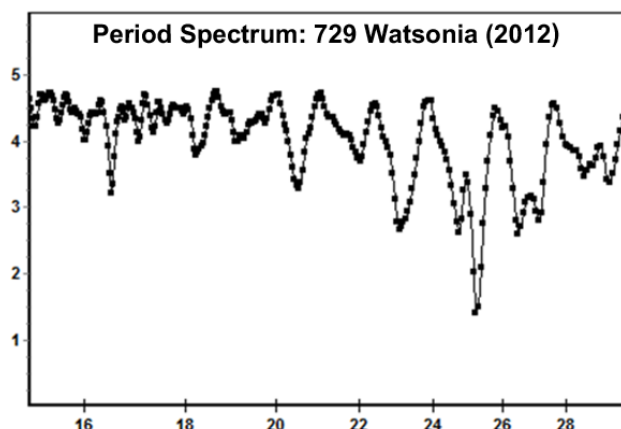


Figure 2: Period spectrum using 2012 data from Santana.

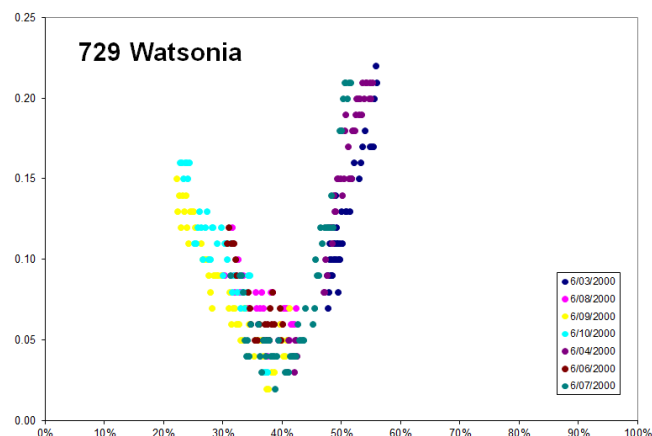


Figure 3: Rephased lightcurve of 729 Watsonia using 2000 data.