

Abstract Submitted
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Prowling for Ultrahigh-Energy Neutrinos with PUEO REMY PRECHELT, University of Hawaii, PUEO COLLABORATION¹ — The Payload for Ultrahigh Energy Observations (PUEO) is a planned long-duration stratospheric balloon mission that will have world-leading sensitivity to fluxes of ultrahigh-energy (UHE, $>\sim 10^{18}$ eV) neutrinos. PUEO will either make the first detection or set the best constraints on both cosmogenic neutrinos (produced during the propagation of UHE cosmic rays) and UHE neutrinos directly produced in astrophysical sources. PUEO consists of a ~ 200 -channel interferometric radio telescope pointed down at the Antarctic ice sheet in order to detect the impulsive Askaryan radio emission produced by UHE neutrinos interacting in the ice. PUEO is also sensitive to the radio emission from extensive air showers, typically induced by UHE cosmic rays, but also by in-air decays of tau leptons generated by UHE neutrino interactions in the Earth. PUEO is an evolution of the successful ANITA experiment, with key upgrades including a significantly lower-threshold digital beamforming trigger, a larger number of detection antennas, a dedicated low-frequency system for improved air shower detection, improved calibration systems, and more accurate orientation sensors. PUEO has been selected as a NASA Pioneers mission and is expected to launch in December 2024.

¹Payload for Ultra-high Energy Observations

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