



## Poster session 2 – Tuesday 5 July

### P2.012 Enhanced Starting Track Event Selection for Diffuse Neutrinos in IceCube

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*on behalf of IceCube collaboration*

Many of IceCube's measurements of the astrophysical neutrino flux have utilized vetos to suppress atmospheric neutrinos and muons from the southern sky. All the vetos used thus far have used the outer regions of the detector to identify and reject penetrating muon tracks, leaving the inner parts of the detector available to observe the astrophysical neutrino flux. Here we will discuss a method that is optimized for muon neutrinos with a contained vertex. This analysis utilizes the high quality directional information of starting muons to determine a veto on an event by event basis. Once a track and vertex have been determined, the likelihood for not seeing a hit on digital optical modules (DOMs) passed by the incident neutrino can be calculated based on the observed hits. Such a concept is independent of predefined veto and detection volumes and opens the entire instrumented volume up for neutrino detection. The resulting events will provide identifiable astrophysical neutrinos down to 10 TeV. In addition to aiding in the understanding of the diffuse astrophysical flux, these new events can also assist in providing insight to interesting southern sky sources, astrophysical neutrino flavor ratios, and prompt atmospheric neutrino rates.