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Atmospheric Tau Neutrino Appearance Analysis with IceCube/DeepCore FEIFEI HUANG, Pennsylvania State University, ICECUBE COLLABORATION — DeepCore is the low-energy subarray of the IceCube Neutrino Observatory at the South Pole, and provides sensitivity in the neutrino energy range above roughly 10 GeV, where Earth-crossing neutrinos experience oscillations. These neutrinos are muon and electron neutrinos produced in Earth's atmosphere via decays of particles from interactions between cosmic rays and the atmosphere. While tau neutrino interactions in DeepCore cannot be distinguished from those of electron neutrinos at these energies, a statistical separation of these two event classes can be made based on the reconstructed energy and zenith distribution. Therefore, tau neutrino appearance, mainly from muon neutrino to tau neutrino oscillations, can be measured with high significance using IceCube/DeepCore data. We present preliminary results of a tau neutrino appearance analysis using several years of IceCube/DeepCore data.

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