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Tau neutrino as a probe of nonstandard interactions via charged Higgs and W' contribution

Thursday, 15 August 2013 09:00 (30 minutes)

We consider charged Higgs and W' gauge boson contributions to the quasielastic, Δ-resonance, and deep inelastic processes in the tau-neutrino nucleon scattering ντ+N⟶τ^−+X and ν¯τ+N⟶τ^++X. These effects modify the standard model cross section for these processes and thus impact the extraction of the neutrino mixing angles θ23 and θ13. We include form factor effects in our calculations and find the deviation of the actual mixing angle from the measured one, assuming the standard model cross section, can be significant and can depend on the energy of the neutrino.

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