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IceCube/DeepCore Results on Neutrino Properties Using Atmospheric Neutrinos

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The IceCube Neutrino Observatory at the South Pole can measure atmospheric neutrinos at energies up to the TeV scale. DeepCore is the low-energy subarray that provides sensitivity in the neutrino energy range from roughly 10 GeV to 100 GeV, where Earth-crossing neutrinos are subject to flavor-oscillation phenomena. These neutrinos are muon and electron neutrinos produced in Earth's atmosphere via decays of particles from interactions between cosmic rays and the atmosphere. The primary oscillations detected are from muon neutrinos to tau neutrinos. We present the measurement of muon neutrino disappearance and tau neutrino appearance using three years of IceCube-DeepCore data.

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