

Measurement of atmospheric neutrino oscillations with IceCube

Thursday, 12 September 2013 14:20 (20 minutes)

With its low-energy extension DeepCore, the IceCube Neutrino Observatory at the geographic South Pole is able to identify neutrino events with energies as low as 10 GeV. This permits investigation of the oscillations of atmospheric muon neutrinos by observing their zenith angle and energy dependent disappearance. Maximum disappearance is expected for vertically upward moving events at around 25 GeV. A first analysis has rejected the no-oscillation hypothesis with a significance of more than 5 standard deviations, using the zenith angle information only. Newer, more advanced analyses include an energy estimator and use more refined event selection techniques, yielding datasets with much larger statistics. This talk will discuss these new methods and present the new results, which improve the precision of the measurement of the oscillation parameters by IceCube.

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Session Classification: Atmospheric Neutrinos II

Track Classification: Atmospheric Neutrinos