**CCD-PHOTOMETRY AND POLE COORDINATES FOR EIGHT ASTEROIDS.** V. G. Shevchenko[1], N. Tungalag[2], V. G. Chiorny[1], N. M. Gaftonyuk[3], Yu. N. Krugly[1], A. W. Harris[4], [1]Astronomical Institute of Kharkiv National University, Sumska Str. 35, Kharkiv 61022, Ukraine, shevchenko@astron.kharkov.ua, [2]Research Institute of Geophysics and Astronomy of Academy of Science, Mongolia, [3]Crimean Astrophysical Observatory, Crimea, Simeiz 98680, Ukraine, [4]Space Science Institute, 4603 Orange Knoll Ave. La Canada, CA 91011-3364.

**Introduction:** The distribution of pole coordinates gives us the information about collision history in asteroid belt and allows to make hypotheses about the primordial distribution of rotation rates of minor planets in a early stage of formation of the main asteroid belt. The number of rotation periods has doubled in the last ten years to more than 2000 objects [1], but there are now only about 200 pole coordinates known [2]. Recent analyses have pointed out some anisotropy in the ditribution of latitudes of asteroid rotation axes [2, 3]. To investigate this in more detail requires increasing the data set of pole coordinates.

**Observations and results:** As a part of the program to investigate physical properties of asteroids, we have carried out new photometric observations of eight asteroids, 122 Gerda, 153 Hilda, 190 Ismene, 221 Eos, 411 Xanthe, 679 Pax, 700 Auravictrix, and 787 Moskva to determinate pole coordinates for them. As an example Figure 1 shows the composite lightcurve for 153 Hilda in 2002.

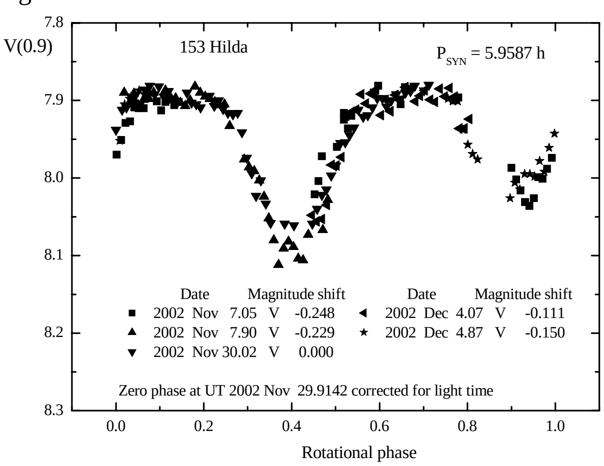


Figure 1. Composite lightcurve of 153 Hilda

In total, we have observed this asteroid during four oppositions. Using our data we defined the rotation period for 153 Hilda that is equal to 5.9587 hours. The observations of other asteroids were carried out during one or two oppositions. We also defined more exactly the rotation periods for 122 Gerda (10.688 h) and 411 Xanthe (11.408 h).

For all observed asteroids we determined pole coordinates and axis ratios for the figures of the asteroids as triaxial ellipsoids. We used the amplitude - magnitude (AM) method [4] with some modifications that were described in [5]. We used more than three oppositions for determinations of pole coordinates and took the data from our observations and the data obtained other authors. Table 1 lists the two possible pole solutions for each asteroid observed. These are the first estimations of pole coordinates for these asteroids. For some asteroids, namely 411 Xanthe, 700 Auravictrix and 787 Moskva, it is needed to perform the new observations to determinate their pole coordinates more precisely.

**Conclusion:** As a result of our program we carried out new observations of eght asteroids, and estimated amplitudes of lightcurves. We determined also the rotation periods for tree asteroids and pole coordinates for all observed asteroids.

**References:** [1] Harris, A. W., and Warner B. D. (2007) *http://cfa-www.harvard.edu/iau/lists/LightcurveDat.html*. [2] Tungalag N. et al. (2003) *Kinem. Fiz. Neb. Tel. 19, No. 7*, 397-406. [3] Kryszczynska A. et al., (2007) *Icarus, 192*, 223-237. [4] Magnusson P. et al. (1989). [5] Tungalag N. et al. (2002) *Kinem. Fiz. Neb. Tel. 18, No. 6*, 508-516.

Table 1. Pole positions of observed asteroids.

| Asteroid | $\lambda_{2000}$ | $\beta_{2000}$ | *a/b* | *b/c* |
|---|---|---|---|---|
| 122 Gerda | 26±7<br>190±10 | 31±5<br>-39±4 | 1.21±0.04 | 0.94±0.02 |
| 153 Hilda | 149±2<br>329±3 | 29±5<br>-32±4 | 1.19±0.06 | 1.32±0.06 |
| 190 Ismene | 118±3<br>298±3 | 23±8<br>-30±6 | 1.13±0.06 | 1.21±0.06 |
| 221 Eos | 72±2<br>252±2 | 20±5<br>-22±7 | 1.18±0.05 | 1.27±0.05 |
| 411 Xanthe | 58±9<br>240±16 | 40±10<br>-55±9 | 1.13±0.50 | 1.77±0.47 |
| 679 Pax | 65±2<br>245±2 | -5±3<br>5±2 | 1.18±0.03 | 1.30±0.02 |
| 700 Auravictrix | 86±5<br>265±2 | -58±6<br>56±6 | 1.43±0.65 | 1.92±0.57 |
| 787 Moskva | 80±6<br>260±6 | 36±3<br>-36±3 | 2.26±0.38 | 1.44±0.15 |