

Study of tau-neutrino production at the CERN SPS

At the CERN SPS, the DsTau project has been proposed to study tau-neutrino production aiming at providing important information for future ν_τ measurements. Precise measurement of the ν_τ charged-current cross section would enable a search for new physics effects in ν_τ -nucleon CC interactions. The source of ν_τ is the sequential decay of D_s mesons produced by proton interactions, whose uncertainty dominates current uncertainty in the ν_τ cross section measurement. The project aims at reducing the uncertainty from about 50% to 10% by measuring the D_s differential production cross section. For this purpose, emulsion detectors with a position resolution of 50 nm will be used to detect double kinks of $D_s \rightarrow \tau \rightarrow X$ decays in a few mm range. Results from the beam tests in 2016-2017 will be presented together with a prospect for a pilot run in 2018 and a physics run in 2021.

Authorship annotation

for the DsTau collaboration

Session and Location

Wednesday Session, Poster Wall #38 (Auditorium Gallery Right)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)