

## A very high energy neutrino telescope on-board the EUSO-SPB2 mission

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We present the status of the development of a Cherenkov telescope to be flown on an ultra-long-duration balloon flight, the Extreme Universe Space Observatory Super Pressure Balloon 2 (EUSO-SPB2). EUSO-SPB2 is an approved NASA balloon mission that is planned to fly in 2023 from Wanaka, New Zealand and is a precursor for future space-based missions to detect astrophysical neutrinos. The objective of this mission is to classify known and unknown sources of background, make the first observation of cosmic rays via Cherenkov technique from suborbital altitude and target of opportunity search in response to international multi-messenger alerts. Furthermore, we will use the Earth-skimming technique to search for Very-High-Energy (VHE) tau neutrinos below the Earth's limb ( $E > 10$  PeV). The  $0.785 \text{ m}^2$  Cherenkov telescope is equipped with a 512-pixel SiPM camera, covering  $12.8^\circ \times 6.4^\circ$  (Horizontal x Vertical) field of view, that utilizes novel stereo optical system. The camera signals are digitized with a 100 MS/s readout system. In this talk, we discuss the status of the telescope development, the camera integration, and simulation studies of the camera response.

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