

Reconstruction of the spectrum of cascades generated by VHE muons in IceCube

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One of the best ways for investigations of VHE muons spectrum is measuring the spectrum of stochastic energy losses (cascades). IceCube is the world's unique detector capable of measuring the cascade spectrum in the energy region of tens TeV – one PeV where manifestation of prompt muons is predicted. In events with muon bundles, the longitudinal energy deposit profile reconstructed by means of the maximum likelihood method is analyzed. Cascade energies and positions are estimated in the events in which the highest local energy deposit is much greater than median energy deposit. The technique of cascade spectrum reconstruction has been tested with MC-simulated events. Criteria of events selection, cascade parameters estimation accuracy and efficiency of spectrum reconstruction will be discussed.

Primary author(s) : KHOKHLOV, Semyon (National Research Nuclear University MEPhI)

Presenter(s) : KHOKHLOV, Semyon (National Research Nuclear University MEPhI)

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