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Skimming tau neutrinos and tau showers in the atmosphere

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A technique to detect an astrophysical or cosmic high energy tau neutrino flux involves using the Earth as a neutrino converter. Taus produced near enough to the surface of the Earth can emerge and decay to produce atmospheric showers. The neutrino cross section, energy transfer to the tau, and tau energy loss via electromagnetic interactions will be discussed with applications to surface- and satellite-based detectors. The sensitivity of event rates to calculational approaches to the electromagnetic structure functions will be emphasized.

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