

IceCube study of down-going neutrinos for the spectral cutoff determination

Authorship annotation

for the IceCube Collaboration

Session and Location

Wednesday Session, Poster Wall #204 (Ballroom)

Abstract content

The IceCube observatory has observed an excess of high-energy neutrinos above the atmospheric background opening a new era in astronomy. The absence of events with energies $E > \sim 3\text{PeV}$ can be seen as an argument for the presence of a spectral cutoff. Therefore, analyses of extremely high energy events are crucial to determine whether the absence of events is a statistical fluctuation or an indication of this phenomenon. This contribution will discuss a new event selection to search for down-going neutrinos. The combination of cuts, that among others utilize IceTop detector as a veto and take into account differential energy losses that describe the stochasticity of an event, is performed to suppress the cosmic muon background. A binned maximum-likelihood approach will be discussed that compares experimental data with two models differing in description of the cosmic neutrino flux: single power law with and with out exponential energy cutoff.

Poster included in proceedings:

yes

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