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Reconstruction and identification of neutrino-induced particle showers in IceCube

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An instrument like IceCube searches for neutrinos by recording and interpreting the Cherenkov light of charged particles that traverse the instrumented volume. From the photon intensity and arrival times at different locations in the detector one has to discern the nature of the event, separate neutrino candidates from the atmospheric muon background, and derive relevant properties like the deposited energy or the direction of the incident primary. This talk presents methods currently used to reconstruct events containing electromagnetic and hadronic particle showers. This class of events is important because particle showers emerge from the interactions of neutrinos of all flavors and allow for a better reconstruction of the neutrino energy compared to muon tracks.

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