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Detection of charm particles in NA65/DsTau experiment at CERN-SPS

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For clarifying the validity of the Lepton Universality hypothesis, the interaction cross section for all three flavors of leptons have to be known with high precision. In neutrino sector, for electron and muon neutrinos, the interaction cross section is known fairly well, but for tau neutrino only poor estimations exist. In particular, the most direct measurement by the DONuT experiment was performed with rather poor accuracy due to low statistics and an uncertainty of the tau neutrino flux. The DsTau experiment proposes to study tau-neutrino production process and thus to improve significantly the accuracy of calculations of tau neutrino flux for neutrino accelerator experiments. To study reactions providing most of tau neutrinos, the experiment uses a setup based on high resolution nuclear emulsions, capable to register short lived particle decays created in proton-nucleus interactions. In the present report the efficiency of detecting short lived particles, especially Ds decaying via tau and its charm partners (short lived particles), is presented.

Summary

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