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ASTROMETRIC AND PHOTOMETRIC OBSERVATIONS OF TROJAN ASTEROID HEKTOR (624) (12+3)

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Since NASA is planning Lucy Mission to Trojan asteroids, comparative ground and space photometry are very important for calibrating further ground-based photometric observations. The asteroid Trojan Hektor (624) was observed at the Lisnyky astronomical station (MPC 585). For observations we used the 0.7 m (f/4) reflector AZT-8 with FLI PL4710 CCD camera and filter R of Johnson –Cousins photometric system. A total of 147 images were taken during two nights, 93 of which were used in astrometry, photometry and asteroid physical parameters calculations. Astrometric observations was published in the M.P.S. 1351729-30 circular.
The orbit of Hektor (624) and residuals (O-C) for both coordinates (RA and Decl.) were determined using Find Orb (version Mar. 17, 2019) software, combining our own observations with other observations from the MPC database over the last 2 years. For 2020-10-05 (33 obs.) the (O-C) RA residual is −0.404 ±σ 0.159″, the (O-C) Decl. residual 0.433 ±σ 0.182″; for 2020-10-14 (60 obs.) the (O-C) RA residual is 0.082 ±σ 0.092″ and the (O-C) Decl. residual is 0.346 ±σ 0.055″.
Based on the photometric observed data, the physical parameters of Hektor 624 were calculated, namely: visible brightness (average value 2020/10/05 −14.00m and 2020/10/14 −13.76m), absolute brightness (average value 7.92m), as a result of the asteroid's rotation and its elongated shape, the visible diameter decreased in this range –D 220km −194 ± 28km (2020-10-05), D 241km −185 ± 28km (2020-10-14), geometric albedo (0.021 and 0.024), color factor (0.51), temperature 119.6-119.8K. Our results of physical parameters are in good agreement with the results of other researchers in the database Asteroids with Satellites Database-Johnston's Archive.
Key words: Trojan asteroid, astrometry, photometry

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