

UHE AND EHE NEUTRINO INDUCED TAUS INSIDE THE EARTH

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Tau neutrinos at ultra and extreme high energy can represent a new and exciting observational window for cosmic ray physics and astrophysics. These neutrinos are expected to be able to cross the Earth even at energy exceeding PeV. Tau neutrinos which arrive at the proximity of the Earth surface can produce inside the rock a flux of taus which can survive for several kilometers. These induced taus can be detected either by air shower detector or by underwater neutrino telescopes. The propagation of tau neutrinos and induced taus is studied by means of a detailed Monte Carlo simulation. All major mechanisms of neutrino interactions and tau decay and energy loss are properly taken into account. The amount of neutrino induced tau's is given relative to neutrino fluxes as a function of energy from 10^{13} eV to 10^{21} eV.