

Prompt atmospheric neutrino flux predictions: QCD models and nuclear effects

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As the leading high energy neutrino background to the diffuse astrophysical neutrino flux, the flux of neutrinos produced in the PeV energy range by cosmic ray interactions in the atmosphere is of particular interest. The prompt atmospheric neutrino flux is evaluated in three frameworks: next to leading order QCD, kT factorization including low-x resummation, and in the dipole model. A comparison of our evaluations with LHC forward charm production data is made. Nuclear corrections are included for the atmospheric flux prediction. Depending on the approach, nuclear corrections can suppress the predicted neutrino flux by as much as 50% at the highest energies.

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