

PDC2023
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NSOS-ALPHA: THE FIRST KOREAN ASTEROID SURVEY TELESCOPE

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Keywords: NEO, Discovery, Survey, Asteroid Observation, Optical Telescope

ABSTRACT

The NSOS- α (Near Space Optical Survey-alpha) telescope is the first asteroid survey telescope in Korea. It aims to discover and catalog NEAs (Near-Earth Asteroids) specifically focus on PHAs (Potentially Hazardous Asteroids), which could pose a threat to the Earth. To achieve this goal, the 1.5-meter wide-field optical telescope with a five-square-degree field of view will be installed and operated at the Cerro Tololo Inter-American Observatory (CTIO), in Chile. The conceptual design of the telescope has been completed by a collaboration between KASI (Korea Astronomy and Space Science Institute) and the NSF's National Optical-Infrared Astronomy Research Laboratory (NOIRLab) in 2022 and we plan to have a first light image in the middle of 2026. The NSOS- α telescope will be the first dedicated observation facility for NEAs survey in the southern hemisphere using a 1.5-meter class telescope. We expect that there will be a high possibility of complementary synergy with the Vera C. Rubin Observatory, previously referred to as the Large Synoptic Survey Telescope (LSST),

which is scheduled to be first light in 2023. In this paper, a mission and science goals for the NSOS- α telescope will be addressed, and also the survey strategy and the configuration for a follow-up network (NSOS-FUN) of newly discovered objects will be discussed.

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