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Sensitivity of BEACON to Point Sources of Tau Neutrinos ANDREW ZEOLLA, Pennsylvania State University, BEACON COLLABORATION — Tau neutrinos are expected to comprise one third of both the astrophysical and cosmogenic neutrino flux, but currently the flavor ratio is poorly constrained and the expected flux at energies >100 PeV is low. A new concept – the Beamforming Elevated Array for COsmic Neutrinos (BEACON) – based on searching for tau neutrino interactions in the Earth from atop a mountain with a radio interferometer, takes advantage of the large viewing areas available at high elevations and the long propagation lengths, high duty cycles, and precision pointing available to radio techniques. When Earth-skimming tau neutrinos interact within the Earth, they generate upgoing tau leptons that can decay in the atmosphere, forming extensive air showers. The BEACON concept is sensitive to the radio emission from the extended air showers induced by these tau leptons, using a compact antenna array situated upon a high elevation mountain. The prototype is located at the White Mountain Research Station and consists of 4 dual-polarized antennas operating in the 30-80 MHz range whose signals are coherently summed at the trigger level. We present the sensitivity of the current prototype design, as well as proposed future designs, to both transient and steady point sources of tau neutrinos.

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