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Prospects for Detecting the Highest Energy Tau Neutrinos with Elevated Beamforming Arrays

Identifying the flavor of astrophysical neutrinos will be a challenge for both current and proposed next-generation neutrino experiments that will have improved sensitivity to the diffuse astrophysical flux of ultra-high energy neutrinos. In order to probe predicted mixing ratios of neutrino flavors, an experiment capable of unambiguously measuring a single flavor of the neutrino flux is needed. The Beamforming Elevated Array for COsmic Neutrinos (BEACON) is a novel concept that searches for radio emission from up-going tau leptons produced by tau neutrino interactions in the Earth using a compact antenna array on a high elevation mountain. In this poster we present the upgraded BEACON prototype, located at the White Mountain Research Station in Bishop, CA. We discuss the current performance of the array, which has a goal of triggering on impulsive transients such as cosmic rays to determine the sensitivity of a future full-scale BEACON instrument.

Mini-abstract

Feasibility studies towards detecting tau neutrinos with mountaintop phased radio arrays with BEACON

Experiment/Collaboration

BEACON

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