

# The IceCube enhanced starting track event selection and realtime stream

*Tuesday, August 28, 2018 3:45 PM (0:20)*

## Abstract content

IceCube analyses which look for an astrophysical neutrino signal in the southern sky face a large background of atmospheric muons and neutrinos created in cosmic ray air showers. Selecting for events which start inside the detector suppresses not only the downgoing muon background, but also the southern sky atmospheric neutrino background by the energy- and declination-dependent atmospheric self-veto effect. By using the good pointing resolution found with muon tracks, this selection determines a veto region before the starting vertex for each event and calculates the likelihood for not observing a hit on the IceCube optical modules in the veto region. This starting track event selection has a high astrophysical neutrino purity above 10 TeV in the southern sky. We will present on the advantages of this event selection for neutrino point source searches and diffuse flux searches and provide a first look at the realtime event stream derived from the selection.

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**Session Classification :** Poster Session and Coffee Break

**Track Classification :** Neutrinos