



The multi-chord stellar occultation by (19521) Chaos on 2020 November 20

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Physical properties of Trans-Neptunian Objects (TNOs) have been of increasing interest in the last two decades, as these objects are considered to be among the least altered through the Solar System evolution, and thus preserve valuable information about its origin [1]. The study of these objects through the ground-based method of stellar occultations has risen in the last years, as this technique allows the determination of physical properties with considerably good accuracies [2,3,4].

Here we present the results of the multi-chord stellar occultation of the GAIA source 3444789965847631104 ($m_v \approx 16.8$) by the TNO (19521) Chaos on 2020 November 20, which was predicted within our systematic programme on stellar occultations by TNOs and outer solar system bodies [5]. The prediction was updated with astrometric observations carried out two days before the event with the 1.23-m telescope at Calar Alto observatory in Almería, Spain, and it was favorable to the South of Europe. The campaign that we organized involved 19 observing sites and resulted in three positive detections, one of them obtained from the 4.2-m WHT telescope at La Palma, 11 negative detections, and 5 sites that could not observe due to bad weather.

We derived the instantaneous limb of Chaos by fitting the extremities of the positive chords to an

ellipse to determine accurate size, shape, and geometric albedo for this object. The preliminary results give a slightly smaller area-equivalent diameter than the one derived from Herschel thermal data [6], but photometric observations of this object are still under analysis to complement and improve the results.

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Acknowledgements

We acknowledge financial support from the State Agency for Research of the Spanish MCIU through the "Center of Excellence Severo Ochoa" award to the Instituto de Astrofísica de Andalucía (SEV-2017-0709). Part of the research leading to these results has received funding from the European Research Council under the European Community's H2020 (2014-2020/ERC Grant Agreement no. 669416 "LUCKY STAR"). M.V-L. acknowledges funding from Spanish project AYA2017-89637-R (FEDER/MICINN). P.S-S. acknowledges financial support by the Spanish grant AYA-RTI2018-098657-J-I00 "LEO-SBNAF" (MCIU/AEI/FEDER, UE). This work has made use of data from the European Space Agency (ESA) mission Gaia (<https://www.cosmos.esa.int/gaia>), processed by the Gaia Data Processing and Analysis Consortium (DPAC, <https://www.cosmos.esa.int/web/gaia/dpac/consortium>). We are grateful to the CAHA and OSN staffs. This research is partially based on observations collected at the Centro Astronómico Hispano Alemán (CAHA) at Calar Alto, operated jointly by Junta de Andalucía and Consejo Superior de Investigaciones Científicas (IAA-CSIC). This research was also partially based on observation carried out at the Observatorio de Sierra Nevada (OSN) operated by Instituto de Astrofísica de Andalucía (CSIC). Partially based on observations made with the Tx40 telescope at the Observatorio Astrofísico de Javalambre in Teruel, a Spanish Infraestructura Científico-Técnica Singular (ICTS) owned, managed and operated by the Centro de Estudios de Física del Cosmos de Aragón (CEFCA). Tx40 is funded with the Fondos de Inversiones de Teruel (FITE).

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