

# Measurement of the inelasticity distribution of neutrino interactions for $100 \text{ GeV} < E_\nu < 1 \text{ TeV}$ with IceCube DeepCore

*Saturday, 18 February 2023 15:30 (15 minutes)*

We present results of an analysis studying neutrino-nucleon interactions in the energy range between  $\sim 100 \text{ GeV}$  -  $1 \text{ TeV}$  by measuring the inelasticity of these interactions with IceCube DeepCore. IceCube is a Cherenkov neutrino telescope consisting of an optical sensor array placed in ice 1.5 - 2.5 km below the geographic South Pole and covering a volume of roughly  $1 \text{ km}^3$ . DeepCore is a densely instrumented sub-array inside IceCube, which allows us to detect and reconstruct neutrinos with energies from  $\sim 5 \text{ GeV}$  to  $1 \text{ TeV}$  with greater precision. IceCube has previously reported inelasticity distribution measurement at  $1 \text{ TeV}$ -  $100 \text{ TeV}$  and this analysis extends this range to lower energies to fill in the gap with accelerator measurements of differential cross section. We use a low-background sample of fully contained muon-neutrino charged current events to fit the shape of flux-averaged inelasticity distribution. In this talk we will present an updated result taking into account contribution from neutrino induced charm production.

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