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Physical properties of the cubewano 19521 Chaos from a multi-chord stellar occultation

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Trans-Neptunian Objects (TNOs) have had an increasing interest since the discovery of (15760) Albion in 1992. These objects are considered remnants of the Solar System formation, and can thus provide clues about its origin and evolution. One of the best techniques to study TNOs from ground-based telescopes are stellar occultations which, if combined with photometric data, permit to obtain physical properties of the TNO such as its size, shape, and albedo. With this in mind, we predicted, observed, and analyzed the stellar occultation of the Gaia source 3444789965847631104 caused by the cubewano (19521) Chaos on the 20th of November 2020. The prediction was part of the searching program carried out by the Lucky Star project collaboration. We observed the object with the 1.23-m telescope at Calar Alto Observatory (Almería, Spain) two days before the event to update the prediction. The occultation observing campaign involved 19 observing stations, both professional and amateur, and resulted in three positive detections and 11 negative detections. Five teams could not observe due to bad weather. We fitted the positive chords' extremities to an ellipse to derive Chaos' projected size and shape and determine its geometric albedo. The preliminary area-equivalent diameter obtained is slightly smaller than the one derived with Herschel thermal data. However, we are still analyzing photometric data to complement and improve these results.