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Status and Prospects of the TRIDENT Neutrino Telescope

Building on landmark detections of high-energy astrophysical neutrinos over the last decade, next-generation neutrino telescopes are poised to unlock insights into the most energetic phenomena in the Universe. TRIDENT is a developing neutrino observatory designed to significantly extend the reach and capabilities of current high-energy neutrino experiments. Located 3.5 km deep in the South China Sea, TRIDENT will instrument approximately 10 km^3 of seawater with kilometer-long strings of advanced photosensitive modules. The primary goals of the experiment are to rapidly discover multiple astrophysical neutrino sources, and strongly boost the measurement precision of their neutrino flavor composition. This talk presents the current status and recent progress of TRIDENT, including the imminent deployment of Phase-1, featuring the first 10 detector strings. Prospects of the experiment are also discussed point-source discovery potential, flavor discrimination capabilities, and sensitivity to supernova burst neutrino signals.

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