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On the influence of a nonzero magnetic dipole moment of the neutrino for the trident processes in DUNE-ND.

Lepton-antilepton pairs production through neutrino-nucleus scattering, “tridents,” are a sensitive probe in the search for new neutral currents. The di-muon channel, $\nu_\mu N \rightarrow \nu_\mu \mu^+ \mu^- N$, has been observed in previous experiments: CCFR, NuTeV, and CHARM-II. Simulations predict that the DUNE near detector (ND) will have high statistics in trident channels, presenting a new opportunity to search for non-standard interactions between neutrinos and photons. In this poster, we show the influence of the magnetic moment of active neutrinos in trident production, through the number and distribution events at the di-lepton channels. The analysis of di-muon channels leads to constraining the magnetic moment of neutrino and other essential parameters in the models describing the electromagnetic behavior of neutrinos.

Mini-abstract

We analyze the effects of neutrino magnetic moment to the lepton-pair production in DUNE-ND

Experiment/Collaboration

Deep Underground Neutrino Experiment

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