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Searching for Astrophysical Tau Neutrinos in the Andes

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IceCube's discovery of astrophysical neutrinos, and subsequent characterization of their energy spectrum up to a few PeV, has provided a new window into the high-energy Universe. However, many opportunities for discovery remain; low sample sizes still plague measurements of astrophysical neutrinos above 1PeV, and flavor measurements are challenging due to the difficulty in differentiating tau events from other flavors. A series of next-generation experiments aim to provide a novel aperture into the under-explored component of the high-energy neutrino spectrum. Among them is TAMBO (Tau Air-Shower Mountain-Based Observatory), a proposed water-Cherenkov detector set on a cliff-edge in the high Peruvian Andes. Utilizing the unique geometry of the Colca valley, TAMBO is situated to produce a high-purity sample of 1–100 PeV astrophysical tau neutrino events. This talk will discuss recent progress and highlight the prospects and challenges of astrophysical tau neutrino detection in the next generation of neutrino experiments.

In-person participation

Yes

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