

NuFact15 : XVII International Workshop on Neutrino Factories and Future Neutrino Facilities



Contribution ID: 260

Type: Poster

Searching for QCD effects in the neutrino absorption by the Earth's interior at ultra high neutrino energies

We investigate how the uncertainties in neutrino-nucleon charged-current cross-section due the different QCD dynamic models would modify the neutrino absorption while they travel across the Earth. We compare the predictions from FJKPPP model, based in linear QCD evolution equation for the parton densities with BBMT model, which impose a Froissart unitarity of CC neutrino-nucleon cross-section at such UHE. We find that while the absorption function integrated with respect the angular direction is not sensitive to such effects, the probability of neutrino absorption by the Earth, for different neutrino incident directions, should be sensitive to the QCD dynamics at few percent at IceCube energies and reaches a factor greater than two at UHE limit.

Primary author: Prof. GRATIERI, Diego (Universidade Federal Fluminense, UFF)

Co-author: Prof. GONÇALVES, Victor P.B. (Universidade Federal de Pelotas)

Presenter: Prof. GRATIERI, Diego (Universidade Federal Fluminense, UFF)

Track Classification: Working group 2: Neutrino Scattering Physics