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Measurement of the inelasticity distribution of neutrino-nucleon interactions for 100 GeV < E_nu < 1 TeV with IceCube DeepCore

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IceCube DeepCore, a sub-array of the IceCube neutrino observatory, has a high-density configuration and it is sensitive to neutrinos with energies above a few GeV. In this contribution, we present a measurement of the shape of differential cross section as a function of inelasticity for neutrino-nucleon interactions in the energy range from 100 GeV to 1 TeV. The measurement is based on a high-purity sample of starting muon-neutrino events from charge interactions detected by IceCube DeepCore over a period of 9.2 years. Our measurement bridges a critical gap between the prior IceCube result and accelerator differential cross section measurements. We compared our results with predictions using different combinations of available flux and cross section models.

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